

**(EXISTING)**

**Name of Degree:                      Cybersecurity  
    (Master of Science)**

**Degree:                      Master of Science**

**GENERAL OBJECTIVES:**

- To provide education leading to an academic degree, namely a Master of Science in Cybersecurity.
- To develop the student's capacity to think, write and speak effectively and creatively.
- To develop the student's analytical, decision-making and communication competencies together with those qualities of self-reliance, responsibility, integrity and self-awareness which will promote personal achievement and contribution to organizations.
- To obtain a good grounding in advanced topics in Cybersecurity through the core subjects and attain specialization through the elective courses.
- To provide the student with the advanced skills, necessary for further advancement in an academic and/or professional career.

**SPECIFIC OBJECTIVES:**

- To intensify and deepen knowledge gained in the Bachelors programs in Computer / Electrical / Electronic Engineering.
- To prepare students for a lifetime career in industry, government and various institutions in the area of Cybersecurity, by establishing a foundation for lifelong learning and development.
- To ensure a learning experience which will provide students with the theoretical background and the applied know-how for practitioners in Cybersecurity to enter any sector of the industry as key personnel.
- To promote cybersecurity / network and information security in Cyprus through education, research and practical experience.
- To expose students to the area of scientific research and independent study and to demonstrate creativity and conduct original research work through the completion of the M.Sc. thesis in a specialized topic in the area of Cybersecurity.
- To analyse and specify the people, process and technology requirements appropriate for a solution to a problem in the area of Cybersecurity
- To design, implement, and evaluate solutions to Cybersecurity problems, according to the desired specifications.
- To apply information security foundations and principles during the modelling, design, and evaluation of preventive, detective and corrective cybersecurity controls, in a way that demonstrates comprehension of the trade-offs involved in design choices.
- To equip students with skills to assume a leadership position in cybersecurity

### **Learning Outcomes:**

Upon successful completion of this program, the students should be able to:

- Explain the interdisciplinary aspects (technical, business, management, policy) of cybersecurity
- Acquire all the necessary skills to develop a holistic approach to all relevant factors interacting with Cybersecurity.
- Assess the information security risks faced by an organization
- Manage the development, acquisition and evolution of a secure information infrastructure
- Gain expertise in both theory and practice of cybersecurity
- Categorize cybersecurity challenges in networks and software systems
- Design and implement networked, software and distributed systems with cybersecurity in mind
- Gain expertise to manage the growing complexities associated with securing data and networks
- Secure both clean and corrupted systems, protecting personal data, securing simple computer networks, and safe Internet usage
- Evaluate key terms and concepts in cyber law, intellectual property, cybercrime and cyber safety.
- Incorporate approaches to secure networks, firewalls, intrusion detection systems, and intrusion prevention systems
- Examine secure software construction practices
- Consider principles of web security
- Incorporate approaches for incident analysis and response
- Incorporate approaches for risk management and best practices

### **EMPLOYMENT OPPORTUNITIES:**

The MSc in Cyber Security is designed for those wishing to develop a career as a cyber security professional, or to take a leading technical or managerial role in an organization critically dependent upon data and information communication technology.

Graduates can expect to go on to work within corporate information - security and technology teams, consultancies, government information-security departments, management tracks in information critical organizations and cyber security related research. They can also seek opportunities in any company that its business is affected by its activities online and needs professionals who can effectively run its cybersecurity policy, for prevention and mitigation.

It is likely that a large proportion of the students enrolled in this program will come from Cyprus but some students are expected to be coming from overseas.

The holders of an MSc in Cybersecurity degree can also be hired in fundamental or applied science programs if they continue their studies and complete a doctoral dissertation.

<b>DEGREE REQUIREMENTS</b>	<b>ECTS</b>
Compulsory courses	60
Master Thesis OR Research Methods course and Two (2) Elective courses	30
<b>Total ECTS</b>	<b>90</b>

<b>DEGREE REQUIREMENTS</b>		<b>ECTS</b>
<b>Compulsory courses</b>		<b>60</b>
CYS600	Introduction to Cybersecurity	10
CYS615	Communications and Network Security	10
CYS625	Cryptography	10
CYS630	Cybersecurity Policy, Governance, Law and Compliance	10
CYS645	Cybersecurity Architecture and Operations	10
CYS655	Ethical Hacking and Penetration Testing	10
<b>Master Thesis</b>		
CSE670	Master Thesis OR CSE600 Research Methods and Two (2) Elective courses	<b>30</b>
<b>Elective courses (only if Master Thesis is not selected)</b>		<b>30</b>
CSE600 - Research Methods		10
CYS670 - Special Cybersecurity Topics		10
CYS675 - Cybersecurity Risk Analysis and Management		10
CYS680 - Data Privacy in the Era of Data Mining and AI		10
CYS685 - Incident Response and Forensic Analysis		10
<b>Total ECTS</b>		<b>90</b>