As coronavirus infections and hospitalizations increased in communities, health care professionals faced a critical shortage of personal protective equipment (PPE). Spring break was around the corner, but mechanical engineering student Phil Olding and eight of his classmates at Sacramento State kicked into action. They went to work manufacturing 3D-printed masks, some using their own printers, while others checked out equipment from the University. The group donated their masks to health care staff at Mercy hospitals in the Sacramento region.

“I am incredibly proud of our students who are so eager to provide behind-the-scenes help in protecting against the COVID-19 virus,” said Akihiko Kumagai, professor and chair of the Department of Mechanical Engineering.

Olding, who has been printing in 3D for the past five years, approached Lorenzo Smith, Dean of the College of Engineering & Computer Science, and Professor Kumagai for permission to pursue the project as reports of medical-grade mask shortages surfaced.

The students had been active in a few of the 45 different mechanical engineering student organizations within the college. Suddenly, their class projects and hobbies took on new significance.

The printing process, called Fused Deposition Modeling, uses a computer-aided design model that produces masks from thousands of layers of plastic filament. Manufacturing a single 3D-printed mask with polylactic-acid filament can take up to five hours and the cost of materials is about $2 per mask. The group produced nearly 100 masks and are always prepared to make more.

Jill Walsh, vice president of Mercy Medical Group’s board of directors, said partnerships like these are so important because, at the time, there was a “critical shortage of personal protective equipment for our health care workers who are trying to save lives. This has been a wonderful collaboration with Sacramento State,” she said.

“The ability of our students to contribute to the community is central to our definition of student success,” Smith said. “Their selfless partnership with our friends in the medical community is living proof that our college is leading the way in advancing student success.”

The ability of our students to contribute to the community is central to our definition of student success. Their selfless partnership with our friends in the medical community is living proof that our college is leading the way in advancing student success.”

—Lorenzo Smith

Online: csus.edu/campaign

For more information about On the Rise, please contact the Campaign Office at campaign@csus.edu.

SPOTLIGHT: Phil Olding

Leadership in Action

Mechanical engineering students at Sacramento State use innovative problem-solving to help respond to the COVID-19 crisis.