

CYBER & ENGINEERING ACADEMIC CENTER MATH & SYSTEMS ENGINEERING CENTER



West Point
READY 
READY TO **SERVE**. READY TO **LEAD**.



According to Dr. Led Klosky, Professor of Civil Engineering, the CEAC is a future-focused modern academic facility that will enable and inspire collaboration across disciplines in shared classroom and lab spaces, such as the Robotics Complex and High Bay (pictured).



BRIDGING APPROPRIATED AND MARGIN OF EXCELLENCE FUNDING

During his keynote address at the AUSA conference in October 2016, General Milley noted that the significant geopolitical, economic, technological, and societal trends that will determine the operational environment of 2030-2050 are already within view. He charged Army leaders with seeing those trends and deliberately working together to determine how those trends will connect on the battlefields of the future.

WORLD-CLASS FACILITY

Achieving that vision of readiness for the battlefield of 2030 requires top-flight facilities to demonstrate both our commitment to cadet candidates and to deliver the full benefits of project-based learning; collaborative, flexible, interdisciplinary work space is vital. These facilities at West Point will give the Army a key competitive advantage; great leaders who are prepared to win on the battlefield of the future.

The result of an extensive planning and charrette process, the Cyber & Engineering Academic Center (CEAC) and Mathematics & Systems Engineering Center (MSEC) will create a modern academic hub that will enable and inspire collaboration across disciplines that simply cannot happen in the current 1960's-style office buildings/classroom spaces. The Academy instinctively knows that it has to include a variety of ideas from many specialties to get to the right answer to a problem. This means open, collaborative spaces where cadets and faculty from many majors can collide, interact, and see each other's work—igniting innovation. The CEAC and MSEC will provide wide-open spaces for designing and building solutions to real problems, encouraging collaboration across the artificial boundaries created by organizational structures and physical spaces. This will be accomplished through appropriately designed spaces and adjacencies. With the completion of the CEAC & MSEC, we will have science, technology, engineering and mathematics

disciplines shoulder to shoulder in the same spaces, working together with their humanities and social science partners to create innovative solutions and learn the skills needed for a modern, technical Army. It is critical that West Point has modern facilities to deliver engineering and cyber education programs that anticipate Army needs and prepare our leaders for that future environment. Our facilities are not keeping pace with these changes and we are currently well behind our peers. While we produce over 50 percent of all cyber branch accessions, our primary electrical engineering, computer science and cyber education classroom building is a 105-year-old retrofitted horseback riding arena ill-equipped to handle the power and HVAC loads of modern computing and educational requirements. Our primary civil, mechanical and systems engineering classroom building was designed over 50 years ago as a general science building and lacks the modern laboratories and facilities necessary for cutting-edge engineering and design education. As such, innovation is limited rather than enabled.

CYBER & ENGINEERING ACADEMIC CENTER

CEAC will directly support General Milley's vision of a technically competent force that can tackle complex problems—solving these problems demands integration and collaboration across disciplines. The CEAC will house the Departments of Civil & Mechanical Engineering, Electrical Engineering & Computer Science, and Systems Engineering together under one roof, and will also provide connectivity to two other academic buildings. Through laboratories and hands-on core-course activity spaces, access to new technology and equipment, and opportunities for unique collaboration, the CEAC will facilitate a powerful and broad impact within science, technology, engineering, and mathematics (STEM) scholarship and industry. Project-Based Learning supported by appropriate facilities is a key component of achieving this vision. Critical engineering and computer science disciplines will move into 21st Century facilities providing open, collaborative, modern spaces that will enable and inspire

America's best and brightest to pursue studies in some of the most difficult but rewarding STEM fields. This proposed academic facility is an investment that will pay great dividends toward the Army's need for technical competence in the officer corps and the ongoing growth of the Cyber Branch, which is assessing the majority of its officers from West Point.

MATHEMATICS & SYSTEMS ENGINEERING CENTER

Building 606 will be the new home for the Departments of Mathematics and Systems Engineering. The government renovation will include key Margin of Excellence elements. An approximately 4,000-square-foot Atrium will replace the stacked hallways system and resolve what is currently an inhibiting space between the east and west wings and provide key circulation enhancements that move the space from dysfunctional and constraining to modern and inspirational. Further, the atrium would become a strategically important element, serving as a key connector in the daily life of faculty and cadets in what will become a STEM hub—the Academic Building Upgrade Plan (ABUP) will consolidate Electrical Engineering, Computer Science, Civil Engineering, Mechanical Engineering, Systems Engineering and Mathematics into a complex consisting of Mahan Hall, CEAC and MSEC.

MARGIN OF EXCELLENCE

While the government has committed more than \$200 million to the project, attaching Margin of Excellence private funding to the project is a huge force multiplier. Three key structures will ensure that the facility achieves its goal of integrating

academic programs and projects across disciplines.

The Redoubt: Adding a fourth floor to the facility increases collaborative spaces for cadets and faculty to engage with each other and host notable speakers in a setting that offers views of the Hudson River and looking north across Central Area.

The Gateway: By connecting the CEAC to Mahan Hall, this bridge forms an iconic entrance to West Point and increases the number of individual and group study spaces for cadets.

The Overlook: By connecting the CEAC to MSEC, this bridge is the final link between the three facilities.

Together, the government-funded construction and its Margin of Excellence additions will be vibrant, exciting and modern while showcasing an exterior that honors West Point's traditions and heritage.

INSPIRING INNOVATION & COLLABORATION

To win on the emerging highly technical battlefield, particularly in cyber, the Army needs the best and brightest young Americans to volunteer to come to West Point and to challenge themselves with courses in computer science and engineering. That requires inspiration at every step. The educational landscape is changing radically. Universities are moving to student-centered, multi-disciplinary project-based learning models to develop leaders who rely on critical, creative thinking to solve problems that are technically, socially and spatially complex.



Exterior of planned Overlook Bridge connecting the Cyber & Engineering Center (left) with the Mathematics & Systems Engineering Center (right)

FUNDING OPPORTUNITIES

Cyber & Engineering Academic Center (CEAC)

Redoubt	\$8 million
North (reserved)	\$3 million
South	\$3 million
Terrace (reserved)	\$2 million
Atrium (reserved)	\$3.5 million
Plaza (reserved)	\$3 million
Quad (reserved)	\$2 million
Robotics Complex	\$3 million
Systems Engineering Complex	\$2.5 million
Civil & Mechanical Engineering Complex	\$2 million
Cyber Complex (reserved)	\$2 million
Laboratories (15)	\$1 million/each
High End Fabrication	
Engineering Fundamentals	
Manufacturing	
Thermodynamics (funded)	
Aeronautical (funded)	
Materials Science	
Biomechanics	
Weapons	
Advanced Electronics	
Photonics	
Telecom	
Alternative Energy	
Power Lab	
EECS Capstone Design Space (funded)	
Shared Computer Lab (funded)	
Metal Shop (funded)	\$500,000
Wood Shop (funded)	\$500,000
Prototyping (funded)	\$500,000
Shared Capstone Space (funded)	\$500,000
Cadet Collaborative Spaces (7 funded)	\$250,000
EECS Main Engine Room (funded)	\$250,000
Cadet Capstone Spaces (8 funded)	\$100,000

Gateway Bridge

Terrace Walkway	\$2 million
Gateway West	\$500,000
Cadet Collaborative Spaces (7 available)	\$250,000

Mathematics & Systems Engineering Center (MSEC)

Atrium (reserved)	\$2.5 million
Laboratories (3)	\$1 million/each
Statistics	
Combat Modeling (reserved)	
Augmented Virtual Reality	
Network Science Center	\$1 million
Math Department Head Office Suite	\$1 million
Systems Engineering Department Head Office Suite	\$1 million
Multi-use Collaborative Space (1st Floor Entry from Thayer Walk) (reserved)	\$500,000
Multi-use Collaborative Space (Overlook Connector)	\$500,000
Classrooms (3-large, configurable)	\$500,000
Classrooms (24)	\$250,000
Cadet Capstone Spaces	\$100,000
Professor/Instructor Offices	\$100,000

MARGIN OF
EXCELLENCE



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