# Information Technology (Advanced Course)

## Prof. Fabio Maccaferri

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

To teach and investigate the most significant aspects of information systems methodically from an organisational and business perspective. The study of the concepts of organisational phenomena is backed up with the applicative elements that are indispensable to modern international organisations. The business opportunities offered by modern information technology, points to pay attention to, and the latest technological paradigms that support the corporate business model are also illustrated.

*Intended learning outcomes*

1. Knowledge and understanding

Students will be able to acquire basic technological and IT skills for a modern company, with the social and business implications deriving from it. Today we live in an information society, where connection of 4 billion people creates a parallel virtual world linked to reality; in this context, technical skills, combined with the ability to carry out sociological, political, linguistic, psychological, cultural, and economic (or, in other words, humanistic) analysis, are fundamental. Theoretical knowledge will allow students to understand the dynamics and the problems related to the virtual world applied to the new business models.

2. Applying knowledge and understanding

Students will be able to use their newly acquired knowledge to analyse the effects of technology in the different fields of application and, in particular, to understand, on a perspective basis, the issues that may be at the basis of the current evolutions of technology.

3. Ability to apply knowledge and to understand

Students will be able to formulate research paths on the effects of technology in the different areas of interest and draw conclusions within a business context defined by the social, political, linguistic, psychological, cultural, and economic variables that they can deduce, summarise, and contextualise in relation with the real world.

4. Communication skills

Although communication is not one of the key, specific objectives of the course, part of the course will cover various modes of communication through digital channels.

5. Learning skills

One of the primary objectives of this course is to provide students with the key concepts to identify the main aspects of the influence of technology and IT on today’s society. As a matter of fact, the speed of evolution has increased the importance of the ability to ask questions and identify the best methods and procedures to investigate and define issues, as well as recognise their effects and find answers.

***COURSE CONTENT***

The course will cover the following topics:

1. Introduction to information technology
   * Historic overview and development of the connected world
   * The main tools
   * New paradigms (cloud computing, grid computing, BYOD, 5G and tactile internet)
2. Technology for managing business: corporate IT systems
   * Introduction to corporate IT systems
   * Categories of corporate IT systems
   * The effects of technology on business and on corporate organisation
   * The function of IT systems and their users
   * Managing international IT systems
3. Technology for business
   * Economics of the internet: doing business online (pure-play internet companies, hybrid internet companies, bloggers and individuals)
   * New business models (direct, merchant, dropshipper and publisher)
   * Examples and success stories (Amazon, Spotify, YouTube etc.)
   * Social media and social media marketing
   * Digital customer experience
   * Digital neuromarketing
4. The ethical-social issues raised by emerging technology
   * New pathologies and social phenomena
   * Cybersecurity (digital security)
   * The law and IT systems
   * Algorithms and artificial intelligence

***TEACHING METHOD***

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| 1. **Introduction to information technology** | | |
| **Topic** | **Relevance** | **Teaching hours** |
| Historic overview and development of the connected world | Low | 1 |
| The main tools | Low | 1 |
| New paradigms (cloud computing, grid computing, BYOD, 5G and tactile internet) | High | 2 |
| **Module aims:**  To introduce students to IT through a detailed discussion describing the current technological world and its influence on society and the economy, beginning with a number of historical issues to help them understand the motivations, implications and impact of technological development. | | |

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| 1. **Technology for managing business: corporate IT systems** | | |
| **Topic** | **Relevance** | **Teaching hours** |
| Introduction to corporate IT systems | Medium | 2 |
| Categories of corporate IT systems | High | 2 |
| The effects of technology on business and corporate organisation | High | 3 |
| The function of IT systems and their users | Low | 1 |
| Managing international IT systems | Medium | 1 |
| **Module aims:**  Illustrating technology for automating the management of businesses and how and why modern companies must have an efficient and effective IT system. | | |

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| 1. **Technology for doing business** | | |
| **Topic** | **Relevance** | **Teaching hours** |
| Economics of the internet: doing business online (pure-play internet companies, hybrid internet companies, bloggers and individuals) | High | 2 |
| New business models (direct, merchant, dropshipper and publisher) | Medium | 1 |
| Examples and success stories (Amazon, Spotify, YouTube etc.) | Medium | 1 |
| Social media and social media marketing | High | 2 |
| Digital customer experience | High | 2 |
| Digital neuromarketing | Medium | 1 |
| Algorithms and artificial intelligence | High | 2 |
| **Module aims:**  To illustrate the world of online business, which is the business of the future that the pandemic has shown to be vital for everyone. It is a world entirely different from the real world: corporate IT systems, depending on how big they are, can have 100,000 users, or even 1,000,000 in some very populous countries or very large (often public) firms. They are, however, a restricted community of “colleagues”. The virtual world is completely different, connecting 4.8 billion users. It must be approached using different tools, far more sociological, linguistic, cultural and communicative than technical in nature. The underlying technology may be more complex, but it is still technology and, conceptually, does not differ greatly. 4.8 billion users are the world and the rules are completely different. | | |

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| 1. **The ethical-social issues raised by emerging technology** | | |
| **Topic** | **Relevance** | **Teaching hours** |
| New pathologies and social phenomena | High | 2 |
| Cybersecurity (digital security) | High | 3 |
| The law and IT systems | Medium | 1 |
| **Module aims:**  Technology, as with anything that develops rapidly and constitutes a competitive element, causes imbalance and generates significant ethical problems that we can neither ignore nor underestimate. In recent years, we have seen the transition from an economic digital divide (i.e. not being able to afford technology) to a cultural digital divide (i.e. not being able to use it and being unaware of its implications). Young people must have a basic grasp of IT ethics and related issues, as these will be the social and economic challenges of the future, We need only imagine how many “traditional” jobs robotics and artificial intelligence will be able to replace and make obsolete. | | |

***READING LIST***

Mainly the documents used in lectures and the material made available on Blackboard.

We also suggest the following texts:

* Frigerio, Maccaferri, Rajola, ICT e società dell’informazione, 2023 edition, McGraw-Hill Education (Italy), © 2023, ISBN 978-88-386-5620-0.
* K. Laudon-J. Laudon, *Management dei sistemi informativi,* 2009 (2nd Italian edition), Pearson Prentice Hall, Milan.

***TEACHING METHOD***

The course is taught over ten three-hour classroom lectures.

The following will be published on Blackboard:

* Lecture slides;
* Additional material to support learning in lectures;
* Audio-lectures to support exam preparation;
* A number of documents designed to guide students in approaching the texts;
* Question/answer on issues of general interest asked in lectures and via email.

***ASSESSMENT METHOD AND CRITERIA***

The exam comprises a written test with open questions, for which students will receive a mark. As a rule, the test comprises four questions and will last 40 minutes.

The questions are worth different marks, depending on their complexity and relevance. In general, the questions are categorised as follows:

two of “high” relevance

one of “medium” relevance

one of “low” relevance

“High” questions, which are generally more complex and advanced that those in the other two categories are worth 8-10 marks “Medium” questions range from 6-8 marks and “Low questions range from 4-6 marks.

The mark awarded for each question is determined by assigning a percentage of completeness to the given answer. This percentage is multiplied by the value given to the question and the sum of all individual scores is rounded up to whole mark (e.g. 27.6 becomes 28). Students are awarded distinction or *lode* when they score full marks on the questions and demonstrate in at least one answer a particular ability to grasp innovative aspects or to identify particular perspectives and/or concepts inherent in the theme of the question.

Each student will receive a commentary on the completeness of their answers, i.e. where they have not achieved 100%, the reasons for the consequent deduction will be made clear. All students, on request, may view their marked paper and have the reasons for their mark explained.

Provided they pass the written assessment, students may also take an optional oral exam to improve their mark. Taking the oral exam invalidates the mark for the written exam. In other words, if they fail the oral exam, they must retake the written exam.

***NOTES AND PREREQUISITES***

The exams will take place in presence.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.