The AFIT of Today is the Air Force of Tomorrow.

Air Force Institute of Technology

Center for Cyberspace Research

AF Cyberspace Technical Center of Excellence

Major Jason Abshire

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Air University: The Intellectual and Leadership Center of the Air Force
Aim High ... Fly-Fight-Win
USAF Cyber Force Development

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<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITF Basic</td>
<td>10 days</td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>22 days</td>
</tr>
<tr>
<td>Cyber Systems Operations</td>
<td>46 days</td>
</tr>
<tr>
<td>Cyber Surety</td>
<td>20 days</td>
</tr>
<tr>
<td>Client Systems</td>
<td>36 days</td>
</tr>
<tr>
<td>Cyber Transport Systems</td>
<td>95 days</td>
</tr>
<tr>
<td>Cyberspace Operations Officer</td>
<td>115 days</td>
</tr>
<tr>
<td>Sec+</td>
<td>10 days</td>
</tr>
</tbody>
</table>

**Training and Education Timeline**

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*Air University: The Intellectual and Leadership Center of the Air Force*

*Aim High ... Fly-Fight-Win*
Education Opportunities

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AFIT Overview

Civil Engineer School

School of Systems & Logistics

Graduate School of Engineering & Management

Civilian Institution Programs

Civil Engineering and Acquisition Professional Continuing Education (PCE)

MS and Ph.D. Degree-Granting Cyber 200/300 PCE

Non-resident Program Management

Air University: The Intellectual and Leadership Center of the Air Force
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Supporting the Mission

The AFIT of Today is the Air Force of Tomorrow.

Developing the Cyber Warrior Through Education and Research
Cyber-Related Graduate Degree Programs

- Electrical Engineering, Computer Engineering, Computer Science
  - Master of Science (18 months) and PhD (36 months)

- Cyber Operations
  - Master of Science (18 months)
  - Courses overlap with computer engineering and computer science

- Other degree programs
  - Systems Engineering and Operations Research – MS and PhD

- For more information on all programs, see AFIT Graduate School Catalog available at http://www.afit.edu/ENER/
# MS Electrical Engineering

**The AFIT of Today is the Air Force of Tomorrow.**

- 18-month MS program
- Coursework (28 hours), Math (8 hours), Thesis (12 hours)
- Specialty areas:
  - Electromagnetic Engineering
  - Electronic Circuits and Devices
  - Software Engineering
  - Digital Engineering
  - Communications
  - Digital Communications Networks
  - Radar
  - Guidance, Navigation, & Control
  - Electro-Optics
  - Observables Reduction
  - Signal Processing
- Specific courses are based on student's area of specialization – can emphasize cyber in one of these areas

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Aim High ... Fly-Fight-Win*
MS Computer Engineering

• 18-month MS program
• Core Courses (16 hours), Mathematics (4 hours), Theory (4 hours), Application Sequence (12 hours), Thesis (12 hours)

• Application Sequences include:
  • Artificial Intelligence
  • Computer Networks
  • High Performance Computing
  • Cyber Security
  • Software Engineering
  • VLSI/VHSIC Systems
MS Computer Science

- 18-month MS program
- Core Courses (16 hours), Math/Theory (8 hours), Application Sequence (12 hours), Thesis (12 hours)

- Application Sequences include:
  - Artificial Intelligence
  - Computer Networks
  - Database Systems
  - High Performance Computing
  - Cyber Security
  - Software Engineering
MS Cyber Operations

- 18-month MS program
- Core Courses (24 hours), Breadth/Electives (8 hours), Math (4 hours), Thesis (12 hours)

- Technically focused in offensive/defensive network operations
- Broad coverage of cyber-related topics ... multidisciplinary
- More application oriented than theory (compared to traditional MS programs)
# PhD Electrical Engineering

**The AFIT of Today is the Air Force of Tomorrow.**

- Electrical Engineering, Computer Engineering, Computer Science
- Coursework: 36+ hours (post-MS) consisting of 28 hours of integrated coursework and 8 hours of mathematics
- Dissertation: 48 hours

## Research Specialties in Electrical Engineering

<table>
<thead>
<tr>
<th>Analog &amp; Digital Communications</th>
<th>Digital Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetics &amp; Low Observables</td>
<td>Electro-Optics</td>
</tr>
<tr>
<td>Guidance &amp; Control Systems</td>
<td>Integrated Navigation Sys</td>
</tr>
<tr>
<td>Microelectronic and Photonic Devices</td>
<td>Nanotechnology</td>
</tr>
<tr>
<td>Micro-Electro-Mechanical Systems</td>
<td>Radar and Electronic Warfare</td>
</tr>
<tr>
<td>Signal Processing</td>
<td>Pattern Recognition</td>
</tr>
<tr>
<td>VLSI</td>
<td>Physical Layer cyber security</td>
</tr>
</tbody>
</table>
PhD Computer Engineering

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- Electrical Engineering, Computer Engineering, Computer Science
- Coursework: 36+ hours (post-MS) consisting of 28 hours of integrated coursework and 8 hours of mathematics
- Dissertation: 48 hours

- Research Specialties in Computer Engineering
  - Artificial Intelligence
  - Computer Networks
  - Computer/Network Attack
  - Computer/Network Forensics
  - High Performance Computing
  - Robotics & Autonomous Systems
  - Internet of Things / Cyber Physical
  - Software Engineering
  - Wireless Sensor Networks
  - Rev Engineering / Code Protection
  - Inf Infra/Security
  - Attack/Defense
  - Computer/Network Defense
  - Cryptography
  - Computer/Network Forensics
  - Digital Design – FPGAs
  - Internet of Things / Cyber Physical
  - SCADA/Critical Infrastructure
  - Rev Engineering / Code Protection
  - Human-Machine Interface
PhD Computer Science

- Electrical Engineering, Computer Engineering, Computer Science
- Coursework: 36+ hours (post-MS) consisting of 28 hours of integrated coursework and 8 hours of mathematics
- Dissertation: 48 hours

- Research Specialties in Computer Science
  - Artificial Intelligence
  - Adv Computer Architectures
  - Cryptography
  - Computer Networks
  - Computer/Network Defense
  - Computer/Network Attack
  - Computer/Network Forensics
  - Digital Design – FPGAs
  - High Performance Computing
  - Robotics & Autonomous Systems
  - Rev Engineering & S/W Protection
  - SCADA/Critical Infrastructure
  - Software Engineering
  - Wireless Sensor Networks
  - Data Analytics
  - Human–Machine Interface
How to Get to AFIT

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For US Graduated Programs
- https://www.afit.edu

For International Graduate Programs:
- Country X Training Command requests education and training through Embassy Security Assistance Office
- AF Security Assistance Training office validates requirement & requests AFIT review
- AFIT determines academic eligibility and number of available seats
- More info at https://www.afit.edu/IMSO/