# MS Cybersecurity Worksheet

This program would be providing the skillset for those with the adequate background to start in or transition to a cybersecurity professional. This will also provide the managerial training needed by those already within that industry to manage the cybersecurity professionals and processes.

**Suggested Course Plan**

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| **Fall—Year One** | **Spring—Year One** | **Fall—Year Two** | **Spring—Year Two** |
| CSEC 700  | CSEC 703 | CSEC 705 | CSEC 790 |
| CSEC 701 | CSEC 704 | CSEC Elective |  |
| CSEC 702 | CSEC Elective |  |  |

**Required Courses—24 Credits**

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| **Course #** | **Course Title** | **Description**  | **Credits** |
| CSEC 600 | Introduction to Cybersecurity Technologies | Basic introduction to the concepts of technology, specifically related to the technologies in cybersecurity. Content will provide the background for both the Security+ and CEH certifications, thus providing a solid understanding of security concepts. | Required for those without technical background only - remediation |
| CSEC 700 | Security Operations | Operating systems, command line interface, coding and infrastructure | 3 |
| CSEC 701 | Secure Communication Protocols | Secure routing, IPv6, HIP, SSH, VoIP, IPTV, Proxy, VPN, DTLS | 3 |
| CSEC 702 | Security Data Analytics | Cybersecurity data mining, log management, machine learning, AI, big data architecture | 3 |
| CSEC 703 | Cyber Physical Systems Security | Industrial Control systems, SCADA, IoT, Smart TV, embedded systems, TPM, autonomous cars | 3 |
| CSEC 704 | Human Factors in Cybersecurity | Social engineering, phishing, physiological aspects, insider threat prevention, DLP, log analysis, awareness training  | 3 |
| CSEC 705 | Enterprise Security Administration | Cybersecurity budget and ROI, Security Insurance, Cost of cybercrime, Risk analysisVulnerability Management | 3 |
| CSEC 790 | Master Thesis | Submission of a paper to a conference is required | 6 |

**Electives—6 Credits**

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| **Course #** | **Course Title** | **Description**  | **Credits** |
| CSEC 721 | Modern Cryptography  | Public key cryptography, homomorphic, quantum cryptography, digital rights management, steganography, watermarking | 3 |
| CSEC 722 | Trusted Software Systems  | Secure coding practices, code inspection methods, open source security, malware analysis | 3 |
| CSEC 723 | Cybercrime and cyberterrorism | Cybercriminal orgs, criminal profiling, monitoring and surveillance, detection and prevention, darknet, cryptocurrency, critical infrastructure protection, social network analysis, laws | 3 |
| CSEC 724 | Forensics & Incidence Response | How to identify incidents and respond to them. Further, how to collect digital evidence that might be used in judicial proceedings. | 3 |
| CSEC 725 | Web Security | TBD | 3 |
| CSEC 731 | Cybersecurity in Hospitality industry | Hotel IT, gaming machine technologies, NVGCB activities, investigation | 3 |
| CSEC 732 | Cybersecurity in Healthcare Industry | Hospital IT, communication interface, medical DB, data sources, health informatics, privacy, HIPAA | 3 |
| CSEC 733 | Cybersecurity in Financial Industry  | PCI DSS, SOX, GLBA, data breach, cyber insurance analysis, credit card anomaly analysis | 3 |
| CSEC 734 | Cybersecurity in Critical Infrastructure  | Security in the context of government, utilities, power grid | 3 |
| CSEC 735 | Information Warfare  | Military communication systems, LINK-16, HAIPE, international standards, key management | 3 |
| CSEC 770 | Special Topics |  | 1-9 |
| CSEC 780 | Internship |  | 1-3 |
| CSEC 781 | Independent study |  | 1-3 |
| Other | Any 400/600 or 700 level | Computer Science, Business management, Criminal Justice, Emergency management, Law | 3 |