COURSE OF STUDY *Scienze e Gestione delle Attività Marittime*

ACADEMIC YEAR *2023/2024*

ACADEMIC SUBJECT *ICT (Information and Communication Technologies)*

General information	
Year of the course	*II*
Academic calendar (starting and ending date)	
Credits (CFU/ETCS):	12
SSD	*INF/01*
Language	*ITALIAN*
Mode of attendance	*As required by the didactic regulation*

Professor/ Lecturer	
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Telephone	
Department and address	*Scuola Sottufficiali Marina Militare di Taranto*
Virtual room	*Teams Platform*
Office Hours (and modalities: e.g., by appointment, on line, etc.)	After class, in presence Online, by appointment via e-mail

Work schedule	
Hours	

Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
300	*96*		*204*
CFU/ETCS			
12			

Learning Objectives	he aim of the course is to provide the student with diversified knowledge in the Information and Communication Technologies (ICT) through the study of the methodological, technological and architectural aspects for their implementation. The Course provides technological skills, related to new information technologies, organizational skills, related to the ability to manage software projects and an overview of the characteristics of information systems, highlighting in particular the basic technological components and providing the methodological tools to design and manage the creation of an information system. There will be some targeted insights on specific current topics: cyber security, open source, Unified Communication, green IT.
Course prerequisites	*No prior knowledge is required*

Teaching strategies	*Frontal teaching*
Expected learning outcomes in terms of	

Knowledge and understanding on:	The course intends to provide the useful knowledge to understand the use of ICT technologies in the company and the knowledge of the main functions of the computer to be used in communication and business. At the end of the course of study, the student will have the knowledge and the ability to understand the most popular software for office automation and the procedures for applying and using them.
Applying knowledge and understanding on:	The aim of the course is to provide students with the fundamental knowledge of information technology related to the automatic processing of information in all its forms. Specifically, students will learn the principles underlying automatic data analysis, in particular the algorithms, methodologies and software tools suitable for the automatic processing of information.
Soft skills	• *Making informed judgments and choices* At the end of the course of study, the student will have the knowledge and ability to understand the most common software for office automation and the procedures for their application and use and will be able to evaluate and choose, on the basis of the different specific needs, the software and the most suitable application procedure in order to achieve the best effectiveness and efficiency of one's work. The student will be able to evaluate planning, design and data analysis workflow processes and analyze the design of a Corporate Information System. • *Communicating knowledge and understanding* At the end of the course the student will have acquired the communication skills necessary for the correct transmission of results in the field of data analysis and in relation to the ICT resources that can be used in Corporate Information Systems. • *Capacities to continue learning* At the end of the course, the student will show that he has developed the ability to autonomously learn further insights on topics related to ICT resources that can be used in Corporate Information Systems.
Syllabus	
Content knowledge	Theoretical part Part I Hardware Structure of the electronic computer. The concepts of analogical magnitude and digital magnitude. The representation of information Hardware and Software. General scheme of a data processing system. The processor. The coprocessors. The memories of the electronic computer. The central memory. The cache memory. The buffer memory. mass memories. ROM memory. The BIOS. Input/Output units. numbering systems. Positional number systems. The binary numbering system. The character encoding. Part II Software The software. The concept of algorithm. Constants, variables and instructions of an algorithm. Programming languages. Machine language. Low-level symbolic languages. High-level languages. Program translation processes: compilation and interpretation. Software user licenses: licenses for free and open source software; licenses for proprietary or closed source software. The operating system.

	Operating system features. The Onion Skin model. Monotasking and multitasking operating systems. Part III Communications Internetworking and Cloud Computing Parallel architectures. Basic concepts on networks: nodes, protocols and services. Computer Networks. Types of Networks: PAN, LAN, MAN and WAN. Circuit and packet switched networks. Client-server and peer-to-peer architectures. Internet work. Internet. The Web. From hosting to housing. cloud computing. An overview on the Internet Domain names and addresses TCP/IP protocols Copyright on the Internet The Internet of Things The World Wide Web IT security Encryption disaster recovery. business continuity.
Texts and readings	*Brian W. Kernighan, Informatica. Orientarsi nel labirinto digitale – Egea, 2019*
Notes, additional materials	*The text must be integrated with handouts provided by the teacher*
Repository	*Available on the platform https://mariscuola-ta.corsi.marina.difesa.it*

Assessment	
Assessment methods	The verification of learning takes place through a written exam on the various contents developed during the course. The teacher will be able to ascertain the knowledge acquired also through practical exercises to be carried out during the course. During the exam, the teacher will ascertain the expected learning outcomes. The assessment aims to evaluate the knowledge and ability to understand and critically analyze the topics covered by the teaching, the methodology used to study the subject, mastery of the specific teaching language, as well as the ability to understand the interconnections between different teaching topics. Workshops and exercises may be scheduled during the course which will be evaluated by the teacher and may contribute to the final evaluation.
Assessment criteria	• *Knowledge and understanding* Show that you have developed the ability to independently learn further insights on topics relating to ICT resources that can be used in Company Information Systems using an appropriate language. • *Applying knowledge and understanding* Show that you have developed the ability to independently apply the concepts relating to ICT resources that can be used in Company Information Systems and be able to apply the basic notions to concrete contexts and specific cases and interpret concrete problems also proposing possible solutions. • *Autonomy of judgment* The aim of the course is to acquire and consolidate one's own independence of judgment regarding the management of information technologies. • *Communicating knowledge and understanding* The student must demonstrate the ability to use the terminology appropriately and pertinently. • *Communication skills* • *Capacities to continue learning*

	At the end of the course the student will have to show that he has acquired a learning methodology and possess the learning skills necessary to aspire to obtain an employment opportunity in the economic and ICT fields.
Final exam and grading criteria	The verification of learning takes place through a written exam aimed at verifying the learning of the contents of the Course. The teacher will be able to ascertain the knowledge acquired also through practical exercises carried out during the course and within the scheduled time for the lessons, the judgment of which can contribute to the final evaluation. The final mark is given out of thirty. The exam is considered passed when the grade is greater than or equal to 18.
Further information	
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