

SUBJECT TEACHING GUIDE

G667 - Software Services

Degree in Computer Systems Engineering

Academic year 2022-2023

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
- Development of software applications using service oriented architectures.
- Using web services development environments.
- Managing security-related aspects in the development of software systems.

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 know how to manage aspects related with security in the development of web services.

6. COURSE ORGANIZATION

CONTENTS	
1	<p>SUPPORTING TECHNOLOGIES FOR WEB SERVICES</p> <ul style="list-style-type: none"> - Review of HTTP, URI, XML, JSON. - Web servers and application servers.
2	<p>INTRODUCTION TO SERVICE-ORIENTED COMPUTING</p> <ul style="list-style-type: none"> - Origin of service oriented approaches. - Terminology and basic concepts. - SOC and SOA. - Service-oriented software engineering.
3	<p>WEB SERVICES TECHNOLOGY (BIG WEB SERVICES)</p> <ul style="list-style-type: none"> - WSDL/SOAP web service definition. - Basic standards: <ul style="list-style-type: none"> - Standard for services definition (WSDL). - Standard for services communication (SOAP). - Security on SOAP web services (WS-Security). - Java support for the development of SOAP web services and clients.
4	<p>REST SERVICES TECHNOLOGY</p> <ul style="list-style-type: none"> - REST architectural style. - Resource oriented architectures. - Security in REST services. - Java support for the development of REST services and clients. - Introduction to GraphQL.
5	<p>SERVICES COMPOSITION AND COORDINATION</p> <ul style="list-style-type: none"> - Business processes based on service composition. - Service Composition. - 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				
<p>To pass the subject it is compulsory to score a minimum mark of 4.0 in the final exam and of 4.5 the lab assignments. The qualification of those students that pass only one of the parts in the ordinary examination session will be calculated as the minimum of 4.9 and the obtained average qualification. In the extraordinary session those students can address only the reassessment of the previously failed part.</p> <p>In the case of the practice part, reassessment in the extraordinary session will consist in a detailed presentation of the lab assignments qualified with a mark less than 4.5 in the ordinary session.</p>				
Observations for part-time students				
<p>Part-time students are to follow the same rules than regular students, since, except for written examinations, attendance to class is not mandatory. The written examinations are not supposed to be a problem for part-time students since they are scheduled at quite well in advanced designated dates. Nevertheless, participation at least in the practical sessions is highly recommended.</p>				

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.