

## 820056 - PVAPC - Value-Added Productivity with a PC

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering

Teaching unit: 723 - CS - Department of Computer Science

Academic year: 2015

Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)  
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)

ECTS credits: 6 Teaching languages: Catalan, Spanish

### Teaching staff

Coordinator: prof. Ferran Virgós Bel

Others: prof. Ferran Virgós Bel  
prof. Ferran Juan Barel

### Prior skills

User level (recomended)

### Requirements

First semester informatics(recomended)

### Degree competences to which the subject contributes

Transversal:

1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

### Teaching methodology

Mainly active. Short oral presentations continued by guided exercises.

### Learning objectives of the subject

Facilitate basic & complementary knowledge To allow the use of tools to increase personal productivity with PC. All oriented to improve decision making in managerial & engineering environments.

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### Study load

|                           |                     |     |        |
|---------------------------|---------------------|-----|--------|
| Total learning time: 150h | Hours large group:  | 60h | 40.00% |
|                           | Hours medium group: | 0h  | 0.00%  |
|                           | Hours small group:  | 0h  | 0.00%  |
|                           | Guided activities:  | 0h  | 0.00%  |
|                           | Self study:         | 90h | 60.00% |

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### Content

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|---|--|
| <p>(ENG) M1. Improving productivity using Word processing</p>   | <p>Learning time: 36h<br/>Laboratory classes: 16h<br/>Self study : 20h</p> |
| <p>Description:<br/>W1a. Word processing. Introduction &amp; Page Layout.<br/>W2a. Text layout.<br/>W3a. Other tools (tabs, bullets, etc.).<br/>W4a. Spelling &amp; Grammar.<br/>W5a. Graphics.<br/>W6a. Advanced tools: styles &amp; document layout.<br/>W7a. Advanced tools: creating big documents.<br/>W8a. Macros. Automating repetitive tasks.</p> <p>Related activities:<br/>Presenting concepts.<br/>Completing dossier<br/>Task NP1a</p> <p>Specific objectives:<br/>Use correctly the word processing tool to create a big document, as the grade final dissertation.</p>  |  |
| <p>(ENG) M2. Spreadsheet as a main element to improve productivity &amp; add value</p>  | <p>Learning time: 26h<br/>Laboratory classes: 16h<br/>Self study : 10h</p> |
| <p>Description:<br/>W1b. General concepts. Basic actions. Input/storage/presentation of data. Formats &amp; precisions. First simple models.<br/>W2b. Deepening with formats. Conditional &amp; personal formating.<br/>W3b. A step forward. Time/Date format &amp; storage. Absolute/relative adressing. Giving names to cells.<br/>W4b. Graphics &amp; importing data.<br/>W5b. Introducing functions (mathematical, statistical. logical, information).<br/>W6b. Financial functions.<br/>W7b. Lookup functions (VlookUp,...)<br/>W8b, Lists, filters, pivot tables.</p> <p>Related activities:<br/>Presenting concepts.<br/>Completing dossier<br/>Task NP1b</p> <p>Specific objectives:<br/>Be able to analyze a problem &amp; propose a model with spreadsheet to solve it, using basic tools, including functions.</p> |  |

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| <p>(ENG) M3. Modelling &amp; sensitivity analysis</p>  | <p>Learning time: 23h<br/>Laboratory classes: 8h<br/>Self study : 15h</p> |
| <p>Description:<br/>W9b. Concept of modelling. Parameters &amp; variables. Need to protect &amp; validate cells in a model.<br/>W10b. Adjusting curves. On the graphic. Specific functions.<br/>W11b. Goal &amp; sensitivity analysis (what if).<br/>W12b. Optimization (solver). Aplying it to curve adjustment.</p> <p>Related activities:<br/>Presenting concepts.<br/>Completing dossier<br/>Task NP2b</p> <p>Specific objectives:<br/>Build a model identifying input &amp; output variables in such a way that can later ask for sensitivity analysis.</p> |   |
| <p>(ENG) M4. Scenarios, Macros &amp; introducing VBA programming</p>   | <p>Learning time: 26h<br/>Laboratory classes: 6h<br/>Self study : 20h</p> |
| <p>Description:<br/>S13b. Scenarios. Concept &amp; applications.<br/>S14b. Macros &amp; user functions.<br/>S15b. Applying through an example. Exam.</p> <p>Related activities:<br/>Presenting concepts.<br/>Completing dossier<br/>Task NP3b</p> <p>Specific objectives:<br/>Applying scenarios &amp; macros as additional tools to build general models.</p>   |   |

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| <p>(ENG) M5. Introduction to Data Base using specific tools</p>  | <p>Learning time: 39h<br/>Laboratory classes: 14h<br/>Self study : 25h</p> |
| <p>Description:<br/>W9a. Introduction. Entity-relationship model.<br/>W10a. Designing tables &amp; relationships.<br/>W11a. Forms design.<br/>W12a. Queries design.<br/>W13a. Report design.<br/>W14a. DataBase design (I).<br/>W15a. DataBase design (II).<br/>W11a.</p> <p>Related activities:<br/>Presenting concepts.<br/>Completing dossier<br/>Task NP2a</p> <p>Specific objectives:<br/>Build small applications using DB products.</p> |  |

### Qualification system

- 10% intermediate quiz
- 20% dossier
- 20% final exam
- 20% LAB
- 30% (other jobs developed at home)

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### Bibliography

#### Basic:

McFedries, Paul. Excel 2007 : fórmulas y funciones. Madrid: Anaya Multimedia, cop. 2008. ISBN 9788441522442.

Dodge, Mark; Stinson, Craig. Excel 2007. Madrid: Anaya Multimedia, 2007. ISBN 9788441522183.

Coles, Susan; Rowley, Jennifer. "Spreadsheet modelling for management decision making". Industrial management & data systems [on line]. Vol. 96, núm. 7 (1996), p. 17-23 [Consultation: 25/07/2011]. Available on:  
<<http://www.emeraldinsight.com/journals.htm?issn=0263-5577&volume=96&issue=7&articleid=849837&show=html>>.

Robson, Andrew J. "The Spreadsheet: How It Has Developed into a Sophisticated Modelling Tool". Logistics Information Management [on line]. Vol. 7, núm. 1 (1994), p. 17-23 [Consultation: 25/07/2011]. Available on:  
<<http://www.emeraldinsight.com/journals.htm?issn=0957-6053&volume=7&issue=1&articleid=851890&show=html>>.

#### Complementary:

Seref, Michelle M. H.; Ahuja, Ravindra K.; Winston, Wayne L. Developing spreadsheet-based decision support systems : using Excel and VBA for Excel. Belmont, Mass: Dynamic Ideas, cop. 2007. ISBN 9780975914656.

Weida, Nancy; Richardson, Ronny; Vazsonyi, Andrew. Operations analysis using Microsoft Excel. Pacific Grove: Duxbury Thomson Learning, cop. 2001. ISBN 0534517390.

Taylor, Bernard W.. Introduction to management science. 11th ed. Boston, [Mass.] ; London: Pearson, 2013. ISBN 9780273766407.

Albright, S. Christian. Management science modeling. 4th. United Kingdom [etc.]: South-Western Cengage Learning, cop. 2012. ISBN 9781111532451.