UNIVERSITÀ DEGLI STUDI LINK

BACHELOR'S DEGREE

A.Y. 2023/2024

Teaching	Information Technologies
CFU	12
Course year	
Semester	first and second
Lecturer(s)	Prof. Marco Angelini
email	m.angelini@unilink.it
reception	at the end of the lessons or by appointment to be arranged by e-mail.

LEARNING OUTCOMES

The course aims to achieve the following learning outcomes:

1. **KNOWLEDGE AND UNDERSTANDING**: the student must be able to learn and recognize the fundamental principles of information technologies, the main characteristics of computing machines, hardware, software, and all the modern technologies and connected disciplines, from data management to web technology to modern AI. They will have to further learn the principles of algorithmic reasoning and basics of programming.
2. **APPLIED KNOWLEDGE AND UNDERSTANDING**: at the end of the course, the student must be able to relate to and use the modern technologies, evaluating the choices on which technology to use with respect to the information needs, being capable of discussing about algorithmic solutions to problems and recognizing coded solutions.
3. **MAKING JUDGEMENTS**: the student will have to acquire a critical and analytical vision on the fundamental aspects and principles of information technologies and computing systems and software and be able to correctly assess the best technology to use for the information needs at hand.
4. **COMMUNICATION SKILLS**: the student will also have to acquire the mastery of the specialized language of the subject and develop the ability to argue both with technical staff and with personnel assigned to decision-making choices before and during information and data processing.
5. **LEARNING SKILLS**: the student will have to demonstrate a correct knowledge of the listed topics, both from a theoretical perspective in terms of its foundation and and the practical level in terms of correct choice and utilization.

DETAILED PROGRAM

The course deals in detail with the following topics:

1. IT today: an overview
2. Computer architecture and the CPU
3. Input/output peripherals
4. Secondary memories
5. The operating system
6. Application software and documents
7. Software licenses and Open Source
8. Networking: computer networks
9. Internet: innovative services and social revolution
10. Cloud computing

11. Systems programming and development
12. Databases
13. Computer security: techniques and legislation
14. Web technologies
15. Artificial Intelligence
16. Data visualization
17. Blockchain
18. IT as a social fact

RECOMMENDED PREREQUISITES

none

HOW TO CONDUCT THE EXAM

The final exam consists of the production of a homework, which can be of theoretical or technical/practical nature on a topic chosen from the topics of the course, expanding on it.
The exam will be complemented with a written exam composed of questions with multiple choices and an open-ended question. An oral interview to present the homework and allowing the student to answer a series of questions on it conclude the exam.

ASSESSMENT CRITERIA

In the oral exam, the student must demonstrate:

1. **KNOWLEDGE AND UNDERSTANDING**: to have acquired the fundamental notions of Information Technologies on all the topics covered in the course.
2. **APPLIED KNOWLEDGE AND UNDERSTANDING**: one's ability to apply the fundamental notions of Information Technologies on all the topics covered in the course.
3. **MAKING JUDGEMENTS**: to have developed an ability to evaluate and apply the fundamental notions of Information Technologies on all the topics covered in the course.
4. **COMMUNICATION SKILLS**: to have mastery in communicating the aspects of Information Technologies covered in the course and their technical jargon.
5. **LEARNING SKILLS**: their ability to use the conceptual and methodological tools acquired concerning the fundamental notions of Information Technologies on all the topics covered in the course.

CRITERIA FOR AWARDING THE FINAL GRADE

The grade is awarded in thirtieths. The final grade will consider:

1. for 40% of the homework produced for the exam
2. for 10%, in the presentation of the written paper and the ability to answer questions.
3. for 40%, written multiple answer questions related to the topics of the course.
4. for 10%, written open ended question related to the topics of the course.

TEACHING MATERIALS

For the preparation of the exam, it is essential to integrate the contents provided during the lessons with the following **mandatory texts**:

There are no mandatory texts. The following text is recommended:

Fundamentals of Information Technology,
Shambhavi Roy,
Clinton Daniel, University of South Florida,
Manish Agrawal, University of South Florida,
2023
Download for free here: https://digitalcommons.usf.edu/dit_tb_eng/19/

Non-attending students **will** also have to study the following compulsory textbook: ...

TEACHER'S ADVICE

Follow the lessons, study the teaching material provided and integrate with external sources or the recommended book.