WHAT IS CyDef?

CyDef is a VMI conduit to grow the pipeline of next generation cybersecurity leaders. As such, students will undergo rigorous education and cyber security and leadership training in a dynamic, predictive, and responsive program. Integral to CyDef is helping increase workforce diversity and providing extensive experiential learning with state-of-the-art tools and devices.

GOAL

To enhance VMI’s cybersecurity education through innovative curriculum with integrated leadership development and fusion of rigorous experiential and immersive learning.
LEADERSHIP-INTEGRATED COMPETENCY DEVELOPMENT PROGRAM (LCDP)

- Develop and apply technical and nontechnical cybersecurity knowledge, skills, and abilities relevant to cybersecurity with emphasis on DoD work roles.
- Design, develop, implement, analyze, and maintain defensive and offensive cybersecurity strategies and solutions in cyber-physical-spaces.
- Understand and apply cybersecurity knowledge, technical and nontechnical skills, relevant policies, and leadership theories and strategies in case studies of real-world scenarios.

Cyber Captains Initiative
Selected VMI cadets who meet the eligibility requirements will undergo rigorous preparation to be certified as Cyber Captains. The CCI program includes the cybersecurity minor, professional certifications, cyber club activities, and IT and community service. Students will receive a generous DoD Cyber Captains stipend.

Capacity Enhancement and Development Initiative
VMI offers a multi-disciplinary Cybersecurity minor (CySec), a National Security Minor, and cybersecurity required and elective courses in multiple departments. CyDef provides varied dimensions of education in core and advanced cybersecurity education.

Diversity and Outreach Initiative
CyDef plans to organize annual summer camps for high school students and teachers in cybersecurity. We will heavily recruit students from underrepresented groups in Rockbridge and surrounding rural counties, and may offer tailored programs to schools challenged by the digital divide.

MISSION
To graduate citizen-soldiers with the knowledge, skills, and abilities to effectively perform, individually and as team members, the tasks required for cybersecurity work; and to have the readiness to serve DoD cyber missions emphasizing cyber leadership skills and Cyber Mission Force (CMF) work roles.

VISION
To provide premier cybersecurity leadership education. Increasing the number of the next generation of leaders capable and ready to serve and protect our nation from existing and emerging cybersecurity challenges.

A CyDef priority is to grow the representation of underrepresented groups in the cybersecurity workforce.
EXPERIENTIAL AND IMMERSIVE LEARNING PROGRAM (EILP)

- Build and evolve cybersecurity teams to address cybersecurity challenges.
- Monitor, analyze, and resolve simulated national-level cybersecurity challenges.
- Describe and apply methods for leading and responding to national-level cybersecurity priorities.
- Acquire cybersecurity professional skills through supervised workforce readiness experiences.

Cybersecurity Application Intelligence Management Platform
CyDef seeks to provide a new direction in cybersecurity undergraduate learning, in part, through an in-house design, development and utilization of a novel educational platform for hands-on projects at VMI and the SMC consortium. Our platform, termed CyberAIMS, comprises a data-driven, dynamically reconfigurable Application Intelligence Management System with an integral Cloud-managed Internet of Things (IoT) populating smart-built spaces.

National Security Simulation with Cyber Fusion
VMI is well-positioned to serve in the nation's vanguard in cybersecurity leadership. The annual Commonwealth Cyber Fusion event held at VMI exposes cadets and student to the rigors of cybersecurity competition as well as to nationally renowned scholars, practitioners, and industry leaders. Cyber Fusion intends to include exercises in a National Security Simulation.

Workforce Advancement and Readiness Program
CyDef plans to develop a new data-driven workforce skill advancement and readiness program, combining the efforts of faculty with Career Services professionals at VMI to better track opportunities, potential career paths, and the internship experience.
CYBER MISSION
FORCE WORK
ROLES

DATA SCIENTISTS

VULNERABILITY RESEARCHERS

REVERSE ENGINEERING

MALWARE AND
EXPLOITATION ANALYSTS

INFORMATION OPERATIONS
INTEGRATORS INTO
CYBER OPERATIONS

CADET INVOLVEMENT

CYBER CAPTAIN INITIATIVE (CCI)

Cadets in CCI will serve for 10 hours a week during the academic year, and 10-20 hours a week during summer as teaching and technical assistants to help faculty, staff, and cadets on cybersecurity issues.

Responsibilities may include, but are not limited to:
Support IT in configuring, maintaining, and testing the cybersecurity laboratories.
Tutor fellow cadets in designated cybersecurity courses and capstone projects.
Assist faculty in preparing cybersecurity experiments and projects.
Assist in teaching summer workshops for 8-12 grades.
Assist in VMI Open House activities.

Cadets in CCI must:
Enroll in the cybersecurity minor.
Participate in an internship program.
Actively participate in the Cyber Club.
Receive designated professional certifications.

INTERNERSHIP OPPORTUNITIES
National Security Agency
Army Cyber Command
Air Force Cyber
Marine Force Cyber
SAP-NS2

PROJECTS
Reverse Engineering IoT
AI-enabled Cyber Security Games
Platform for Personalized
Career-driven Cyber Security Education

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