

# Master Programme in Free Software: an example of curriculum building

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# Outline

1. Precedents, motivation and contribution
2. UOC's Master programme
3. The MoLOS initiative
4. Convergence to MoLOS and the EHES
5. UOC's Master programme + emarks
6. Curriculum building – discussion

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# Precedents of the Master programme

- Platform GNU/ Linux used in the practical activities of Operating Systems and Networking subjects since 1997.
- Virtual tutored lab to support the students (installation problems, modem set up, etc.)
- Usage of free software applications in several subjects of the official degrees:
  - ◆ Dev- C+ + / GCC (programming)
  - ◆ MySQL, TOAD (databases)
  - ◆ GnuPG (security)
  - ◆ Eclipse (software engineering)
  - ◆ Apache, Tomcat (computer networks, e- commerce)
  - ◆ OpenOffice (document exchange)
- Different CD containing free software and GNU/ Linux distributions (Ubuntu, Knoppix) are sent to the students.
- Postgraduate programme in GNU/ Linux since November

# Why a master programme in FS?

- Increasing request for qualified professionals in FS technologies.
- Our students feel quite satisfied with the introduction of GNU/ Linux and other FS applications in the official graduate degrees.
- Several lecturers in the Computing and Multimedia Department believe in FS and encourage its promotion and dissemination.
- IT professionals do not usually have enough time to become self-taught in FS technologies (web sites, forums, papers, books, etc.)
- Our Master programme offers guided/ tutored teaching, materials written by experts and different itineraries according to the students needs or preferences.
- The students of the master programme can help promote

# Return to the FS community

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- All the didactic materials are published under a free license (GFDL) so that they can be widely used, modified, extended, edited, etc.
- A bibliographic corpus on FS (in Spanish and Catalan) is being created.
- The final projects and developments carried out within this programme are published using free licenses.

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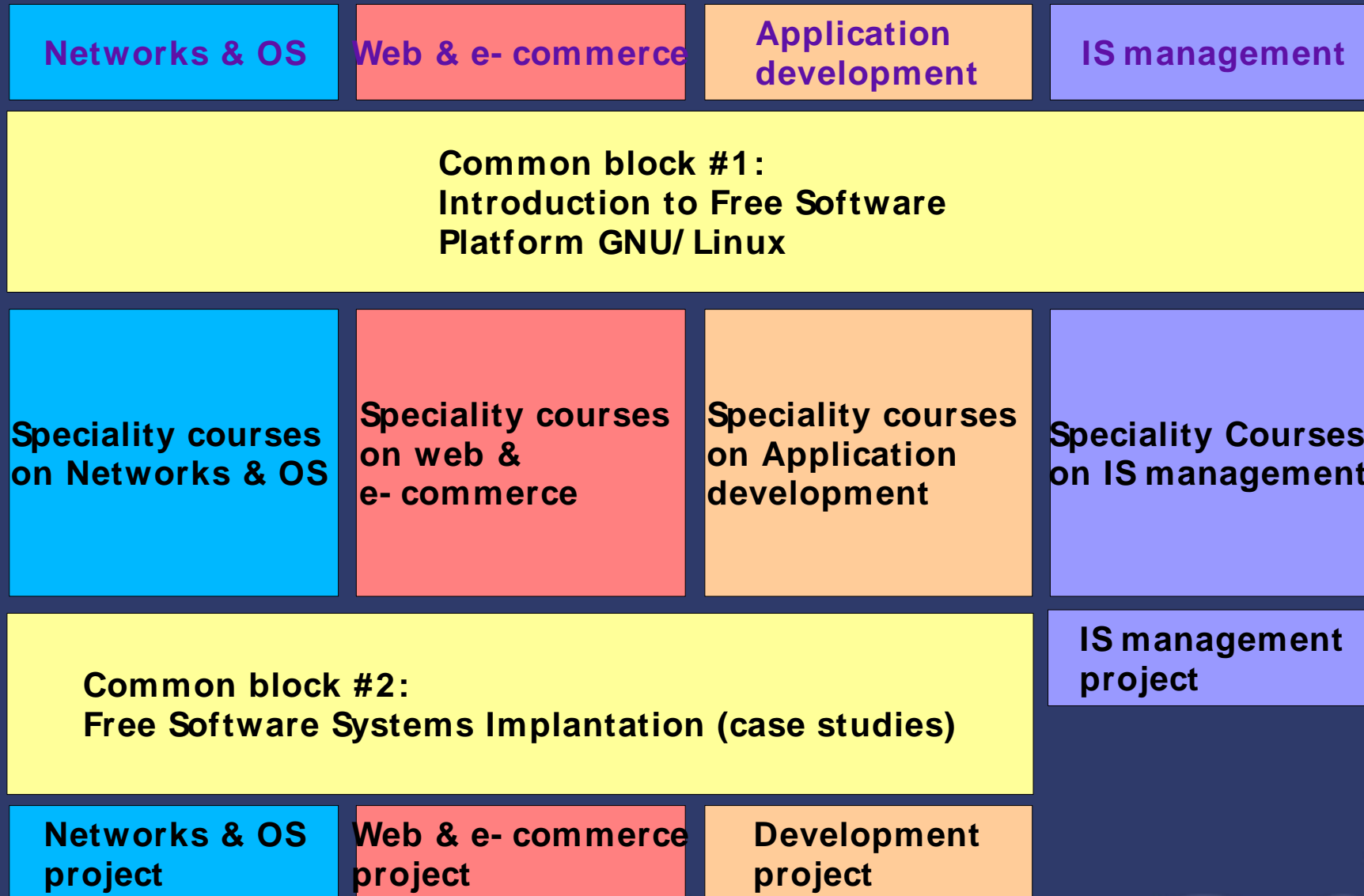
# Programme design (unofficial)

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- Different itineraries according to professional profiles:
  - ◆ Networks and Operating Systems administrator
  - ◆ Web and e-commerce administrator
  - ◆ Applications developer
  - ◆ Information Systems management in a free software environment



# Programme design (unofficial)



# Programme courses

## International Master in Free Software

Itinerary #1

**Networks and  
Operating Systems  
Administrator**

Itinerary #2

**Web and  
E-commerce  
Administrator**

Itinerary #3

**Application  
Developer**

Itinerary #4

**Information  
Systems  
Management**

Introduction to Free Software

Basic GNU/Linux Operating System

Advanced Administration  
of the GNU/Linux OS

Advanced Administration  
of the GNU/Linux OS

Advanced Administration  
of the GNU/Linux OS

Legal Aspects  
and Exploitation

Computer Networks

Web Development

Introduction to  
Software Development

Advanced Aspects of  
Software Development

Utilities and Tools

Advanced Networking:  
Security Issues

Database Systems

Free Software  
Engineering

Implantation

Networks and OS  
Project

Web  
Project

Development  
Project

IS Management  
Project

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# The MoLOS initiative

- A group of lecturers of about **20 European universities** are working together to define an European Master Programme in Free Software = **MoLOS** group (Master on Libre/ Open Source Software):

<http://savannah.nongnu.org/projects/masterlibre>

- Universities in Italy, Spain, France, United Kingdom, Norway, Latvia and Denmark (among others) are involved.
- This group has met several times since 2002 and a proposal is being discussed.
- A Common master programme of **90 ECTS** has been suggested: 30 ECTS in core courses + 30 ECTS in elective courses + 30 ECTS in Practicum + Master's thesis.
- We're working to create a consortium to offer a joint or

# Outline

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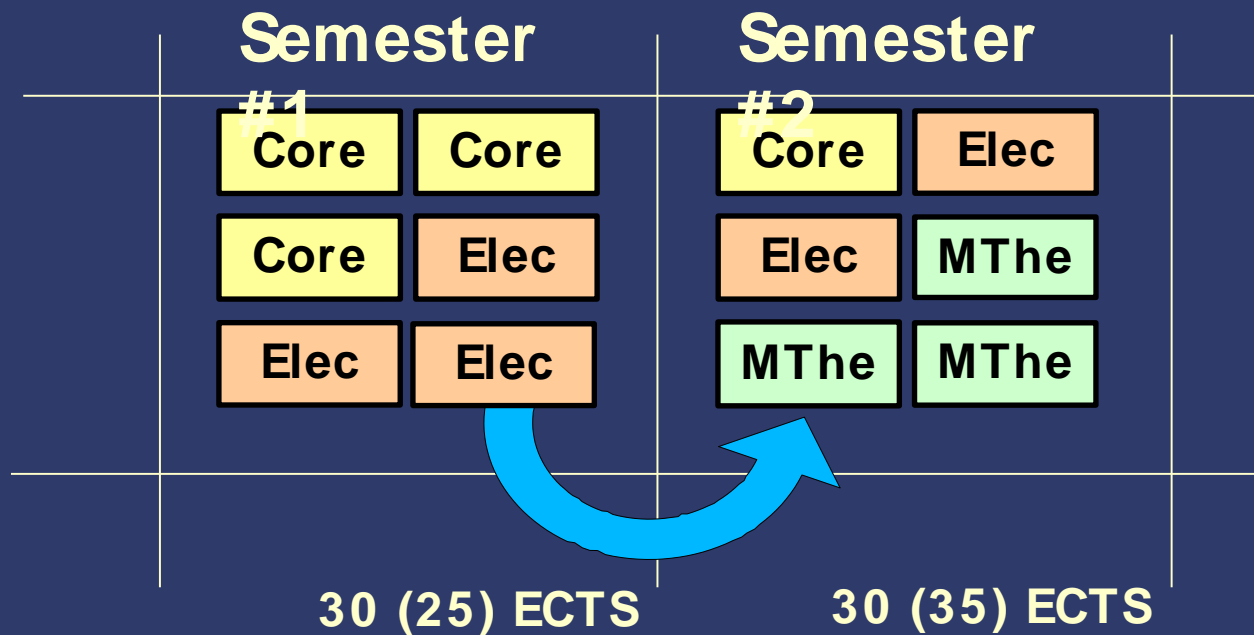
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# Convergence to MoLOS and the EHES

- The UOC's Master programme in Free Software was chosen by the Catalan Council as a pilot experience for its adaptation to the EHES.
- It has been recently accepted as an **official** Master programme by the Spanish Ministry of Education: September 2006.
- The different subjects have been specified as a set of general and specific **competencies** according to the Bologna process.
- The programme credits have been recomputed according to the ECTS basis.
- We have rearranged the programme in a 60 ECTS structure: **20 ECTS in 4 core (mandatory) courses**, with 5 ECTS each + **25 ECTS in 5 elective courses**, with 5 ECTS each + **15 ECTS in practicum + master's thesis**

# Convergence to MoLOS and the EHES

The new proposal consists of 60 ECTS in one year:



# Convergence to MoLOS and the EHES

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- Core courses [20 ECTS]
  - ◆ Introduction to free software
  - ◆ Basic GNU/ Linux operating system
  - ◆ Advanced administration of GNU/ Linux
  - ◆ Free software system's implantation (case studies)



# Convergence to MoLOS and the EHES

- Elective courses [25 out of 60 ECTS]
  - ◆ Utilities and tools
  - ◆ Legal aspects and exploitation of free software
  - ◆ The economy and business models of free software [New]
  - ◆ Free software in the public sector [New]
  - ◆ Computer networks
  - ◆ Network administration [New]
  - ◆ Advanced networking: security issues
  - ◆ Web development
  - ◆ Databases
  - ◆ Introduction to software development
  - ◆ Advanced programming

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# UOC's Master programme – remarks

- About 90 students enrolled in the first edition of the master programme (started on November the 17th, 2003).
- > 350 students have registered in aggregate (3 years).
- A consultant lecturer (tutor) for each virtual classroom supports the learning process and programmes the evaluation activities.
- The didactic materials of these courses are published under the GFDL and are available at the portal [www.uoc.edu](http://www.uoc.edu):

<http://www.uoc.edu/masters/softwarelibre/esp/materiales>

# UOC's Master programme – remarks

- The first few students graduated in July 2004 (Postgraduate in IS Management in FS environments).
- The first few students with a Master diploma graduated in July 2005.
- Some Latin American students are granted by the Spanish “Fundación Carolina” each year.
- We have agreements with the Universidad Autónoma de Bucaramanga (Colombia) and the Ministry of Education (Venezuela) to offer the Master programme in other countries.

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# Curriculum building – discussion

- Why do we want to include Free Software (FS) and Open Standards (OS) in the curriculum?
- What kind of contents should be incorporated into a curriculum on FS and OS?
- Is it really necessary to develop an educative programme on FS or would it be enough to include some FS applications within the existing graduate programmes?
- Don't schools and educational institutions have the mission to educate their students to be autonomous in the digital age?
- Who will be interested in an educative programme in FS and OS?
- How can we guarantee that the contents will always be updated and that high quality will be assured?
- How would you incorporate the volunteers' contribution on

# Curriculum building – discussion

- Which are the factors that hold back FS + OS in education?
  - Low knowledge on these subjects among teachers
    - How can we improve the knowledge and awareness among teachers?
  - Lack of training material on FS + OS
    - How can we facilitate training materials?
  - Lack of internal support inside the organisations of FS + OS
    - How can we stimulate change within internal support staff?
  - Marketing and distribution of (only) proprietary software products towards students.
    - How can schools help distribute free software?
- Which kind of academic/ scientific research can be developed about this kind of studies so as to make it an interesting area for the academic staff?

Presentation written using:



Thank you!!!