Cybersecurity Workforce Development at Marquette University

MKE TECH WEEK

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MS in Computing (IACD)

Center of Academic Excellence in Cyber Defense Education

#6 online MS degree in Computing and Information Technology (US New and Businesss Reports)

NSF sponsored development of Career Change Option for adult learners (COSMIC project)

Curriculum for IACD - Information Assurance and Cyber Defense (15/36 credits)
- Introduction to Cybersecurity (Risk-based approach using industry established frameworks)
- Networks and Internets (Foundation technology and security aspects of network infrastructure)
- Principles of Service Management and System Administration (Managing and protecting services)
- Professional project (Hands-on experience)
- Computer Security (Technical fundamental) [cross-listed for undergrads]
- Elective: Advanced Computer Security (Advanced technical concepts)

Additional features of the MU program

- Splunk Lab – for hands-on experiences with tools
  - Security Information and Event Monitoring: Splunk Enterprise (SIEM)
  - User and Event Behavior Analysis: Splunk machine learning (UEBA)
  - Security Orchestration and Automated Response: Phantom (SOAR)
- Additional online learning opportunities (INFOSEC Skills)
- Newly-formed, student-led Cybersecurity Competition Team – Cyber Eagles
- Balanced faculty providing Research Exposure and Industrial Experience
- Advisory council

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Working to develop K12 Pipeline in MKE
(with campus partners and workforce development board)

- Pilot begining with 3 students
  - 3 students to receive training in cybersecurity fundamentals
    - 2 High School students (Jr. and Sr.)
    - 1 early college student (sophomore)
    - EOP experience includes COMPTIA ITF+ (IT Fundamentals)
  - Working with employers
    - Define internships (goal summer 2021)
      - Background knowledge, skills, and abilities
      - Job description
      - Balance needs of employer and students
  - INFOSEC Skills platform for online instruction

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Partner: EOP PRECOLLEGE PROGRAMS

- **Upward Bound:**
  - 257 9th through 12th graders

- **Upward Bound Math Science:**
  - 67 10th through 12th graders

- **Educational Talent Search:**
  - 500 6th through 12th graders

- All students reside in Milwaukee:
  - 2/3's are low-income (LI) and 1st generation college (FG)
  - 1/3 either LI or FG

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EOP PRECOLLEGE PROGRAMS

Required Services:

- Assist w/ Course Selection
- Assist w/ College Entrance Exams and Apps
- Financial Aid Information
- Financial Aid Assistance
- Secondary School re-entry Info
- Alt. Education Program Info
- GED Program Info
- Post-Secondary Educ. Info
- Financial Literacy
- Mathematics
- Lab Science
- Foreign Language

Optional Services:

- Cultural Activities
- Career Investigation
- Residential Experience
- Mentoring
- Work Study Positions/Info
- Specialty Designed Programs:
  - ESL
  - Foster Care
  - Homeless
  - Underrepresented

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