The nature of college campuses is changing. With technology encouraging remote learning, students are more likely to be on campus to collaborate and socialize, rather than simply to attend class. The pathway to future learning environments, however, is not simply a matter of eliminating classroom space.

According to one architect specializing in university campus design, “Even in the digitally-driven future of higher education, three-dimensional classroom spaces will be needed.”

This paper provides a brief overview of the changing learning environment and the evolving structural needs of higher education.

More Square Feet Per Student
The traditional guideline of 15 square feet per student in a classroom is derived from standards developed in 1920, to allow for adequate passage to emergency exits. Later research found that, in order to meet the requirements of disabled access and provide better views of the instructor, at least 25 square feet per student was needed. Moving forward, increasing group collaboration and the space required by various screens and devices will raise this to about 35 square feet per student.

Easier Flow for Learning Groups
Higher education is also moving toward a future in which classroom spaces will be “flatter,” facilitating easy movement of tables and desks so that students can create new configurations as needed. The older design concept of sloped or tiered lecture hall floors, containing desks fixed in place, no longer fits the present style of team-based learning.
Higher Education: Adapting to a New Learning Environment

**Faster Access to Information**
More than ever, students and instructors demand faster and more reliable digital connections to facilitate access to information, as well as collaboration. Even in-person lectures now have parallel online components, and the entire learning experience requires super-fast connectivity at all times. This is now considered a basic utility—as necessary as adequate lighting or ventilation.

**Fewer Classroom Hours Per Student**
The availability of online instruction is already decreasing the number of hours that students need to spend in the classroom. It’s predicted that digital options for learning will eventually account for up to one-third of a student’s learning time. This will enable colleges and universities to accommodate more students within existing facilities, while making up revenue through increased enrollment.

**Green Campuses and Conserving Resources**
Now providing coursework on topics of limited resources and sustainability, higher education institutions feel compelled to focus on their own campuses. Harvard University, for example, has an Office of Sustainability that leads the application of green building principles and sustainable design throughout the entire campus.

Aspects of a “green” campus include: optimization of open space, including walkways, courtyards, and quadrangles that exist between buildings; the recycling and reuse of materials during demolition and construction; and the relocation and preservation of historically significant buildings as new structures are built.

Sustainable construction also includes testing the site for naturally occurring toxins, such as asbestos, to ensure that these don’t exceed regulatory limits, and providing inspection and materials testing services for the new structures. Furthermore, higher education institutions have a heightened focus on energy management and materials management campus-wide to increase operational efficiency, reduce consumption, and create long-term savings.

**Access and Safety**
In addition, higher education institutions have to streamline their existing core service functions and circulation routes to make room for new infrastructure. As campuses undergo construction and renovation, there are new traffic patterns. An analysis of pedestrian, automobile, truck, and bicycle use is necessary in order to design sufficient, safe access routes. New service roadways often have to be added so that utility and emergency vehicles have the required access, while not disrupting the visual flow of the campus.

Furthermore, many campuses are in use 24 hours a day, requiring effective lighting at all hours. Often, an engineering analysis can discover opportunities for making all aspects of the utility infrastructure more efficient so that the proposed expansion can move forward.

**Engineering and Designing the Future**
As higher education incorporates new digital teaching methods, it’s crucial for university administrators, planners, and designers to stay on top of evolving changes in the use of campus space. This includes identifying opportunities to improve the flow of goods and services to and from the campus, as well as enhancing open spaces. By partnering with engineers and architects who understand the evolution of higher education, teaching, and research models, institutions can develop a cutting-edge development plan that will support the best educational practices and provide a strong foundation for future success.