UNIVERSITY OF THE
AEGEAN

2021 / 22
MASTER'S
PROGRAMMES

SCHOOL OF ENGINEERING
DEPARTMENT OF INFORMATION AND
COMMUNICATION SYSTEMS ENGINEERING

POSTGRADUATE STUDIES PROGRAMME:

MSc IN INOFRMATION AND COMMUNICATION SYSTEMS SECURITY

Secutity and privacy: Common goals

The MSc in Information and Communication Systems Security addresses specialists, researchers and executives from public or private administrative or decision-making organisations. The MSc programme aims at training students in the area of information and communication systems security, as well as in privacy protection technologies. Overall, the programme has been planned taking the following points into consideration:

1. Information security and privacy have become common goals across both services and systems.

2. There has been an increasing need for specialized staff, while the sector of privacy and security offers great potential for career development.

3. There have been advances in information technologies and telecommunications and an increase in the vulnerability of the services offered.

4. The MSc offers a great opportunity for developing background knowledge for further PhD studies.

The major goal of the MSc in Information and Communication Systems Security is not only the

Webpage:
http://msc.icsd.aegean.gr/security/

Regulation of studies:

advancement and dissemination of knowledge, but also the training of specialists who will be able to address international needs in education, research and development. More specifically, the goals of the MSc programme are the following:

1. Advancement of science and research in the area of information security.
2. Training and preparation of students and researchers in order to be able to stimulate the development of Greece and Greek businesses within an information society.
3. Preparation for PhD studies in information security.
4. Close collaboration between the academic community and those businesses aiming at the adop-

tion, use and dissemination of cutting-edge technologies in information security and privacy protection technologies.
5. Collaboration with Greek, European and international organisations that deal with information security and privacy protection technologies.

The graduates of the MSc in Information and Communication Systems Security will be able to:
1. Design, set up, implement, analyze, evaluate and manage security and privacy protection systems.
2. Understand all individual parameters of the development, management and evaluation of a secure information and communication system.
3. Conduct research and development work on the

area of information security and privacy protection technologies, generating new areas of knowledge.

4. Participate in development projects relating to information security in both the public and the private sector.

5. Compare and evaluate digital goods and services relating to security and privacy protection, while having a solid background knowledge of modern technologies on this subject.

6. Manage and supervise complex and demanding projects.

SYLLABUS

1st SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
3001	Computer and Communication Networks Security	7,5
3002	Cryptography	7,5
3003	Database Systems Security	7,5
3004	Digital Forensics	7,5

2nd SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
3005	Information Law	7,5
3006	Information Systems Security Management	7,5
3007	Wireless and Mobile Networks Security	7,5
3008	Future Internet Security and Privacy	7,5

3rd SEMESTER		
COURSE ID	**COURSE**	**ECTS**
3000	MSc Thesis	30

POSTGRADUATE STUDIES PROGRAMME:

MSc INTERNET OF THINGS: INTELLIGENT ENVIRONMENTS IN NEXT-GENERATION NETWORKS

Digital Revolution and the Internet of Things

The objective of the MSc programme is to provide systematic and specialized training in the design and development of intelligent environments in next-generation networks, using the Internet of things as a baseline. Overall, the programme has been planned to take the following points into consideration:

1. The Internet of things forms a new stage in digital revolution, contributing to the expansion of the Knowledge-Based Society (Information Society).

2. Many facets of the Knowledge-Based Society have been using or will use the Internet of things in order to improve existing processes or create new and innovative services (smart home, smart cities, smart industry, energy, health, etc.).

3. The design and development of intelligent environments in next-generation networks requires the combined application of knowledge that derives from different disciplines.

4. Specialized staffing needs for career development opportunities.

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Regulation of studies:

5. Developments in ICT and increase of the provided critical / sensitive services.

Graduates will:
1. Have an understanding of the available resources and tools for developing an Internet of things (IoT) system, in terms of both hardware and software, network connection and data analysis.
2. Set up and design systems that are based on IoT.
3. Manage information and knowledge that is dispersed, in different forms, across complex and dynamic environments.
4. Set up and design modern network and communication systems and interconnect them with IoT.
5. Design and manage innovative, digital and inter-active applications with a wide range of uses.
6. Understand the place and the role of IoT in the broader ICT industry, as well as its possible future developments.
7. Understand the role of hardware and sensor networks in an IoT system.
8. Understand the role of big data, data mining and cloud computing in a typical IoT system.
9. Understand the role of security and privacy in future Internet systems.
10. Understand the capabilities of techniques and machine learning tools in implementing intelligent environments.
11. Understand the limitations of wireless and local network access and the degree to which these limi-

tations affect IoT performance.

12. Design, implement and evaluate IoT systems, which may consist of sensors, processing systems of small, average and big processing power, wireless networking, interconnection with third-party platforms (e.g. social networking sites, web services, corporate systems), data analysis and display, for a wide range of uses.

13. Participate in research and development projects relating to information and communication systems, generating new areas of knowledge.

14. Compare and evaluate digital goods and services based on a solid background knowledge of modern network technologies.

15. Manage and supervise complex and demanding communications projects.

16. Acquire new knowledge in order to adapt to complex and dynamic environments and users.

SYLLABUS

1st SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
4001	Machine Learning	7,5
4002	Design, Development and Performance Evaluation of Next-Generation Networks	7,5
4003	Pervasive Computing Systems	7,5
4004	Algorithms, Combinatorial Optimization and Financial Applications	7,5

2nd SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
4005	IoT Technologies and Applications	7,5
4006	IoT Communication Technologies	7,5
4007	Embedded Systems and IoT	7,5
3008	Future Internet Security and Privacy	7,5

3rd SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
4008	Robotics and Computer Vision	7,5
4009	Modern Networks and IoT Interfacing	7,5
4010	Semantic Web	7,5
4011	Big Data and Data Mining	7,5

4th SEMESTER		
COURSE ID	**COURSE**	**ECTS**
4000	MSc Thesis	30

POSTGRADUATE STUDIES PROGRAMME:

MSc IN
e-GOVERNMENT

e-Government

Information and communications technology (ICT) offers a vast potential for the improvement of how public services work, reduction of their cost, better quality of service offered to the public and society in general, design and implementation of better and more effective public policies, and closer, transparent contact and collaboration between the government and the public. It is evident, however, from our experience in Greece and abroad, that exploiting this potential is a highly complex task, requiring close cooperation among specialists in different fields (technical and administrative), both from inside and outside the public sector (IT com-

panies, consulting services, etc.). The development of e-government services has become an important priority both in Greece and the EU. Such development not only has great demands, but also opens up a great number of new markets for related businesses.

The MSc offers students a unique chance to develop a high level of knowledge and skills on e-government issues and on a number of ICT systems that can be designed for the public sector (e.g. internal support information systems, electronic information for the public, electronic transactions,

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Regulation of studies:

electronic democracy, public engagement and participation, social media utilization, open government data, interoperability, etc.). Such knowledge and skills will enable students to be creatively and effectively involved in developing different types of information systems for the public sector.

More specifically, the graduates of the MSc in e-Government will:
1. Have acquired specialist knowledge and methodologies related to e-government issues.
2. Have developed their academic skills and competencies related to e-government issues.

3. Have applied the above knowledge, skills and competencies in class activities, workshop exercises, assignments and research projects, etc.
4. Have strengthened their communication, cooperation and teamwork skills though group activities, group presentations and other forms of academic assignments.
5. Be able to pursue PhD studies in the field of e-government.

SYLLABUS

1st SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
6001	Digital Business Management	7,5
6002	Information Systems in Public Administration	7,5
6003	e-Government I (Services and Infrastructures)	7,5
6004	Information Systems Security	7,5

2nd SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
6005	e-Government II (Open and Collaborative Government)	7,5
6006	Project Management and Information Systems Development	7,5
6007	European and Greek Interoperability Framework	7,5
6008	Information Law	7,5

3rd SEMESTER		
COURSE ID	**COURSE**	**ECTS**
6000	MSc Thesis (Compulsory)	27,5
6009	Internship (Optional)	2,5
6010	e-Government Summer School (Optional)	2,5

POSTGRADUATE STUDIES PROGRAMME:

MSc IN INFORMATION AND COMMUNICATION SYSTEMS

## Computer science for non-ICT graduates

The objective of the MSc in Information and Communication Systems is to educate non-ICT graduates in the field of information and communication systems. The major goal of the MSc in Information and Communication Systems is not only the advancement and dissemination of knowledge, but also the training of non-ICT graduates in order to address Greece's needs in specialized staff in the areas of education, research and development. Courses have been designed to offer students with no previous IT background the necessary specialization which the latest scientific and technological developments require, focusing on the particular characteristics and needs of the modern Greek and European economy. More specifically, the goals of the MSc in Information and Communication Systems are the following:

1. Advancement of science and research in the area of information and communication systems for students with no prior ICT background.

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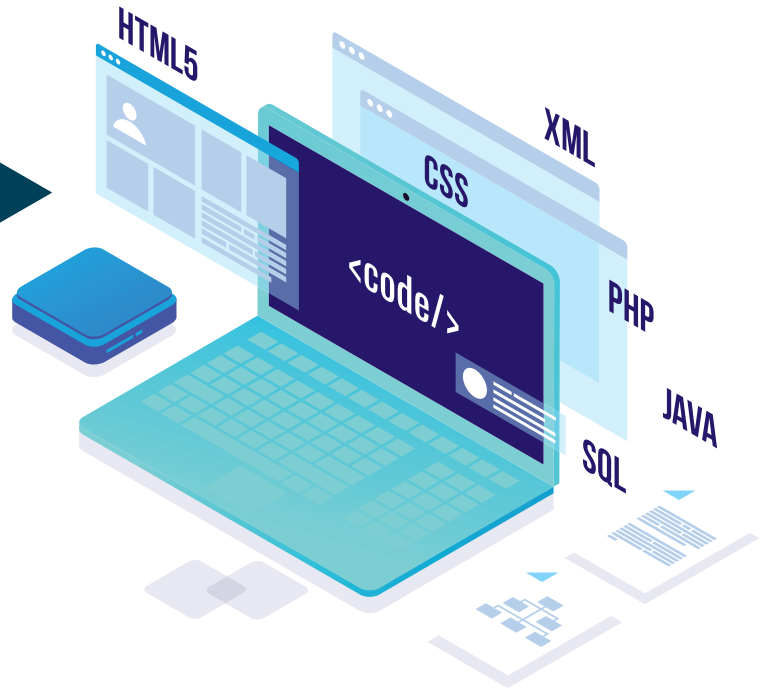
http://msc.icsd.aegean.gr/ics-conversion/

Regulation of studies:

2. Training and preparation of students and re-searchers in order to be able to stimulate the development of Greece and Greek businesses within an information society.

3. Preparation for PhD studies in information and communication systems.

4. Close collaboration between the academic community and those businesses aiming at the adoption, use and dissemination of cutting-edge technologies in information and communication systems.

5. Collaboration with Greek, European and international organisations that deal with information and communication systems.

SYLLABUS

1st SEMESTER		
COURSE ID	COMPULSORY COURSES	ECTS
5001	Information Systems	10
5003	Communication Systems and Networks	10
5004	Information and Communication Systems Security	10

2nd SEMESTER		
COURSE ID	COMPULSORY COURSES	ECTS
5002	Software Engineering	10
5005	Intelligent Systems	10
5006	Data Structures and Databases	10

3rd SEMESTER		
COURSE ID	COURSE	ECTS
5000	MSc Thesis	30

POSTGRADUATE STUDIES PROGRAMME:

MSc IN DIGITAL INNOVATION AND STARTUP ENTREPRENEURSHIP

Joint MSc in Digital Innovation and Startup Entrepreneurship: University of the Aegean and the National Technical University of Athens

The objective of the joint MSc in Digital Innovation and Startup Entrepreneurship is to provide specialized training in startup firms management through both theoretical and applied issues in contemporary e-commerce: digital marketing techniques and strategies, business models, the role of information systems in modern businesses, digitals startups and digital services. The graduates of the joint MSc programme will gain important and essential knowledge and skills for their professional development. They will be able to think creatively (outside-the-box) and embark on business activities aiming at an international audience and at rapid growth prospects. Honours graduates will have the opportunity to discuss possible collaboration with affiliated companies and organisations in Greece and abroad.

Webpage:

http://msc.icsd.aegean.gr/innovation/

Regulation of studies:

SYLLABUS

1st SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
7001	Startup Business Management	7,5
7002	Financial Administration	7,5
7003	Innovation and Entrepreneurship	7,5
7004	Digital Innovation: Special Issues and Case Studies	7,5

2nd SEMESTER		
COURSE ID	**COMPULSORY COURSES**	**ECTS**
7006	Digital Marketing	7,5
7007	Information Systems for Enterprise Resource Planning	7,5
COURSE ID	**OPTIONAL COURSES**	**ECTS**
7005	Startup Simulator	7,5
7008	Big, Open and Linked Data Management	5
7009	Digital Technologies and Web Services	5
7010	Electronic Supply Chain	2,5
7011	Project Management for Information Systems Development	2,5

3rd SEMESTER		
COURSE ID	**OPTIONAL COURSES**	**ECTS**
7012	Digital Product Development Methods and Practices	7,5
7013	Emerging Information and Communication Technologies	7,5
7014	Business Analytics	7,5
7015	eBusiness Summer School	5
7016	Participation in Business Plan Development Contest	5
7017	Internship in a Startup or Incubator	5

4th SEMESTER		
COURSE ID	**COURSE**	**ECTS**
7000	MSc Thesis	30

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Karlovasi, Samos
T: **22730 82210**
https://msc.icsd.aegean.gr