Universitat de Lleida

DEGREE CURRICULUM

FREE SOFTWARE ENGINEERING

Coordination: GIMENO ILLA, JUAN MANUEL

Academic year 2017-18

FREE SOFTWARE ENGINEERING 2017-18

Subject's general information

<table>
<tr><td><b>Subject name</b></td><td>FREE SOFTWARE ENGINEERING</td></tr>
<tr><td><b>Code</b></td><td>102056</td></tr>
<tr><td><b>Semester</b></td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td><b>Typology</b></td><td><table><tr><th>Degree</th><th>Course</th><th>Typology</th><th>Modality</th></tr><tr><td>Bachelor's Degree in Computer Engineering</td><td>4</td><td>COMPULSORY</td><td>Attendance-based</td></tr></table></td></tr>
<tr><td><b>ECTS credits</b></td><td>6</td></tr>
<tr><td><b>Groups</b></td><td>1GG</td></tr>
<tr><td><b>Theoretical credits</b></td><td>3</td></tr>
<tr><td><b>Practical credits</b></td><td>3</td></tr>
<tr><td><b>Coordination</b></td><td>GIMENO ILLA, JUAN MANUEL</td></tr>
<tr><td><b>Department</b></td><td>INFORMATICA I ENGINYERIA INDUSTRIAL</td></tr>
<tr><td><b>Teaching load distribution between lectures and independent student work</b></td><td>40% Presential (equivalent to 60h)
60% Autonomous work(equivalent to 90h)</td></tr>
<tr><td><b>Important information on data processing</b></td><td>Consult this link for more information.</td></tr>
<tr><td><b>Language</b></td><td>Lectures: 40% -> Preferably Catalan
Written and multimedia material (handnotes, videos, etc.): 60% -> English</td></tr>
<tr><td><b>Distribution of credits</b></td><td>Juan Manuel Gimeno (3)
Montserrat Sendín (3)</td></tr>
<tr><td><b>Office and hour of attention</b></td><td>Juan Manuel Gimeno (3.20 EPS wednesdays at 1pm; others by appointment)
Montserrat Sendín (3.20 EPS by appointment)</td></tr>
</table>

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GIMENO ILLA, JUAN MANUEL	jmgimeno@diei.udl.cat	3	By previous appointment.
SENDÍN VELOSO, MONTSERRAT	msendin@diei.udl.cat	3	By previous appointment.

Subject's extra information

To follow this subject properly some previous skills on Software Engineering are recommended.

Learning objectives

- Knowing the concept of Free Sofware and its consequences.
- Knowing the organization of free projects.
- Basic use of the tools used both in GNU and Java projects.
- Get a perspective on free software both from its history and current existent projects.
- Knowing the main bussiness models experimented around free software.
- Knowing the use of free software in the public sector.
- Knowing the support infrastructure for the development of free software.

Competences

Strategic competences of the UdL

- **CT2**: Mastering a foreign language, especially English.
- **CT3**: Training Experience in the use of the new technologies and the information and communication technologies.

Cross-disciplinary competences

- **EPS-11**: Capacity to understand the needs of the user expressed in a no technical language

Specific competencies of the degree

- **GII-IS1:** Capacity to develop, maintain and evaluate services and software systems that satisfy all the requirements of the user and behave in a reliable and efficient way, they can develop, keep and fulfil quality requirements, applying the theories, principles, methods and uses of the software engineering.
- **GII-IS3**: Capacity to give solution to problems of integration taking into account the strategies, standards and available technologies.
- **GII-IS4**: Capacity to identify and analyse problems and design, develop, implement, verify and find software solutions on the base of a suitable knowledge of the theories, models and current techniques
- **GII-IS6**: Capacity to design suitable solutions in one or more fields of application using methods of software engineering that integrate ethical, social, legal and economic issues.

Subject contents

Conceptual Part

1. Introductotion to FOSS

2. A little bit of history

3.Free Software Engineering: The Cathedral and the Bazaar

4. Programming languages as FOSS projects

5. Application Internationalization

6. Documentation for FOSS

6.1 Free documentacion licenses

6.2 Free documentacion creation tools

7. Economic aspects

7.1 Financing methods

7.2 Bussiness models

8. FOSS projects

8.1 Development models for FOSS projects

8.2 Case studies

9. Additional support infrastructure to FOSS development

9.1 Communication tools

9.2 Project repositories

10. FOSS in the public sector

10.1 General aspects

10.2 Case studies

In a parallel way, in laboratory sessions will be presented these contents:

- GNU build tools (make i autotools)
- Java build tools (ant i maven)
- Toos for internationalization (GNU gettext, Java resource bundles)
- Project management tools (forgeries)

Methodology

- Continued assessment and work in group.
- Both, lectures and laboratory sesions are combined to use all the tools presented.
- Students will need to deepen in the study of all themes autonomously and be able to asses the diferent options that are presented.
- In the development of the theoric homeworks, besides deepening in the subject of study by using the given resources, the student will need to be critic to select and justify its choices and conclusions.
- These works get completed with an oral presentation in which to defend all of the used criteria.
- The evaluation system (detailed in the corresponding section) is composed of: 1) written test (the 1rst partial exam); and 2) practices (to develop individually or in group, depending on each case).
- In the formative activities combine case studies (to be developed in pairs), individual work and application to concrete problems.

Development plan

Week	Theory (GG)	Laboratory (GG)	Autonomous Work
1	Introduction to FOSS History		Study
2	History		Estudi & selected reading
3	Cathedral & the Bazaar	Video: Revolution OS	Study
4		Make Autotools	Study & chapter reading
5		Ant Maven	Study & chapter reading
6	Programming Languages	Video: 21 years of python Video: Stewardship of Java	Study & presentation preparation
7	Unicode	Gettext Resource Bundles	Study & presentation preparation
8	Presentation	Presentation	Study & i18n project
9	First midterm		
10	FOSS documentation		Study, i18n project & chapter reading
11	Economic aspects		Study and wiki deployment
12	FOSS Projects	Study and preparation presentation	Study, chapter reading and use case development
13			Study and use case development
14	Infraestructure for FOSS		Study & presentation preparation
15	FOSS & Public Sector		Study & presentation preparation
16	Second midterm (Presentations)		
17	Second midterm (Presentations)		
18	Tutories		
19	Recovery		

Evaluation

Actv.	Description	Weight	Minimum Grade	In group	Presential	Mandatory	Recoverable
Parc1	First midterm Basic concepts	20%	3,0	No	Yes	Yes	Yes

Actv.	Description	Weight	Minimum Grade	In group	Presential	Mandatory	Recoverable
Actv1	Applications Architecture	20%	No	No	No	Si	No
Actv2	Internationalization project	10%	No	No	No	Si	No
Actv3	Desployment and use of a wiki	12%	No	Yes	No	Si	No
Actv4	Presentation of a case study	24%	No	Yes	No	Si	No
Actv5	Practical application of FOSS in the public sector	14%	No	Si	No	Si	No

Final grade = 0,20 * Parc1 + 0,20 * Actv1 + 0,10 * Actv2 + 0,12 * Actv3 + 0,24 * Actv4 + 0,14 * Actv5

- Subject is passed if final grade is greater or equal than 5,0 and midterm above the minimum required

Other considerations:

- Type of exam: concept fixation
- For all activities: programmed deliveries, unmovable dates.

Bibliography

Basic bibliography

- J.M. González Barahona, J. Seoane Pascual, G. Robles, Introducción al Software Libre. Grupo de Sistemas y Comunicaciones, ESCET, Universidad Rey Juan Carlos de Madrid. 2ª Ed. (2007)
- K. Fogel, Producing Open Source Software. Published under creative commons, (2013)
- Sam Williams (Second edition revisions by Richard M. Stallman). Free as in Freedom (2.0): Richard Stallman and the Free Software Revolution. Published under GNU free documentation license, (2010)

Additional bibliography

- John Calcote, AutoTools. A practitioner's guide to GNU Autoconf, automake, and libtool. No Starch Press (2010)
- S. Weber, The success of open source. Harvard University Press (2004).