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MSU's Bagley College of Engineering maintains high ranking

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Helping advance Mississippi State University's College of Engineering into the 21st century was a priority for James Bagley. An MSU engineering alumnus and chairman and CEO of California-based Lam Research, he wanted the enhanced recognition of a named college and the proper resources to accomplish change.

Bagley put his money where his mouth was – the Vicksburg native gifted his alma mater with an unprecedented \$25 million endowment in 2002.

Today, MSU's James Worth Bagley College of Engineering is at the forefront of education and research and is one of approximately 40 named engineering colleges in the nation. BCoE offers degree programs in eight different engineering departments and various certificate programs. U.S. News and World Report ranks the college's undergraduate and graduate programs in the Top 100 nationwide.

BCoE publications manager Philip Allison said the college currently has plenty of research projects going on simultaneously.

"For instance, one of our professors is part of a nationwide research team that got Department of Energy funding to study ways to store solar energy," he said. "We have a variety of automotive-related research projects at the Center for Advanced Vehicular Systems (CAVS). And, there's some very cool research in the field of Athlete Engineering, specifically around the sensors that athletes wear to collect data about their performance.

"That's just a small sampling."

When the COVID-19 pandemic started in March, a team of MSU engineers and researchers quickly launched a movement to make face shields combining 3-D printed headbands and plastic sheets for medical personnel. Led by Dr. Linkan Bian, the team printed about 2,000 face shields for medical facilities across the state and approximately 350 more for use within the BCOE, according to Allison.

Online, or distance, learning at U.S. colleges and universities is on the upswing for the 17th consecutive year, according to a survey by the Babson Research Group. The same holds true at MSU, although the BCoE does not offer undergraduate courses online. However, nine master's and eight doctorate programs are offered by the college.

Tamra Swann, BCoE's distance learning coordinator, said just like students attending traditional classrooms on the Starkville campus, distance learners enjoy the same experience. The college's new Online Advancement Fund supports online instruction through items such as new cameras, tablets or specialized software. It can also be used to hire an expert as adjunct faculty member.

"Classes differ more professor-to- professor but our distance students receive the same lectures and materials as the students that attend classes on campus," she said. "For the most part, online students can go online, take notes, view Power Points, links and articles and get the same advantages of a BCoE education."

Eight of Bagley's online master's degree programs, including computer science, are ranked among the nation's top 10 most affordable by comprehensive e-database OnlineU for 2020.

Swann, who has served in her position since 2014, said the college takes great pains to understand the needs of students, especially distance learners seeking post-graduate work.

"Our undergraduate students are highly sought after in the job market and then find out they want to further their education in their field while working and having a family," Swann said. "Online education will continue to grow. Changes are already going on in society – the convenience of taking classes while living and working in your home area is very attractive to students."

Dr. Angie Verdell has served as the BCoE's director of diversity programs for the past 11 years. Her job is to get students that are unrepresented in the engineering field interested in the profession. Improving diversity in the field is a priority, Verdell says.

"We've got to figure out ways to more of those students," she said. "We're starting at the middle school level here in Mississippi to reach out to those students and grow a pipeline to the industry."

African Americans comprise only five percent of all engineering bachelor's degrees achieved, with the same percentage of career holders in the workforce. According to a recent report from the Congressional Joint Economic Committee, female engineers represent only about 14 percent of the total engineering workforce.

"Last year, we achieved our goal of 25 percent women students," Verdell said. "Our goal for African Americans was 20 percent but currently we're at 11.4 percent, and Hispanic students represent three percent of our population. But we had 40 middle school girls in our "I Am Girl" program this past school year and I'm excited about the future for minorities in engineering."

Enrollment continues to climb at Bagley, Mississippi's third largest college, rising from 4,105 students in 2015 to 4,900 last year. Its most popular major? Mechanical engineering.

Under the shadow of the pandemic, Allison said it's hard to predict anticipated enrollment this fall.

"We usually get official enrollment numbers in late September or early October," he said. "I don't know if that will change this year, given the coronavirus."