

## Course Specification Document

<b>Title</b>	Information Systems Security
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<b>Credits</b>	3.5 ECTS
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<b>Aims</b>	This course aims to introduce the student to the fundamental principles of information security, security policies, risk analysis, evaluation, and management, as well as authentication systems and permissions management. Additionally, it covers software security, web services security, encryption algorithms, and their applications. This enables the student to analyze potential risks on the network and use appropriate tools to protect applications and information systems.
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### Intended learning outcomes

On successful completion of this course, the student will be able to:

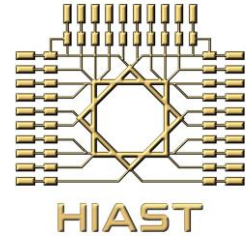
- Understand the fundamental concepts of information security, including risks, threats, and information protection models.
- Comprehend the principles and methodology of building information security policies, analyze and evaluate risks for an information system.
- Understand the principles of encryption, recognize its types, and explore its applications in information security.
- Familiarize with the basic principles, authentication models, authorization systems, and standard protocols used in information security.
- Know the methods for securing web services and the best practices to enhance software security during the design phase.
- Apply and implement a level of security for an information system using encryption tools and algorithms.
- Avoid security vulnerabilities when designing a software.

### Syllabus

- **General introduction:** Concepts and definitions of information and network security, CIA model, threats, and risks to information systems.
- **Security management and risk assessment:** Information security policy, risk analysis and assessment, security measures, risk management.
- **Documentation and auditing of security events in information systems:** Incident handling and forensics, security auditing.
- **Encryption algorithms and applications:** Symmetric key encryption, public key encryption, hash functions, electronic signatures.
- **Authentication systems and access control:** Authentication systems, access control, models and

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applications of authentication systems (digital certificates, S/MIME, Kerberos).

- **Web services security and data databases:** Web service security, domain name service security, data storage and information centers security.
- **Software security:** Fundamentals of security in program design, input processing, memory control, program permissions and system environment variables, operating system interaction, system output processing.