Learning Objectives of the Undergraduate Study Program of the Department of Digital Systems

The Department of Digital Systems has the mission to train young scientists in cutting-edge technologies that belong to different fields of study and concern information systems, software technology, data analysis, artificial intelligence, telecommunications, networks, cyber security and privacy, computational biomedicine, multimedia, and digital technologies in education and governance. The Undergraduate Study Program (USP) aims to create specialized scientists capable of contributing to the development, implementation and management of modern digital technology systems, as well as to educate them in developing critical thinking, accuracy in expression, and theoretical thinking.

Learning objectives of the USP include the knowledge and understanding of all technologies used to create software, telecommunications hardware, and network connections and services, the familiarization of students with algorithms and complexity, internet protocols and network management, the creation of applications and services, as well as their familiarization with risk analysis and management methodologies with the aim of designing and developing secure systems. The laboratory courses aim to help students delve into programming, operating systems, databases, and design and simulation of telecommunication networks and systems. Upon completion of the USP, students will be able to analyze and evaluate the requirements of a system as well as set specifications and design integrated solutions. Laboratory courses and homework assignments aim to help students with the design and implementation of online applications and telecommunications systems, database interconnection, the use of cloud computing methods, signal and image processing, network and information system security and applications using methods of artificial intelligence.

The students of the Department acquire skills such as: understand the low-level operation of computer systems, understand and evaluate the structure and operation of operating systems, analyze, design, implement and evaluate software applications based on the principles of procedural and object-oriented programming and using programming languages, analyze and design relational databases, utilize and evaluate database management systems and their components, apply development methodologies for information systems, possess theoretical knowledge of data structures and have the ability to implement structures in software implementation contexts under specific functional and non-functional software requirements, understand the operation and performance evaluation of network and internet protocols, understand the principles of electromagnetic wave propagation and antenna types, design and obtain the performance of wireless terrestrial and satellite links as well as broadband telecommunications systems, learn digital technologies for e-learning, create digital learning systems and develop educational software applications, choose appropriate security measures so that systems or services are protected from possible malicious actions and attacks.

The goal of the Digital Systems Department's USP is the acquisition of knowledge on the above subject areas as well as the development of critical thinking and skills such as cooperation and teamwork, time management, and interpersonal communication. These skills combined with specialized knowledge in cutting-edge technologies equip our graduates with the necessary qualifications for future success in the professional field.

On this basis, the Department's USP is composed of the following areas of study:

"Telecommunications & Networks" (T&D)

"Software & Data Systems" (SDS)

"Computational Infrastructures & Services" (CIS)

"Security" (SEC)

"Teaching Qualification" (TQ)

The Department of Digital Systems offers a four-year USP, which corresponds to 240 credits of the European Credit Transfer and Accumulation System (ECTS) and awards, upon successful completion, a Bachelor of Science in Digital Systems.

Professor George P. Efthymoglou

Department Chair