

PROGRAM INFORMATION

Program Name and Degree Awarded: Information Security and Technology / Associate Degree

Duration of Studies: 2 years

Total Credits / ECTS: 71 Credit / 120 ECTS

Language of Instruction: English

Mission and Vision:

Mission:

- To educate competent individuals in the field of information security who adhere to ethical values and can adapt to technological advancements.
- To provide students with both theoretical knowledge and practical skills in areas such as network security, data protection, cryptography, and cyber defense.
- To collaborate with industry in order to equip students with the ability to solve real-world problems.
- To contribute to raising public awareness of digital security.

Vision:

- To become a leading associate degree program in information security education at both regional and international levels.
- To train graduates who develop innovative solutions in cybersecurity with strong research and practical capabilities.
- To be recognized as a respected program that prepares students for the global workforce in information security.
- To contribute to a sustainable digital ecosystem by educating professionals dedicated to ensuring cybersecurity.

Program Objectives:

- **Develop Technical Expertise** – Acquire fundamental knowledge and practical skills in network security, data protection, cryptography, and system administration.
- **Apply Security Solutions** – Design, implement, and manage secure information systems to address real-world security challenges.
- **Adapt to Technological Advances** – Keep up with emerging trends and technologies in the field of information and cyber security.
- **Demonstrate Professional Ethics** – Apply ethical standards and legal frameworks in professional practice related to information security.
- **Collaborate Effectively** – Work efficiently as part of multidisciplinary teams to deliver secure and reliable IT solutions.
- **Pursue Lifelong Learning** – Continue professional development through further education, certifications, and practical experience.

Program Learning Outcomes

Knowledge & Understanding

- Demonstrate fundamental knowledge of computer systems, networks, databases, and security principles.
- Explain concepts of cryptography, cyber defense, and risk management in information systems.

Practical Skills

- Install, configure, and maintain secure computer networks and systems.
- Apply tools and techniques to detect, prevent, and respond to security threats.
- Perform basic penetration testing and vulnerability assessment tasks.

Cognitive & Analytical Skills

- Analyze information security problems and propose effective technical solutions.
- Evaluate security risks and recommend appropriate preventive measures.

Professional & Ethical Competence

- Apply ethical principles, legal regulations, and professional standards in information security practices.
- Demonstrate responsibility and accountability in handling sensitive information.

Communication & Teamwork

- Communicate effectively in technical and non-technical contexts, both orally and in writing.
- Work collaboratively in multidisciplinary teams to achieve security goals.

Lifelong Learning & Development

- Engage in continuous professional development through further studies, industry certifications, and self-learning.
- Adapt to new technologies and evolving trends in information security.

Curriculum

INFORMATION SECURITY AND TECHNOLOGY							
1-3 SEMESTER				2-4 SEMESTER			
COURSE CODE	COURSE NAME	CREDIT	COURSE TYPE	COURSE CODE	COURSE NAME	CREDIT	COURSE TYPE
UHTC02	TURKISH	(2-0-0)2	ELECTIVE	COMN204	ETHICS IN PROFESSION	(3-0-0)3	COMPULSORY
COMV109	MATHEMATICS	(3-0-0)3	COMPULSORY	UFLE02	FOREIGN LANGUAGE ELECTIVE II (ENGLISH)	(3-0-0)3	ELECTIVE
COMN107	ECONOMICS	(3-0-0)3	COMPULSORY	ISTE152	INTRODUCTION TO INFORMATION SYSTEMS	(3-0-0)3	COMPULSORY
UFLE01	FOREIGN LANGUAGE ELECTIVE I (ENGLISH)	(3-0-0)3	ELECTIVE	COMN120	PRINCIPLES OF LAW	(3-0-0)3	COMPULSORY
ISTE101	INTRODUCTION TO TECHNOLOGY FUNDAMENTALS	(3-0-0)3	COMPULSORY	UFRC01	UNIVERSITY ELECTIVE I	(3-0-0)3	ELECTIVE
UPEC01	UNIVERSITY ELECTIVE I (PHILOSOPHY GROUP)	(3-0-0)3	ELECTIVE	COMN115	SOCIOLOGY	(3-0-0)3	COMPULSORY
UHTC01	HISTORY	(2-0-0)2	ELECTIVE				
COMN221	MATHEMATICS FOR SOCIAL AND APPLIED SCIENCES	(3-0-0)3	COMPULSORY	UPEC02	UNIVERSITY ELECTIVE II (PHILOSOPHY GROUP)	(3-0-0)3	ELECTIVE
ISTE237	DATABASE MANAGEMENT SYSTEMS	(3-0-2)4	COMPULSORY	UFRC02	UNIVERSITY ELECTIVE II	(3-0-0)3	ELECTIVE
ISTE251	NETWORK SECURITY THEORY	(3-0-0)3	COMPULSORY	ISTE01	TECHNICAL ELECTIVE I	(3-0-0)3	ELECTIVE
OSHE201	OCCUPATIONAL SAFETY AND HEALTH	(3-0-0)3	COMPULSORY	ISTE214	PRINCIPLES OF OPERATING SYSTEMS	(3-0-0)3	COMPULSORY
COMN253	STATISTICS	(3-0-0)3	COMPULSORY	ISTE252	PROGRAMMING FOR MANAGEMENT INFORMATION SYSTEMS	(3-0-0)3	COMPULSORY
				ISTE212	SOFTWARE REQUIREMENTS ANALYSIS AND SPECIFICATION	(3-0-0)3	COMPULSORY

Laboratory and Equipment Capacity (if applicable)

No

Career Opportunities

Graduates of the Information Security Technology Associate Program can pursue careers in various sectors where information and system security is essential. Possible positions include:

- Information Security Technician
- Network Security Specialist (entry-level)
- System and Network Administrator
- IT Support Specialist
- Cybersecurity Assistant / Analyst (junior level)
- Database Security Assistant
- Help Desk / Technical Support Staff

Graduates may work in banks, government institutions, private companies, IT service providers, and telecommunication firms, or continue their studies in related undergraduate programs to advance their careers.

Contact Information

Head of Department: Asst. Prof. Dr. Ersin Çağlar

Mobile: 0533 868 62 61 – 0533 836 67 56

Emails: ecaglar@eul.edu.tr– erscaglar@gmail.com

Address: Enveriye hanım sokak, çoşku villaları no:21 Çatalköy.

INFORMATION AND SECURITY TECHNOLOGY

COURSE CATALOGUE DESCRIPTIONS

1st Semester

UHTC02 Turkish

Introduction to the grammar and structure of Turkish language, the changes and developments oral and written presentations. Reading and analyzing essays in Turkish literature. This course is designed specifically for Turkish-speaking students. International students take a different version of this course, COM106.

COMV109 Mathematics

Aims of this course are to provide the basic concepts of mathematical applications and the basic purpose of business management. This course includes Algebraic expressions, real numbers, equations and inequalities, systems of equations. This course also includes Pascal's triangle, exponential numbers, logarithms, and linear geometry issues.

COMN107 Economics

This course introduces students to the key concept and topic of microeconomics such as opportunity cost, production possibility frontier, demand and supply, elasticity, utility, preferences, production, costs, perfect competition, monopoly.

UFLE01 Foreign Language Elective I (English)

This course is intended for academically oriented students and it aims to bridge the gap between general and academic English. For this goal, the course will develop skills required for academic study, including note-taking, essay writing, and giving effective presentations, as well as teaching strategies for undertaking research and dealing with unfamiliar academic vocabulary. In addition, the course aims at teaching the features of guided writing, reading strategies such as predicting, skimming, and scanning.

ISTE101 Introduction to Technology Fundamentals

The IT Fundamentals course offers an overview of IT concepts including: hardware, software, networks, IT careers and skills, databases and ethics with an emphasis on applications of IT in business. The course incorporates multiple current scenarios to help students more clearly recognize the importance of the information and apply their knowledge. Multiple “Professional Perspectives” videos are included to provide insight to students from current IT professionals working in the field.

UHTC01 History

The course provides a detailed exposure on the history of the construction of the Turkish Republic under the light of Kemal Atatürk's principles this course is designed for Turkish speaking students. COM108 is designed for non-Turkish speaking foreign students. The aim of the course is to introduce a brief history of Turkish Republic and Cyprus. Social, economic and political aspects and effects of Western Civilization on Turkey and Cyprus. Relations with Middle East.

COM100 Introduction to Computers

The course focuses on providing exposure to different basic and advanced concepts of computing and Information Technology. Computer Hardware and Software Systems and Application Software will be discussed using a modern computing environment. The course covers word processing, basic and advanced features of office tools, spreadsheets as calculation, and introducing the basic functionality of Power point for presentations. The basics of file management, communication/network concept, software and protocols, electronic mail, videoconferencing, information access via the Web will be covered during the semester.

2nd Semester

COMN204 Ethics in Profession

The course introduces the essential law and ethics topics in a business environment which are crucial for managing both internal and external environment of firms. The course covers contracts, sales, agency and employment, business organizations and some current business ethics issues. The course also stresses the global business and its relation to business ethics.

UFLE02 Foreign Language Elective Ii (English)

This course is intended for academically oriented students and it aims to bridge the gap between general and academic English. For this goal, the course will develop skills required for academic study, including note-taking, essay writing, and giving effective presentations, as well as teaching strategies for undertaking research and dealing with unfamiliar academic vocabulary. In addition, the course aims at teaching the features of guided writing, reading strategies such as predicting, skimming, and scanning.

ISTE152 Introduction To Information Systems

This course is designed to provide students with a foundational understanding of Information Systems (IS) as they apply to the computer industry. Topics will include Information Systems fundamentals; IS infrastructure; organizational and business strategies for Information Systems, Managing Information Systems; Information Systems for commerce and collaboration; business intelligence and Enterprise Information Systems; security, privacy and ethics for Information Systems

COMN120 Principles of Law

The course deals with the basics of law. It introduces the students the elements drawn from legal theory, legal philosophy as well as legal practice. It makes special references to Turkish law. It starts with the discussion of what law is and continues with the other rules of social conduct like moral and customary rules. It familiarizes students with legal concepts like “burden of proof” and methods of legal interpretation.

COMN115 Sociology

The course makes an introduction to the discipline of sociology and gives the outline of the major sociologists and sociological approaches. The course intends to familiarize the participants with the theories of the following sociologists, sociological schools or writers relevant to sociology:

Positivism (Comte and Spencer), Marx, Durkheim, Weber, Functionalism (Parsons), Frankfurt School (Horkheimer, Adorno, Marcuse), Structuralism (Foucault), Giddens, Habermas, Luhmann.

3rd Semester

COMN221 Mathematics for Social and Applied Sciences

The course includes advanced mathematical applications related to business management. Course topics cover optimization, identification and maxima and minima, curve sketching and functions, coordinate geometry, acute and obtuse angles and sine and cosine formulas

ISTE237 Database Management Systems

Foundations of a database-management system: view of data, data models, instances and schemas, data-definition and data-manipulation languages. Relational model: tables, tuples, attributes, primary and foreign keys, schema diagrams, relational algebra. Structured Query Language (SQL): built-in types, schema definitions, structure of an SQL query, queries on a single and multiple relations, as clause, string operations, ordering tuples, attribute specifications, where-clause predicates, set operations, null values, aggregate functions, aggregation with grouping, having clause, nested subqueries, set membership and comparison, test for empty relations and absence of duplicates, subqueries in the from-clause, with clause, scalar subqueries, modification of the database, join expressions, views, integrity constraints. Entity-Relationship (E-R) model: design process, entity sets, relationship sets, complex attributes, mapping cardinalities, participation constraints, E-R diagrams, reducing E-R diagrams to relational schemas, extended E-R features, E-R design issues, alternative notations.

ISTE251 Network Security Theory

Fundamentals of Computer security, Network security, Internet security. Security mechanisms, security services. Threat and attack differences. Access control and its elements; authentication, authorization, accountability. Security services; X800 and RFC2828. Authentication services; Peer entity authentication, data origin authentication. Common security attacks and countermeasures; Phishing, Man in the Middle attack, Replay attack, Web jacking, Spam, Blog spam. Specific security mechanisms, Encipherment, Digital signature, Access control, data integrity, authentication exchange, Traffic Padding, Routing control, notarization. Pervasive security mechanisms; Trusted functionality, security label, event detection, security audit trail, security recovery. A detailed model for network security and its working principle. Network access security model and its elements. Encryption, decryption and terminology. Cryptography, block cipher, stream cipher. Cryptanalytic attacks, viruses and related attacks. Authentication services; Kerberos and its working principle, X.509. Authentication services, Public key Infrastructure (PKI), Pretty Good Privacy (PGP).

OSHE201 Occupational Safety and Health

The principal aim of this course is to provide the theory and history of occupational health and safety and globally including the enforcement of laws that address occupational safety and health. In addition, students will gain an understanding on the roles and responsibilities of workers, unions and employers. This course also reviews other safety related issues and aspects of recognizing, evaluating, and understanding control of safety and health hazards in the workplace.

COMN253 Statistics

The course covers the key definitions (describing data graphically and numerically), probability, important discrete probability distributions (Binomial, Hypergeometric, Poisson), important continuous probability distributions (Uniform, Normal, Exponential), sampling distributions of sample mean, sample proportion and sample variance, single population estimation (confidence interval estimates for the mean and proportion-Student's t-distribution) and two population estimation (confidence intervals for the paired difference of mean, proportion and variance-Chi-Square test).

4th Semester

ISTE214 Principles Of Operating Systems

The history of the operating systems. The hardware and software components. Application Programming Interface. Computing environments. Process Management, Process operations, Process synchronization. Processor Scheduling Criteria and Algorithms (FIFO, RR, SJF, SRTF, PRIORITY, PREEMPTIVE, NONPREEMPTIVE ALGORITHMS). The Indefinite postponement, Deadlock prevention, detection, avoidance, recovery. The main memory, swapping, fixed partition multiprogramming, variable partition multiprogramming, paging, segmentation. The virtual memory, page replacement strategies (FIFO, LRU, OPT). Secondary Storage, Disk scheduling (First-Come-First-Served, Shortest-Seek-Time-First, SCAN, C-SCAN, FSCAN, N-Step SCAN, LOOK, C-LOOK). File Systems, Directories.

ISTE252 Programming for Management Information Systems

This course contains the history of computers and programming. Introduction general steps in problem-solving concepts, programming terminology, algorithms and its applications. Problem solution, pseudocode, algorithms, flowcharts, data types, and control structures. A simple C program layout, syntax and rules. C language basics, native types, identifiers, declarations, variables, expressions, and assignments. Basic console input/output functions. Operators, unary, binary, mathematical, relational, equality and logical, precedence and associativity rules, type conversions and casting. Statements, flow of control. Sequential structure. Selective structure, if-else statement. Repetitive structure, while loop, do-while loop, break/continue statements.

ISTE212 Software Requirements Analysis and Specification

Introduce important software properties; security, maintenance, adaptability, robustness, safety, reliability, emergent properties, non-emergent properties. Software process steps; requirement analysis, specification, prototype, design, implementation, testing, validation and verification. Process models; waterfall, evolutionary, incremental, spiral component-based, agile processes, extreme programming, pair programming. Functional and non-functional requirements, system requirements, domain requirements, external requirements, open and closed interview, external requirements, constraints, organizational goals, project goals, stakeholders, life-cycle planning, responsibilities, feasibility study.