

PREMIUM EDUCATION

U of M's new \$40M STEM wing prepares to teach earthquake engineering, AI and robotics

By [Jane Roberts](#), Daily Memphian

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Mark Pasino, Flintco senior project manager, leads a tour of the University of Memphis' \$40 million STEM building attached to Herff Engineering facilities on Wednesday, Jan. 31, 2024. (Mark Weber/The Daily Memphian)

The \$40 million STEM classroom and research building at the University of Memphis connects gracefully to the three-story Herff College of Engineering, a 21st Century addendum that shows how far the world has progressed in five decades.

There are separate labs for earthquake engineering, cyber security, advanced manufacturing, big data, AI and robotics. Each is fed with 480 volts of electricity but also compressed air, vacuum and data cables to prepare students for what might be possible in engineering over the next five decades.

The university showed off the 65,000-square-foot wing, expected to be completed by April, in a construction tour Wednesday, Jan. 31.

Calkins: Jackson Hughey will be laid to rest Wednesday — wearing a Memphis Tigers shirt

“For me, this is our showpiece. And I want to use it to show people that we are ready and that we’re as big as any other school,” said Okenwa Okoli, dean of the college of engineering and mechanical engineering professor.

Several of the labs are 2,400 square feet with 30-foot ceilings and glassed in views from the corridor, and are odes to what the future holds. The spaces were designed to be big and flexible, with furnishings that will easily slide across polished concrete floors for even larger accommodation.

Tucked in nooks everywhere are the dozen or more team rooms where students will meet to collaborate on their research. In quiet, sunny nooks are stations set up for students with their laptops.

The two classrooms — called active learning centers — will seat 100 students apiece in their largest format but can be sectioned down for smaller classes. All about the rooms are the conduits for TV screens that will accommodate discussions that encourage students to learn from each other.

“The idea is the teacher can send a problem to each of the TVs in the room. ‘OK, Group 1, go to TV 1. Group 2, go to TV 2 and solve these problems,’ said Abby Cook, a Herff graduate now working for Flintco, the general contractor on the job.

State funding allows tuition-free courses at Southwest Tennessee

“When you’re done, we’ll discuss it together.’ So, it’s active learning,” Cook said.

“We had one classroom in the existing building with this capacity.

“Instead of getting stuck, you’re able to learn from each other.”

The university has waited years for the STEM addition, a place where researchers from several domains across campus will work together when the wing opens for class in the fall of 2024.

The project was originally submitted in 2018 for consideration by lawmakers in 2019. It was one of 19 capital projects THEC (Tennessee Higher Education Commission) recommended for approval in 2019.



There will be separate labs for earthquake engineering, cyber security, advanced manufacturing, big data, A.I. and robotics. (Mark Weber/The Daily Memphian)

It was not approved. The university went back and raised more money for a total of \$8.1 million to show the level of community support the project had. It resubmitted the request in the summer of 2019.

The Legislature approved the \$32.1 million for the project in its first budget early in 2020. The money was later withdrawn when legislators withdrew the budget to gauge the effect COVID-19 would have on the economy.

In a late-night budget session in the Legislature in June 2020, the package was approved, a boon for the university, which for nearly 50 years had taught engineering from the Herff facilities, which were completed in the early 1970s when engineering was taught in classrooms and laboratories and largely did not include research.

West Tennessee lags the national average in terms of the number of engineers it produces by 66%. For every 100,000 people, the U.S. graduates about 33 bachelor-of-science engineers. Combined, colleges and universities in West Tennessee produce 10 or 11.

Herff is the largest college of engineering in West Tennessee. And for years, the U of M has wanted to expand to serve more students.

U of M announces seven Hall of Fame inductees

When the university revised its master plan in 2015, engineering showed the largest space deficit of any college on campus.

“The truth is, everybody wants an engineer, but how you make an engineer takes time,” Okoli said.

“You start making the engineer not from when they finish high school, but before they get to high school. And that’s the pipeline problem that we have to deal with,” he said.

“We’ve got to go into rural communities, to the underserved communities and make sure that they have mathematics from middle school. If students have the right kind of

mathematics from middle school on, that changes everything.

“Then by the time they’re in high school, they are college-ready, and they’ll come to us. So, we’re rolling out programs within the next few months that will address the needs of the city through Herff engineering,” Okoli said.



The university went back and raised more money for a total of \$8.1 million to show the level of community support the project had. (Mark Weber/The Daily Memphian)

STEM is central to the university maintaining its Carnegie R-1 classification as a research institution.

Okoli is using the designation and the new facilities as pitch in his charge to double enrollment to 2,500 students, graduate and undergraduate, in Herff, which is adding a master’s degree in manufacturing in fall 2024.

Currently, the program has about 1,040 undergraduates.

“We’re looking into different programmatic outcomes that will affect the growth of the city,” he said.

That means offering the engineering programs companies in the region need, including public-private partnerships.

Rutgers University builds pipeline to Memphis

Okoli took over the dean’s job in January 2023 after moving here from Florida State University. He already is planning the next expansion.

“Once we get this rolling, it will start showing the great output that we have. We’re going to ask (the Legislature) for more money for students, for faculty and for infrastructure,” he said.

His vision is to capitalize on the innovation that happens in the STEM wing and using it to bring in professors whose work will lead to more research grants that will help the university build a reputation and also build out the STEM facility’s equipment needs.

“We will hire people that are going to produce the money that keeps things rolling around,” Okoli said.

The immediate challenge is finding ways to retain students who come to the university unprepared for the rigor of the engineering program.



The STEM classroom and research building at the University of Memphis connects to the three-story Herff College of Engineering. (Mark Weber/The Daily Memphian)

Okoli is hoping to keep expanding a summer bridge program for incoming freshmen, “to get them ready for pre-calculus and calculus and the fall semester.

“And then roll through their freshmen year, holding their hands and offering very radical tutoring to make sure they are ready.”

Those students now live in the same residence hall in a living and learning community Okoli’s out to expand.

“We’re going to beef that up.”

TOPICS

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