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300042 - DSA - Service and Application Design

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering

Teaching unit: 701 - AC - Department of Computer Architecture
744 - ENTEL - Department of Network Engineering

Academic year: 2018

Degree: BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN AIRPORT ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN AIR NAVIGATION ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)

ECTS credits: 10 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: Definit a la infoweb de l'assignatura.

Others: Definit a la infoweb de l'assignatura.

Prior skills

· Basic knowledge of object oriented programming language
· Basic skills in programming
· Knowledge of transport and application layer protocols

Degree competences to which the subject contributes

Specific:

1. CE 23 TEL. Capacidad de construir, explotar y gestionar servicios telemáticos utilizando herramientas analíticas de planificación, de dimensionado y de análisis.(CIN/352/2009, BOE 20.2.2009.)
2. CE 26 TEL. Capacidad de diseñar arquitecturas de redes y servicios telemáticos. (CIN/352/2009, BOE 20.2.2009.)

Generical:

5. PROJECT MANAGEMENT - Level 3: Define the objectives of an extensive project and open, multidisciplinary. Schedule tasks and resources, track and integration of the parties. To evaluate the intermediate and final results, restating the objectives if necessary.
8. EFFICIENT USE OF EQUIPMENT AND INSTRUMENTS - Level 1: Using instruments, equipment and software from the laboratories of general or basic use. Realising experiments and proposed practices and analyzing obtained results.

Transversal:

3. 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.
4. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
6. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
7. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

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9. EFFECTIVE USE OF INFORMATI0N RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.

Teaching methodology

Course applies the following methodologies:
· Autonomous learning
· Cooperative learning
· Project based learning
· Autoevaluation
· Laboratory

Learning objectives of the subject

· Intermediate Java skills
· Use and design of relational databases
· Design and development of RESTful web services
· Design and development of Android Applications
· Design and development of web user interfaces with HTML5 and jQuery
· Real project design and development

Study load

Total learning time: 250h	Hours large group:	0h	0.00%
	Hours medium group:	0h	0.00%
	Hours small group:	70h	28.00%
	Guided activities:	40h	16.00%
	Self study:	140h	56.00%

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Content

Introduction to Java development with Maven and Git

Learning time: 3h
Laboratory classes: 3h

Related activities:
(ENG) 1

Version Control with Git

Learning time: 8h
Guided activities: 3h
Self study : 5h

Related activities:
(ENG) 1

Java basics

Learning time: 36h
Guided activities: 6h
Self study : 30h

Description:
(ENG) 3.1 Direccions IP, URLs i URIs
3.2 Sockets per a clients
3.3 Sockets per a servidors
3.4 Datagrames i sockets UDP
3.5 Sockets multicast
3.6 Connexions URL
3.7 Apache HttpClient

Related activities:
(ENG) 1

Databases and JDBC

Learning time: 12h
Laboratory classes: 4h
Guided activities: 3h
Self study : 5h

Related activities:
(ENG) 1

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Java Web Applications with Servlets and JSP	Learning time: 21h Laboratory classes: 8h Guided activities: 3h Self study : 10h

Description:
(ENG) 5.1 Configuració de l'entorn de desenvolupament
5.2 Projectes Android
5.3 Activitats
5.4 Disposicions basades en XML
5.5 Controls bàsics
5.6 Internacionalització
5.7 Persistència
5.8 Comunicacions via HTTP
5.9 Concurrència

Related activities:
(ENG) 1

RESTful web services	Learning time: 54h Laboratory classes: 15h Guided activities: 9h Self study : 30h

Related activities:
(ENG) 1

Web user interfaces with Bootstrap and jQuery	Learning time: 28h Laboratory classes: 10h Guided activities: 3h Self study : 15h

Related activities:
(ENG) 1

Android development introduction	Learning time: 28h Laboratory classes: 10h Guided activities: 3h Self study : 15h

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Project	Learning time: 60h Laboratory classes: 20h Guided activities: 10h Self study : 30h

Planning of activities

(ENG) TÍTOL ACTIVITAT 1: PROJECTE	Hours: 250h Laboratory classes: 75h Guided activities: 35h Self study: 140h

Qualification system

The weights to calculate the final qualification are:
· Deliver in time the course tasks (10%)
· Exams(40%)
· Project(40%)
· Attitude and involvement (10%)

The task delivery is evaluated with the maximum between the exams qualification and project qualification if all the tasks have been delivered in time, and with zero if not.

The project is evaluated with an average group qualifications. Students divide the qualification in such a way that the final average is equal to the average qualification given by the teachers.

Bibliography

Basic:

Eckel, Bruce. Thinking in Java. 4th ed. Upper Saddle River: Prentice Hall, 2006. ISBN 0131872486.

Murphy, Mark L. Beginning Android 2. New York: Apress, 2010. ISBN 9781430226291.

Complementary:

Hashimi, Sayed Y.; Komatineni, Satya; MacLean, Dave. Pro Android 2 [on line]. New York: Apress, 2010Available on: <http://proquest.safaribooksonline.com/9781430226598?uicode=politicat>. ISBN 9781430226598.

Northover, Steve; Wilson, Mike. SWT, the standard widget toolkit. Boston [etc.]: Addison-Wesley, 2004-. ISBN 0321256638.

Oaks, Scott; Wong, Henry. Java threads [on line]. 3rd ed. Cambridge [etc.]: O'Reilly, 2004Available on: <http://proquest.safaribooksonline.com/0596007825?uicode=politicat>. ISBN 0596007825.

Harold, Elliotte Rusty. Java network programming [on line]. 2nd ed. Cambridge [etc.]: O'Reilly, 2000Available on: <http://proquest.safaribooksonline.com/0596007213?uicode=politicat>. ISBN 1565928709.

Others resources: