UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course:	AUTOMATION AND PROCESS IMPROVEMENT	**Code:**	42360
Type:	ELECTIVE	**ECTS credits:**	6
Degree:	405 - DEGREE IN COMPUTER SCIENCE ENGINEERING (TA)	**Academic year:**	2022-23
Center:	15 - FACULTY OF SOCIAL SCIENCES AND INFORMATION TECHNOLOGIES	**Group(s):**	60
Year:	3	**Duration:**	C2
Main language:	Spanish	**Second language:**	
Use of additional languages:	Additional technical documentation in English.	**English Friendly:**	Y
Web site:		**Bilingual:**	N

Lecturer: **SANTIAGO SÁNCHEZ SOBRINO** - Group(s): **60**

Building/Office	Department	Phone number	Email	Office hours
Facultad de Ciencias Sociales Sociales y Tecnologías de la Información / Despacho 2.15	TECNOLOGÍAS Y SISTEMAS DE INFORMACIÓN		Santiago.Sanchez@uclm.es	Available at https://www.uclm.es/toledo/fcsociales/grado-informatica/profesorado-y-tutorias

2. Pre-Requisites

Not established, although in order to take this subject it is advisable to have taken the Basic Training modules (Module I) and the module Common to the Computer Science Branch (Module II).

3. Justification in the curriculum, relation to other subjects and to the profession

This course belongs to the intensification of Information Systems.

The traditional way of developing **information systems**, and the software that supports them, is not capable of responding to the **needs of companies** with the speed and agility that today's world demands. To solve the problem, **new working methods** have been devised based, among other things, on:

- using **models** that represent the company and its systems in notations that are understandable to both IT experts and business managers
- developing software applications directly from such models, including automatic **generation** of source code
- use of tools to **automate** the entire lifecycle of **processes** carried out by organisations.

In addition to providing an understanding of these new ways of working, the central **focus** of the course will be on **learning to work** with some of the key technologies for this, especially business process design with **BPMN** standard and automation with BPMS software.

4. Degree competences achieved in this course

Course competences

Code	Description
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
INS04	Problem solving skills by the application of engineering techniques.
PER02	Ability to work in an international context.
SI01	Ability to integrate information and communiction technology solutions and entrepeneurial process so as to fulfil the needs for information in organisation, allowing them to meet their goals in an effective and efficient manner, providing them with competitive benefits.
SI03	Ability to actively take part in the specification, design, implementation, and maintenance of informaiton and communication systems.
SI04	Ability to understand and apply principles and practices of organisations in such a way that they can be the link between technical and managerial aspects, and actively participate in the user's learning process.
SIS01	Critical thinking.
SIS03	Autonomous learning.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowledge and use of key technologies for business intelligence, in order to provide the organisation with solutions for advanced decision making.

Understanding the need and importance of IT integration with business goals.

Ability to model business processes and automate from them.

Ability to use appropriate frameworks and languages to manage and integrate business, systems and data, and infrastructure architectures.

Working with technology for business process management.

Knowledge of the fundamentals, techniques and methodologies of business process management.

Additional outcomes

Understand the benefits of applying good engineering practices to various aspects of business, and to the information systems that support them.

6. Units / Contents

Unit 1: Introduction to process management

Unit 2: Business Process Management (BPM)

- **Unit 2.1** Introduction to BPM
- **Unit 2.2** Process identification

Unit 3: Business Process Design (BPMN)

- **Unit 3.1** BPMN: Essential Modelling
- **Unit 3.2** BPMN: Advanced Modelling

Unit 4: Process Improvement

- **Unit 4.1** Qualitative analysis of the process
- **Unit 4.2** Quantitative analysis of the process

Unit 5: Business Process Automation (BPMS)

- **Unit 5.1** Process redesign
- **Unit 5.2** Process automation

ADDITIONAL COMMENTS, REMARKS

The laboratory consists of carrying out different case studies, in which different business processes are modelled with the BPMN standard, and learning how to simulate and automate their execution using a BPMS type tool:

1. Modelling a Loan Request Process
2. Modelling of a Mortgage Management Process
3. Simulation of a Credit Application Process
4. Automation of an Examination Date Change Process

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB04 SI01 SI03 SI04 SIS01	0.6	15	N	-	Teaching of the subject matter by lecturer (MAG)
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	PER02 SI01 SI03 SI04 SIS01 SIS03	0.6	15	Y	N	Worked example problems and cases resolution by the lecturer and the students (PRO)
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB04 INS04 PER02 SI01 SI03 SI04 SIS01 SIS03	0.72	18	Y	Y	Realization of practicals in laboratory /computing room (LAB)
Individual tutoring sessions [ON-SITE]		CB04 SIS01	0.18	4.5	N	-	Individual or small group tutoring in lecturer¿s office, classroom or laboratory (TUT)
Final test [ON-SITE]	Assessment tests	CB04 INS04 PER02 SI01 SI03 SI04 SIS01 SIS03	0.3	7.5	Y	Y	Final test of the complete syllabus of the subject (EVA)
Study and Exam Preparation [OFF-SITE]	Self-study	SIS03	1.8	45	N	-	Self-study (EST)
Writing of reports or projects [OFF-SITE]	Self-study	CB04 INS04 PER02 SI01 SI03 SI04 SIS01 SIS03	0.9	22.5	Y	N	Preparation of essays on topics proposed by lecturer (RES)
Other off-site activity [OFF-SITE]	Practical or hands-on activities	CB04 INS04 PER02 SIS01 SIS03	0.72	18	N	-	Lab practical preparation (PLAB)
		Total:	**5.82**	**145.5**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.42					**Total hours of out of class work: 85.5**

As: Assessable training activity
Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	50.00%	50.00%	Compulsory activity that can be retaken (rescheduling) to be carried out within the planned exam dates of the final exam call (convocatoria ordinaria)
Assessment of active participation	10.00%	0.00%	Non-compulsory activity that cannot be retaken. To be carried out during the theory/lab sessions for students in the continuous assessment modality
Theoretical papers assessment	15.00%	15.00%	Non-compulsory activity that can be retaken. To be carried out before end of teaching period
Laboratory sessions	25.00%	25.00%	Compulsory activity that can be retaken. To be carried out during lab sessions
Total:	**100.00%**	**90.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

In compulsory activities, a minimum mark of 40% is required in order to pass that activity and have the possibility to therefore pass the entire subject. The evaluation of the activities will be global and therefore must be quantified by means of a single mark. If the activity consists of several sections, each section may be evaluated separately provided students are informed in writing of this evaluation criterion at the beginning of the academic year. In the case of the activities that may be retaken (i.e., rescheduling), an alternative activity or test will be offered in the resit/retake exam call (convocatoria extraordinaria).

The final exam will be common for all the theory/laboratory groups of the subject and will be evaluated by the lecturers of the subject in a serialway, i.e., each part of the final exam will be evaluated by the same lecturer for all the students.

A student is considered to pass the subject if she/he obtains a minimum of 50 points out of 100, taking into account the points obtained in all the evaluable activities, and also has passed all the compulsory activities.

For students who do not pass the subject in the final exam call (convocatoria ordinaria), the marks of activities already passed will be conserved for the resit/retake exam call (convocatoria extraordinaria). In the case of the passed recoverable activities, the student will have the opportunity to receive an alternative evaluation of those activities in the resit/retake exam call and, in that case, the final grade of the activity will correspond to the latter grade obtained.

The mark of the passed activities in any call, except for the final test, will be conserved for the next academic year at the request of the student, provided that it is equal or superior to 5 and the training activities and the evaluation criteria of the subject are not modified in the next academic year.

The failure of a student to attend the final test will automatically result in her/him receiving a "Failure to attend" (no presentado). If the student has not passed any compulsory evaluation activity, the maximum final grade will be 40%.

Non-continuous evaluation:

Students who are unable to attend training activities on a regular basis may apply at the beginning of the semester for the non-continuous assessment mode. Similarly, if a student who is undergoing continuous assessment incurs any circumstance that prevents her/him from regularly attending the classroom-based training activities, she/he may renounce the accumulated mark in continuous assessment and apply for the non-continuous assessment mode.

In the same way, the student may change to the non-continuous evaluation mode as long as she/he has not participated during the teaching period in evaluable activities that together account for at least 50% of the total mark of the subject. If a student has reached this 50% of the total obtainable mark or the teaching period is over, she/he will be considered in continuous assessment without the possibility of changing to non-continuous evaluation mode.

Students who take the non-continuous assessment mode will be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences), through the assessment systems indicated in the column "Non-continuous assessment".

In the "non-continuous assessment" mode, it is not compulsory to keep the mark obtained by the student in the activities or tests (progress test or partial test) taken in the continuous assessment mode.

Specifications for the resit/retake exam:

Evaluation tests will be conducted for all recoverable activities.

Specifications for the second resit / retake exam:

Same characteristics as the resit/retake exam call.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**

General comments about the planning: The course is taught in three weekly sessions of 1.5 hours. All classes are taught in the laboratory so that theory and practical activities can be interchanged.

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Dumas, M., La Rosa, M., Mendling, J., Reijers, H.	Fundamentals of Business Process Management. 2nd edition http://fundamentals-of-bpm.org/	Springer		978-3662565087	2018	en papel y electrónico
J. Freund, B. Rucker, B. Hitpass	BPMN 2.0 Manual de Referencia y Guía Práctica	CreateSpace Independent Publishing Platform		978-1546905783	2017	en papel y electrónico
M. Weske	Business Process Management: Concepts, Languages, Architectures	Springer		978-3662594315	2019	en papel y electrónico