

Study Guide for

Education in Information and Communication Technologies,

CODE MFORPROF-1-082

University of Oviedo, Spain

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Dear students, this guide will help you to understand course structure, assignments in virtual learning environment and link to the learning content. It will explain to you how to study and how your personal achievements will be assessed. You will find information on help contacts, contact hours with the teacher and other important issues.

First, here are the **learning outcomes** of the course. Having successfully completed the course, you will be able to:

- 1. Recognize the current state and evolution of Computing Technology, and the economic, social, and cultural implications*
 - 1.1 Analyse the role of Computing Technology in its different aspects: economic, social, cultural, etc. Distinguish between the main lines of development, and the supporting technologies. Analyse and classify the application areas, and its relation with the types of technologies applied.
 - 1.2 Locate the main milestones in Computing Technology history.
 - 1.3 Analyse the different professional profiles related to computing, and its main competences. Analyse its evolution, current state, and assess future job contexts.
- 2. Analyse and handle the main areas of application of computing technology in order to the personal and professional developing of citizens in modern society.*
 - 2.1 Develop the computational thinking competence, and other digital competences such as collaborative work, social cyber-interaction, and awareness of ethical and security issues.

Learning material is prepared to acquire these skills learning. It consists of:

- ✓ presentations and online consultations in virtual learning environment;
- ✓ videotutorials;
- ✓ different leaning tools and cooperative work tools;
- ✓ practical tasks;
- ✓ discussion forums;
- ✓ additional interesting and useful literature.

The main course topics and assignments are:

Content (topics)	Study week	Meetings/lectures	Assignments
First topic: Computing in the actual society			Learning outcomes: <i>Recognize the current state and evolution of Computing Technology, and the economical, social, and cultural implications</i>
<ol style="list-style-type: none"> 1. Presentation 2. What do you expect about Virtual Mobility? 	Week 1	4 February 14:30 - 16:00	
<ol style="list-style-type: none"> 1. Introduction to concept maps as a learning and working group tool. 	Week 2	11 February 14:30 - 16:00	<p>Act. 1 Using concept maps to learn about Asturias</p> <p>Act. 2 Using concept maps to learn about Oviedo</p> <p>Act. 3 Using concept maps to learn about the Spanish education system</p>
<ol style="list-style-type: none"> 1. Using rubrics to assess the concept maps activities from section 1 2. Presentation of the Education System structure using concept maps. 3. Tools in the cloud (Google Drive) <ul style="list-style-type: none"> • Creating a portfolio • Using an advanced references repository 	Week 3	18 February 14:30 - 16:00	<p>Act. 4 Individual essay about the technological evolution of the discipline (assigned subtopic)</p>
<p>Technological evolution of the discipline</p> <ol style="list-style-type: none"> 1. Group work activity: Experts meeting (puzzle method) 2. Introduction to wikis 3. Act. 5. Wiki collaboration by publishing developed work 	Week 4	25 February 14:30 - 16:00	<p>Act. 5 (groups) Continuation of the in-class activity</p> <p>Act.6 (individual) Develop the synthesis and conclusions of the topic, and include them in a wiki linking to a page suitably generated</p>
<p>Technological evolution of the discipline</p> <ol style="list-style-type: none"> 1. Experts group meeting (puzzle method) to review the topic 2. Developing a timeline: “the 40 most important milestones of computing technology” 	Week 5	3 March 14:30 - 16:00	<p>Act.7 (groups) Develop a timeline with the main milestones of the discipline. Include the important figures in ICT that have been awarded the “Prince of Asturias Awards”</p>
<p>Technological evolution of the discipline</p> <ol style="list-style-type: none"> 1. Presenting the timeline <p>Technological, economic, social, and cultural implications of the developing of the computing technology</p> <ol style="list-style-type: none"> 2. Brainstorming 	Week 6	10 March 14:30 - 16:00	<p>Act 8 (groups) Develop a conceptual map : poster: Technological, economic, social, and cultural implications of the developing of the computing technology</p>

<p>a. Implications in society b. Implications in everyday life</p> <p>3. Developing a concept map</p>			
<p>Technological, economic, social, and cultural implications of the developing of the computing technology</p> <p>1. Presenting the concept map 2. Preparing the dissemination and popularization essay about “impact of Computing on society”</p>	<p>Week 7</p>	<p>17 March 14:30 - 16:00</p>	<p>Act. 9 (Individual) Essay about the impact of Computing on society</p>
<p>SECOND TOPIC: Main Computing abilities needed for XXI century citizens</p>		<p><i>Learning outcomes: Analyse and handle the main areas of application of computing technology in order to the personal and professional developing of citizens in modern society.</i></p>	
<p>Main areas of the digital era to be skilled at:</p> <p>1- Computational thinking 2- Publishing and dissemination of contents 3- Developing of multimedia contents 4- Internet and social networks 5- Collaborative work tools 6- Security, ethics, and aesthetics in the use of technology</p>	<p>Week 8</p>	<p>24 March 14:30 - 16:00</p>	<p>Act. 10 (groups) Work on one of these modules: 1. Theoretical foundations 2. Design of activities</p>
<p>Modulo I: Computational Thinking</p> <p>1. Theoretical foundations</p> <ul style="list-style-type: none"> Benefits of learning programming <p>2. Activities</p> <ul style="list-style-type: none"> Introduction to the Scratch language activities Developing a labyrinth game program 	<p>Week 9</p>	<p>31 March 14:30 - 16:00</p>	<p>Act. 11 (individual) Expanding the labyrinth game Act. 12 (individual) Designing a question and answer game about Spanish and Asturian culture</p>
<p>Module II. Publishing and dissemination of Contents</p> <p>1. Theoretical foundations:</p> <ul style="list-style-type: none"> Classifying and describing technical means of publishing on the internet <p>2. Activities</p> <ul style="list-style-type: none"> Creating a personal blog: first steps 	<p>Week 10</p>	<p>7 April 14:30 - 16:00</p>	<p>Act. 13 (individual) Develop a blog as the student portfolio, including the activities developed so far, and adding an essay about Spanish culture</p>
<p>Module III. Editing multimedia contents</p> <p>1. Theoretical foundations</p> <ul style="list-style-type: none"> Classifying and describing types of tools for creating contents <p>2. Activities</p> <ul style="list-style-type: none"> Creating a videotutorial: first steps 	<p>Week 11</p>	<p>14 April 14:30 - 16:00</p>	<p>Act. 14 (individual) Choose from</p> <ul style="list-style-type: none"> Develop a video about a specific topic (Spain/Asturias), and publish it in YouTube Create a videotutorial about a tool, and publish it in YouTube Create and audio podcast and publish it

Module IV. Internet and Social Networks 1. Theoretical foundations <ul style="list-style-type: none"> Advanced search of information on the internet Specialized repositories Social Networks, classification 2. Activities <ul style="list-style-type: none"> Introduction to the Edmodo learning tool and social network. 	Week 12	21 April 14:30 - 16:00	Act. 15 (individual) Choose from <ul style="list-style-type: none"> Advanced search Using a repository for learning resources
Module V: Collaborative work tools 1. Theoretical foundations <ul style="list-style-type: none"> Classifying and describing collaborative work tools on the net 2. Activities <ul style="list-style-type: none"> Introducing a project management tool 	Week 13	28 April 14:30 - 16:00	Act 16 (Individual) <ul style="list-style-type: none"> Expand the project management activity Using a shared calendar activity
Module VI: Security, Ethics, and Aesthetics in the use of technology 1. Theoretical foundations <ul style="list-style-type: none"> Security and ethics habits when using software and data Security and ethics habits when sharing and exchanging information Security and ethics habits when using the net for communication 2. Activities <ul style="list-style-type: none"> Using repositories of Creative Commons licensed resources 	Week 14	5 May 14:30 - 16:00	Act: 17 (Individual) <ul style="list-style-type: none"> Create a license for own material Activity about raising awareness on good security and ethics habits

Online video meetings will take place online at

<http://www.openstudies.eu/content/education-information-and-communication-technologies>

Methodology

- The course is organized into 14 weekly sessions (in-class/online).
- Sessions are 1.5 hours long videoconferences, using the Adobe Connect tool.
- Sessions will take place each week at the same day and hour.
- Session attendance is mandatory, **both individual and group activities will be developed by the student** in the sessions.
- In addition to the in-class/online activities in the videoconferences, there will be out-of-class activities that should be finished by the next session.
- All the activities are part of the evaluation.

Evaluation:

<i>Activities</i>	<i>Weight</i>	<i>Total of the final mark</i>
Individual activities	55 % each	55 % each
Teamwork	35 % each	35 % each
Attendance and participation	10 %	10 %
Total:	100 %	

	MAX
SECTION 1	
INDIVIDUAL ACTIVITIES SECTION 1	
Act. 1 Concept map about Oviedo	0.3
Act. 2 Concept map about Asturias	0.3
Act. 3 Concept map about the education system	0.3
Act. 4 Evolution of the Computing Technology	0.6
Act. 6 Synthesis and Reflection about the Evolution of Technology	0.4
Act. 9 Essay about "the impact of computing on society"	0.5
TOTAL INDIVIDUAL ACTIVITIES SECTION 1	2.4
GROUP ACTIVITIES SECTION 1	
Act. 5 Wiki for the Evolution of Computing Technology	0.3
Act. 7 Timeline "40 main milestones of Computing Technology "	0.4
Act. 8 Poster Differences and similarities between Asturias and your own country	0.4
TOTAL GROUP ACTIVITIES SECTION 1	1.1
SECTION 2	
INDIVIDUAL ACTIVITIES SECTION 2	
Module 1	0.4
Module 2	0.4
Module 3	0.4
Module 4	0.4
Module 5	0.4
TOTAL INDIVIDUAL ACTIVITIES SECTION 2	2
GROUP ACTIVITIES SECTION 2	
1 - Theoretical foundations	1.2
2- Design of activities	1.2
GROUP ACTIVITIES SECTION TEMA 2	2.4
INDIVIDUAL PRESENTATION SECTION 2	
3- Theoretical foundations presentation	0.5
4- Activities management	0.6
TOTAL INDIVIDUAL PRESENTATION SECTION 2	1.1
Attendance and class participation	1.0
TOTAL INDIVIDUAL ACTIVITIES	5,5
TOTAL GROUP ACTIVITIES	3,5
TOTAL	10.0

