SUBJECT TEACHING GUIDE

G667 - Software Services

Degree in Computer Systems Engineering

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering			Type and Year	Optional. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: Software Engineering Mention in Software Engineering				
Course unit title and code	G667 - Software Services				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web	http://moodle.unican.es				
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
Name of lecturer	PATRICIA LOPEZ MARTINEZ
E-mail	patricia.lopez@unican.es
Office	Facultad de Ciencias. Planta: + 3. DESPACHO PROFESOR (3051)
Other lecturers	

3.1 LEARNING OUTCOMES
- Knowledge in the basic principles and characteristics of the service-oriented paradigm and its main supporting technologies.
- Development of WSDL/SOAP Services and REST Services.
- Application of service-oriented architectures in the development of software applications.
- Managing security aspects in the development of service-oriented applications.
- Usage of IDEs for the development of web services.

4. OBJECTIVES
To know the origin and basic principles of service-oriented computing and service-oriented architectures.
To know the basic principles and main differences between the two main service-oriented technologies: WSDL/SOAP based and REST services.
To know and apply techniques for web services composition and coordination.
To develop both individual services and service-based applications applying both the REST and the WSDL/SOAP technologies.
To use service-oriented development environments.
To manage aspects related with security in the development of services.

6. COURSE ORGANIZATION	
CONTENTS	
1	SUPPORTING TECHNOLOGIES FOR WEB SERVICES - Review of HTTP, URI, XML, JSON. - Web servers and application servers.
2	INTRODUCTION TO SERVICE-ORIENTED COMPUTING - Origin of service oriented approaches. - Terminology and basic concepts. - SOC and SOA. - Service-oriented software engineering.

3	WEB SERVICES TECHNOLOGY (BIG WEB SERVICES)
	- SOAP web service definition.
	- Basic standards:
	  - Standard for services definition (WSDL).
	  - Standard for services communication (SOAP).
	  - Standard for services discovery and publishing (UUID).
	- Security on SOAP web services (WS-Security).
	- Design and implementation of SOAP web services.
	- Design and implementation of SOAP web services clients.
	- Java support for the development of SOAP web services: Apache Axis 2 and JAX-WS.

4	REST SERVICES TECHNOLOGY - REST architectural style. - Resource oriented architectures. - Design and implementation of REST services. - Design and implementation of REST clients. - Java support for the development of REST services: JAX-RS.
5	SERVICES COMPOSITION AND COORDINATION - Business processes based on service composition. - Service Composition: BPEL language. - Service Coordination.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
The final exam consists in a set of short questions and exercises. The students can bring notes, books or any other type of written material to the exam, but cannot use any kind of electronic device.	Written exam	Yes	Yes	30,00
The students will have a number of lab assignments. The final qualification will be obtained as the weighted average of the proposed assignments. The weights will be determined at the start of the semester.	Work	No	Yes	70,00
TOTAL				100,00

Observations

To pass the subject is necessary to score a minimum mark of 4.9 in both the final exam and the lab assginments. The qualification of those students that pass only one of the parts in the ordinary examination session will be calculated as the minimun of 4.9 and the obtained average qualification. In the extraordinary session those students can address only the reassesment of the previously failed part.
In the case of the practice part, reassesment in the extraordinary session will consist in a detailed presentation of the lab assignments qualified with a mark less than 4.0.

Observations for part-time students

Part-time students can follow the same rules than regular students, since assistance to the classes is not mandatory.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Gustavo Alonso et al., “Web Services: Concepts, Architectures and Applications", Springer, 2004.

Roy T. Fielding and N.Richard, "Principled Design of the Modern Web Architecture", ACM Transactions on Internet Technology 2 (2): 115–150, 2002.

Leonard Richardson and Sam Ruby, “RESTful Web Services”, O’Reilly, 2007.

Antonio Goncalves, "Beginning Java EE 7", 2nd Edition, Apress, 2013.