Universitat Autònoma de Barcelona

	Second year 3rd semester at the UAB with mobility to third country (total ECTs = 15)
42404	Global Change (9 ECTs)
42408	Waste Management (6 ECTs)
42411	Geographic Information Systems (6 ECTs)
	42404 is obligatory, student can choose between 42408 or 42411

	Second year 3rd semester at the UAB with no mobility to third country (total ECTs = 30)
42404	Global Change (9 ECTs)
42408	Waste Management (6 ECTs)
42411	Geographic Information Systems (6 ECTs)
42410	Project/internship (9 ECTs)

42404 Global Change

1. About the module

Nom del mòdul	**Global Change**
Codi	**42404**
Crèdits ECTS	9
Curs i període en el que s'imparteix	*Second* year *3rd* semester
Llengua vehicular majoritària	English

Professor/a de contacte

Nom professor/a	**David Molina**
e-mail	**David.Molina@uab.cat**

2.- Prerequisites

Basic knowledge in environmental science.

3.- Objectives

- The course covers many of the diverse types of impacts related to global change, while also exploring a variety of spatial and temporal scales.
- A major objective is improved ability at distinguishing global changes and impacts from other and sometimes very influential forces (e.g. climate).
- We focus heavily on issues and themes tied to land use, biodiversity, the global carbon cycle, ecosystem impacts and repercussions, and more from both terrestrial and marine domains.

4.Contents

- **Historical perspective of Global Change with focus on clear distinction from Climatic Change. A thorough analysis of the distinctions based on temporal and spatial scales, and terrestrial vs. marine impacts exploration.**

- **Case study of CO_2 emissions in Barcelona Metropolitan Area and carbon sinks in the Pyrenees. Global Change impacts locally especially in relation to land use changes and recent dynamics of climate.**

- **The modern ocean and multiple, diverse ways in which impacts are manifested. Issues considered include the marine carbon cycle, biological productivity, ocean acidification, and many more.**

- **Ecosystem-based global change impacts, and exploration of the marine environment especially while also covering the terrestrial domain quite thoroughly. Analyses of trophic levels, populations and communities, and much more. Particular emphasis on marine fisheries and land-use changes (terrestrial).**

• **Other terrestrial impacts and global changes, including the cryosphere, lakes and lacustrine environments, biodiversity, coastal zone impacts and industrial pollution (atmosphere as well).**

5.- Teaching methods

() **Teaching and discussions will occur during class times, guided by particular readings assigned in advance by individual instructors. The course also includes a required three-day excursion to explore local-scale manifestations of global change impacts.**

ACTIVITY	Hours	
Classroom lessons	36	
Field work	18	
workshops	9	
Practice and study	87	

6.- Evaluation

Short answer / essay examination at the conclusion of the course. 50% Of final grade.

Required 10-12 page research paper on a global change topic of individual student's interest and choice, guided in part by themes discussed in class. 30% Of final grade.

Public presentation in class. 20% Of final grade

	Hours	
Examination	2	
Public presentation	0.5	

7- Bibliography and web links

Johnston, R.J., Taylor P.J. & Watts M.J. (2002), Geographies of Global Change. Remapping the World. 2on ed. Blackwell.

Divers autors. (2010), II Informe sobre Canvi Climàtic a Catalunya. Generalitat de Catalunya & Institut d'Estudis Catalans.

McPhaden, M. J., et al. (2006), ENSO as an Integrating Concept in Earth Science, *Science*, *314*, 1740-1745.

Barker, S. & Ridgwell, A. (2012) Ocean Acidification. Nature Education Knowledge 3(10):21 at http://www.nature.com/scitable/knowledge/library/ocean-acidification-25822734

FAQs about ocean acidification at

http://www.whoi.edu/OCB-OA/FAQs/

http://www.na.unep.net/ Selected Satellite Images Our Changing Environment 2003

http://climate.nasa.gov/

http://www.youtube.com/embed/hC3VTgIPoGU?rel=0

1. Dades del mòdul

Nom del mòdul	**Waste Management**
Codi	**42408**
Crèdits ECTS	**6**
Curs i període en el que s'imparteix	**third semester of JEMES CiSu**
Llengua vehicular majoritària	**English**

Professor/a de contacte

Nom professor/a	**Xavier Gabarrell**
e-mail	**xavier.gabarrell@uab.cat**

Objectius

Provide the knowledge needed to manage waste as a resource, energy savings and reduction of greenhouse gas emissions (GHG).

Continguts

- Block 1 Unit operations for the use of waste as raw materials and emissions of greenhouse gases (GHG).
  • Reduction. Collection. Transport. Compaction. Valoration. Sorting.
  • Recyclable materials: plastic, glass, paper and cardboard, cans, batteries and accumulators. Organic matter. Other recyclable materials.
  • Recycling plants. Eco-parks and Recovery areas.
  • Landfills and estimation of their emissions.

- Block 2 Indicators.
  • GHG quantification methodologies for the waste sector (IPCC, LCA ...)
  • Waste classification. Definition of a management plan.
  • Emissions generated and/or reduced due to waste management that affects other sectors: transport, industry, energy. CO2 credits
  • Saving energy and material recycling and recovery of materials and energy.
  • Software modeling and measurement: LCA study, CO2 equivalent calculator, Landgem ....

- Block 3 Sustainable management of urban, agricultural and industrial waste
  • Applying Industrial Ecology tools (industrial symbiosis, flows exchanging, MFA, LCA Exegetic Analysis, Ecodesign, carbon footprint, ...) for designing innovative and sustainable system for waste management.

6.- Metodologia docent i activitats formatives

Lectures/oral expositions

Classroom practices

Seminars

Preparation of reports

Autonomous activity

Reading reports/papers of interest

Avaluació

(Indicar el tipus d'evidències d'aprenentatge que l'estudiant haurà de lliurar,el seu pes en la qualificació final, els criteris d'avaluació, la definició de "no presentat", el procediment de revisió de les proves, el tractament d'eventuals casos particulars, etc.)

The class attendance and their active participation will be considered (10%).

Student should deliverer reports which can be done in grup or individually (35%).

Some reports may require oral exposition and further discussion in class (25%).

Each block will be evaluated also through an exam (30%).

The minimum mark required for each item is 40% for obtaining the final mark.

8- Bibliografia i enllaços web

- Materiales del campus virtual de la UAB. (intranet UAB, campus virtual)
- Handbook Zero Waste, ZERO WASTE PROJECT (1G-MED08-533). http://icta.uab.cat/ecotech/zero_waste/Handbook/Final_Handbook.pdf
- MECOSIND. (intranet UAB, campus virtual)
- Cara Brower; Rachel Mallory; Zachary Ohlman. 2005. *Experimental Eco>Design*. Suiza. Editorial Rotovision. ISBN 2-88046-817
- Han Brezet, Carolien Van Hemel. 1997. *Ecodesign. A promising approach to sustainable production and consumption.* United Nations Publications, Paris Henrik Wenzel; Michael Hauschild; Leo Alting.1997. *Environmental Assessment of Products (vol.1). Methodology, tools and case studies in product development*. Chapman & Hall
- Bilitewski, B., Härdtle, G., Marek, K., Weissbach, A., Boeddicker, H. Waste

management. 1997. Springer (Germany).
- Lund, H. F., Manual McGraw-Hill de reciclaje. McGraw-Hill/Interamericana de España. 1996. (Madrid).
- Landreth, R. E., Rebers, P. A. Municipal Solid Wastes. Problems and Solutions.CRC Press, Inc., 1997. (USA)
- Solid waste processing and resource recovery. Handbook of environmental engineering. Vol 2. Lawrence K. Wang i Norman C. Pereira. Clifton (1980).
- Perry's Chemical engineer's handkook. (section 26-31).
- Roger Tim Haug. Compost engineering. Principles and practice. Technomic Publishing C.Inc. 1980. (Lancaster).
- Tchobanoglous, G., Theisen, H., Vigil, S. Gestión integral de residuos sólidos. McGraw-Hill. Madrid (1994).
- ISO 14040 Environmental management – Life cycle assessment -
- Principles and framework - 1998
- ISO 14041: Environmental management – Life cycle assessment – Goal
- and scope definition and life cycle inventory analysis – 1998
- ISO 14042: Environmental management – Life cycle assessment – Life
- cycle impact assessment – 2000
- ISO 14043: Environmental management – Life cycle assessment – Life
- cycle interpretation – 2000
- ISO 14048. Environmental Management—life cycle assessment—data
- documentation format; 2001.
- The Eco-indicator 99. A damage oriented method for Life Cycle Impact
- Assessment Methodology Report, PRé Consultants, Amersfoort - The
- Netherlands, 2000
- SimaPro 4.0 Database – PRé Consultants B.V. , Amersfoort (The
- Netherlands

WEBs

CARBON FOOTPRINT TOOL OF WASTE MANAGEMENT IN EUROPE

http://co2zw.eu.sostenipra.cat/

Sustainable Design de la University of Surrey. www.cfsd.org.uk

Compra verde . www.uab.cat/compraverda

O2 www.o2.org

Center for Design de la RMIT University (Austràlia)

www.cfd.rmit.edu.au

Centre de Recursos Barcelona Sostenible

www.bcn.es/agenda21/crbs/

***A*gence de l'Environnement et de la Maitrise de l'Energie francesa. Productos reciclados**

www.produits-recycles.com/

The EcoDesing Fundation (Sidney, Austràlia)

www.edf.edu.au/

Guia de ecodiseño UNEP

design.ntnu.no/fag/ecodesign/theory/theory_frames.htm

Grupo sostenibilidad y prevención ambiental. SOSTENIPRA

www.sostenipra.cat

42411 Geographic Information Systems

Professor: Pere Serra

contact: Pere.Serra@uab.cat

Objectives:

The main aim of this introductory course is to present the basic concepts and spatial analysis tools provided by the Geographic Information Systems (GIS) derived from the needs in socio-environmental planning and management. Our general goal is that each student develops skills to interpret and use digital spatial data and set the grounds for further (self-) training in GIScience. The specific objectives are:

· Know how to georeference cartographic data for incorporation into a GIS and to identify the criteria of acceptable quality in this process. This goal will be achieved in several cases applied (different map

projections, scales, etc.).

· A starting knowledge of data sources and formats useful for geographical studies of all kinds, given special attention to the available standards. The theoretical discussion will be dressed with a series of examples both from the conceptual point of view (uneven geographical distribution of data points, zonal data, etc. in various sizes and backgrounds, with special attention provided through the Internet) and thematic (demographics, weather, etc.). In this context, expanded knowledge about the meaning, interest and use of metadata standards on spatial data infrastructures and on remote sensing.

· Practice of digitizing and vector topological structure as a basic source of incorporating data into a GIS. This goal will be achieved in many cases applied (different map projections, scales, etc.) and complete reworking of the classic materials in operations such as grouping criteria for thematic parks, etc.

· Introduce the knowledge of basic GIS operations such as mosaic, clipping, changes in spatial resolution and map projection and reference systems (ED50 to ETRS89, for example), conversion raster / vector, etc.

· Present and extend the GIS analysis tools knowledge in the context of real-world applications shown on thiscourse, including spatial dynamics with remote sensing, both urban growths as forest fires, etc.

Contents:

The diverse lessons to develop in the course are:

1/ Formats, standards and data sources

2/ Georeferencing cartography

3/ Digitizing and topological structure

4/ Basic operations in GIS

5/ Generation and use of digital elevation models and spatial interpolation

6/ Analysis operation in GIS

7/ Application of case studies

8/ Internet and geoportals

The application of case studies will be developed throughout the course, in an integrated manner in the various topics covered in the course.

Teaching methods

The course content will be developed through the following activities:

- Oral expositions from the teacher.
- Reading book chapters or articles (individual activity of students, complementary to classroom work).
- Practical classes guided by the teacher.
- Work done independently by students based on teacher proposals.
- Oral expositions from the students.

For the realization of the course some different GIS software will be used.

	Activity	hours	skills acquired
	Lectures	10	CE5.1 Describe the various methods of acquiring geographic information as a tool for making and interpreting maps.
	Practical exercises guided by the teacher	24	CE7 Designing and applying knowledge in practice CE7.2 Compare the results using geographic information systems CE8.2 Define and solve environmental problems using GIS CT9. Apply computer tools correctly.
	Final exam	2	CE5.1 Describe the various methods of acquiring geographic information as a tool for making and interpreting maps
Supervised			
Autonomous			
	Reading theoretical literature	?	CE5.1 Describe the various methods of acquiring geographic information as a tool for making and interpreting maps
	Practical exercises conducted independently by students	?	CE8.2 Define and solve environmental problems using GIS CG2. Develop independent learning strategies

Evaluation

(Indicar el tipus d'evidències d'aprenentatge que l'estudiant haurà de lliurar,el seu pes en la qualificació final, els criteris d'avaluació, la definició de "no presentat", el procediment de revisió de les proves, el tractament d'eventuals casos particulars, etc.)

The course evaluation will be obtained from practical exercises made in the classroom and at home (30% of final qualification), a brief oral presentation (30%) and a short final exam (40%).

	hours	Skills acquired
Practical exercises	24+?	CE5.1 Describe the various methods of acquiring and using geographic information as a tool for making and interpreting maps
Oral presentation	10'+?	CG2. Develop independent learning strategies
Final exam	1+?	CG2. Develop independent learning strategies

Bibliography and web links

- Bonham-Carter, G.F. (1994) Geographic information systems for geoscientists modelling with GIS, Pergamon. Kidlington. 398 p.
- Burrough, P.A., McDonnel, R.A. (1998) Principles of Geographical Information Systems (2nd Edition). Oxford University Press.
- Malczewski, J. (1999) GIS and Multicriteria Decision Analysis. John Wiley & Sons. Inc., New York, 392 p.
- Laurini, R., Tompson, D. (1992) Fundamentals of Spatial Information Systems Academic Press. Londres. 680 p.
- Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W. (2005), Geographical Information Systems and Science. Wiley.
- Maguire, D.J., M.F. Goodchild, Rhind, D.W. (eds.) (1991) Geographical Information Systems. Principles and Applications. 2 Vol. Longman Scienti Technical. Essex. 649+447 p.

- International Journal of Geographical Information Science (available until 2011): http://www.tandfonline.com/loi/tgis20

Name	Project
Code	42410
Course and teaching period	Third or fourth semester
Schedule	To be determined by the hosting institution
Credits ECTS	9
Previous requirements to follow the module	**Enrolment at UAB in 3rd semester of studies**
Teaching language	English/Spanish/Catalan
Module responsible	Xavier Gabarrell
Department responsible	Department of Chemical Engineering

TEACHING TEAM

Professor name	Department	Office	e-mail	Tutorials
Xavier GAbarrell	Chemical Engineering	QC-1145	Xavier.gabarrell@uab.cat	

MODULE ESPECIFIC DATA

<table>
<tr><td>Educational objectives of the Module</td><td colspan="2">At the end of the module, the student will be capable of:

- Start working in a public or private research institution or of a public or private company with a basic knowledge of the habits and way of work
- Working on a problem from engineering science ((focused in the environmental field), preferably in cooperation with a company.</td></tr>
<tr><td rowspan="5">Specific skills of the module</td><td>Skill</td><td>Description</td></tr>
<tr><td>- Organization</td><td>- To learn about the work is organized and how to organize himself at work.</td></tr>
<tr><td>- Teamwork</td><td>- To learn about teamwork with other professionals and the identification of relevance of own work in a broader context.</td></tr>
<tr><td>- Overall view</td><td>- The student will gain an overall view of environmental topics that affect the research or professional work; theoretical and methodological foundations for a given engineering problem.</td></tr>
<tr><td>- Specific skills</td><td>- The student will learn the specific tasks and capabilities of the job developed in the hosting institution;and the application of methods and techniques of the problem area, writing of scientific reports too.</td></tr>
</table>

Module structure and contents	- *The value of the credits obtained by the student are those detailed in the module* - *To calculate the amount of dedication (in hours) that the student has to dedicate to the hosting institution one has to take into account that the minimum number of hours per credit is 25, while the maximum is 30* - *The Project work does not imply any obligation to the hosting institution nor the university except for those strictly academic. In any case, no job relationship can be ascribed between the student and the hosting institution* - *Project students are covered by the scholar insurance according to actual regulation* - *Students that due to legal limitations are not covered by the scholar insurance will be required to present supporting documents demonstrating coverage through any other assistance*
Teaching methodology	*Students will be enrolled in the hosting institution system in terms of working hours and working needs. Prior to the start, a registration file will be fulfilled where the tasks to be performed by the student will be detailed.* *During the last week of the Project period, the student will present a short report describing its activity along the Project period.*
Evaluation	*Evaluation will be performed according to the following marks:* - *50% by the student responsible at the hosting institution* - *50% by the university tutor according to the report presented and its considered opinion.* *This evaluation can include an oral defence of the project work report.*
Bibliographic and web links	

Project Instructions

This activity consists in a short stay of the student in a hosting institution (public or private research institution or in a public or private company) to obtain a basic knowledge of the habits and way of work. The content of this stay is to work on a problem (focused in the environmental field) from engineering science. Such stays are academically recognized through credits and need of an Agreement signed between the University and the hosting institution.

Agreement for the undertaking of practicums for obtaining academic credits is a MUST that provides recognition of academic credits and can qualify students for the JEMES-CISU Master that enrolled the Project module. The management of this agreement takes place in the Administration of the Faculty of Sciences prior completion of an **Activity Proposal form**. The Annex section shows a model of such agreement and the Activity Proposal form.

As **important information and recommendations** known to setup such agreements include:

- The Project work commitment is between 225 and 270 h according to the registered module, which must be compatible with other teaching activities (exams, class, delivery of practical work) during the teaching period.

- There is no obligation of the hosting institution to financially reward students. Such initiative is only part of the company and do not need to be reflected in the agreement.

- The student is covered by medical insurance.

- Practicum can be performed in Spain or abroad. However, a case by case analysis will be done by the academic tutor to authorize the Practicum.

- Erasmus Mundus students cannot perform the Project work in their country of origin. Any exception will be previously assessed at the EAE commissioned.

- If the hosting institution in Spain is a private or public company, students must be fluent in Spanish or Catalan.

- There is not a specific list of companies/institutions. Because of the short Project work period (250h) and the language limitation, students are encouraged to enrol the project work in the same hosting institution where they will perform their Master Thesis. In this case, the first 225-270h of their dedication in such hosting institution will be counted as the Project work activities and evaluated correspondingly. Thus, the hosting institution and tutor of your Thesis is the hosting institution and tutor of your Project. Regarding hosting institutions of your Project/Thesis, each student looks for their own interests.

- **Periods to enrol/stay. Enrollment in this course will be held simultaneously to the registration of the remaining credits for the Masters and the existence of an agreement is needed prior to the commencement of the stay.**

  - **During the third semester.** This option is recommended for most of the students. One has to bear in mind that the schedule of the project should be compatible with the classes in other modules. Since teaching activities are significantly reduced as of late November, you can program your Project during December and January.

  - **During the fourth semester**. This is possible, but not the recommended given the number of hours you need to dedicate to your Master Thesis during this semester.

- **Stages of completion of your stay.**

1. Information talk from the JEMES-CISU master coordinator (Gara Villalba).

2. Students must send an e-mail to the Project coordinator (xavier.gabarrell@uab.cat) expressing their interests, preferred period (first semester or second semester), field of interest, a short CV in Word or pdf format providing details about Spanish and Catalan skills. Such e-mail must be sent no later than October 5th.

3. If offers are available, the Project coordinator will publish in the Campus Virtual a list of places, including a brief description, to make your practicum. This will be between October 5th and October 20th.

4. During a period of one week after the previous point, students can express their preferences for making their stay. Each student will point to three choices in order of preference.

5. The Project coordinator will distribute practicum offers based on the preferences of students and conditions of the places (for example, transportation needs, language skills, selected by the company, etc.). Selection between two students appliying for the same option will be based on students academic marks.

6. The Project coordinator will contact the tutor at the hosting institution to provide him/her with the name and CV of students assigned by the Project coordinator.

7. Through the data provided by the practicum coordinator, the student should contact the hosting

institution responsible for maintaining an interview to set the details of your stay (hours, tasks to do, etc.). This interview is needed prior to the final acceptance of the student.

8. If the interview is satisfactory, the student must send via e-mail the Activity Proposal form to the The Practicum coordinator. This will contact the Academic Management of the Faculty of Sciences, who shall prepare the corresponding agreement between the UAB and the hosting institution. The agreement will be prepared with multiple copies.

9. The Academic Management of the Faculty of Sciences will send such copies of the agreement, duly signed by the rector of UAB, to the hosting institution responsible to be signed and returned by the hosting institution responsible to the Academic Management of the Faculty of Sciences.

10. Once the agreement is signed, students can start their project work activities.

11. Finishing your stay. Evaluation according to the following paragraph.

- **Project Evaluation**

Evaluation will be performed according to the following marks:

- 50% by the person responsible for the student at the hosting institution (the person that will fill in the Activity proposal form), based on his/her activities and the project work report.

- 50% by the university tutor (Xavier Gabarrell) according to the report presented and its considered opinion.

The evaluation can include an oral defence of the project work report.

The way to proceed is as follows:

1. As soon as you finish your dedication to the project work you MUST write a 2-3 pages **Memorandum of Project work activities** (see appendix) and send it by e-mail to the Project coordinator at xavier.gabarrell@uab.cat

This report will count 50% of your qualification

2. **Once received the report**, the Project coordinator will e-mail an **Evaluation form** (see appendix) to the person responsible for the student at the hosting institution. He/she MUST fill and sent it back to the Project coordinator (by e-mail or enclosed envelop). This will count another 50% of your qualification.

3. At this moment, the Project coordinator decides if the student must do or not an oral defence of his/her project report.

4. If steps 1 or 2 are not performed, the coordinator will assume student did not do the project work and he/she will fail to pass

5. If the rating is negative or steps 1 or 2 are not done, the student will fail to pass the Project module.

- **Common variations to this procedure.**

If students want to find a hosting institution to do the project, the student must talk directly with the Project coordinator to decide if an agreement can be carried out mainly according the work plan and legal limitations. Prior to this talk, the student can use the documentation provided in the present document if requested by the hosting institution. The student must contact the project coordinator with enough time to process the agreement before the start of the project activities. This contact should be equal to or no greater than two-three weeks (which is the time generally needed to process an agreement). All other requirements of registration and evaluation of the subject are completely equivalent to the procedure explained in the already established and previously detailed herein.

ATTACHED DOCUMENTATION

- Activity Proposal form: Document that must be completed by the company/research institution and by the student prior to the beginning of the project work.

- **Agreement**: Official document signed between the UAB and the hosting institution to frame the practicum and to recognize the credits.

- **Evaluation form**: document that the tutor responsible of the student named by the company/research institution will use to value the work of students during their stay. This evaluation will correspond to a 50% of the module qualification.

- **Memorandum of Project work activities**: Report written by the student that must be sent to the academic tutor right after the stay of the student has finished. This will count another 50% of the final qualification of the module.

Universitat Autònoma de Barcelona

Facultat de Ciències

Gestió Acadèmica

ACTIVITY PROPOSAL FORM

To fill by the company/research institution:

Name and position of the person signing the agreement:

_____

Name of de the company/research institution:

_____

Company code (CIF): E-mail:

Street, number:

Town: Zip Code:

Phone: FAX:

Name of the tutor responsible of the student named by the company/research institution:

Period for Practicum: from day/month/year to day/month/year

Working plan:

X	Code	Module	Credits
	42410	Project	9

To fill by the student

Name: Last name:

DNI/Passport: Birth date: Phone:

E-mail:

Academic Tutor: Dr Xavier Gabarrell (email: xavier.gabarrell@uab.cat)

Bellaterra, **day** of **month** of 201 (year)

INSTRUCTIONS TO FILL THE FORM

This form must be completed by the student and by the tutor at the hosting institution. Then, the student has to e-mail the form to the academic tutor (xavier.gabarrell@uab.cat) who in turn will forward the form to the Administration staff of the Faculty of Sciences for ulterior formalization of the agreement.

To fill by the company/research institution:

Data necessary to write the agreement by the Administration staff of the Faculty of Sciences.

Name and position of the person signing the agreement: person of the company/research institution whose name will appear in the contract agreement.

Name of the tutor responsible of the student named by the company/research institution: person of the company/research institution responsible for setting the work, work follow-up and evaluation.

Period for Project work: starting and finishing dates. This dates will appear in the agreement and correspond to the period of time in which the student has a medical insurance as Practicum student.

Working plan: Brief description (1-2 lines) with the tasks foreseen during the Project work period, and the problem to be analyzed (focused in the environmental field).

To fill by the student

Data necessary to write the agreement by the Administration staff of the Faculty of Sciences.

Academic Tutor: professor at the UAB that will make the monitoring and evaluation of the dedication of the student.

AGREEMENT FOR THE UNDERTAKING OF IN-COMPANY PRACTICUMS FOR OBTAINING ACADEMIC CREDITS

Bellaterra (Cerdanyola del Vallès), 00 [day]/00 [month]/200*

PARTIES

For the first party, Dr XXXXXX, Vice-Chancellor of the *Universitat Autònoma de Barcelona*, with the corresponding legal authority established by article 75 of the UAB Statutes, in accordance with his designation as Vice-Chancellor through Decree 269/2005 of December 13 2005, of the *Generalitat de Catalunya*.

For the second party, Mr* /Ms *XXXX, in the name and representation of the company XXXX, with CIF Fiscal Number XXXX, and with the following company address: [Number/Street/Town/Postal Code] and telephone XXXX.

Each of the parties acknowledges that the other has sufficient legal capacity for this agreement, and to this end they make the following

RECITAL

I. The advisability and relevance that students taking the UAB's Master in (XXX) should combine their academic training with professional practice is made clear by the syllabus for the said Master, approved by the Committee for Academic Affairs, by delegation of the Governing Council, 9/06/2006.

II. Article 9.3 of Spanish Royal Decree 56/2005, of January 21 2005, regulating official university postgraduate studies, and its subsequent modifications, allow universities to establish agreements of collaboration with other public or private institutions or organisations, as well as with companies and industry, for the development of training activities included within studies for a Master's degree.

III. The Framework for drawing-up the Masters' syllabi, approved by the Committee for Academic Affairs on March 21 2006, contemplates the possibility of including modules of a project-based or practical character.

To this end, the parties subscribe to this document on the basis of the following:

CLAUSES

First.- The objective of this agreement is for UAB students of (name of studies) to undertake periods of placement with (company/organisation), for the development of practical study or of a project.

Second.- The company/organisation undertakes to design a programme of practicums suitable to the objectives established by the syllabus that the student is following.

Third.- The (Faculty/School) shall nominate an academic tutor for each student participating in this agreement, the said tutor being responsible for monitoring and evaluating the practicums.

Fourth.- Within a maximum period of * from the signing of this agreement, (company/organisation) shall notify (centre/school) the name of a tutor, designated by the company/organisation, responsible for programming and coordinating the practicums. On termination of the period of practicums, the said tutor shall provide a report accrediting the extent to which the student has taken advantage of the practicums, which report shall serve as the basis for the said student's academic assessment.

Fifth.- 1.- The value of the academic credits obtained by the student for practical study or project-based work pertaining to this current agreement shall be that established by the corresponding syllabus.

2.- For calculating the total number of hours that the student shall be required to undertake, the company/organisation must bear in mind that the minimum number of hours per academic credit is 25, and that the maximum number of hours is 30.

Sixth.- The undertaking of practicums does not imply any assumption, for either of the parties, of obligations beyond those strictly established in this document, and in no event shall the undertaking of practicums imply the existence of a work relationship between the student and the company/organisation.

Seventh.- 1. Students undertaking practicums shall be covered by Student Insurance in the terms indicated by current legislation for this subject.

2. Those students not covered by the application of the terms of the said Student Insurance must, at the time of applying for the practicums, accredit their insurance coverage within another insurance system.

Eighth.- Each academic year, the (Faculty/School) shall draw-up an updated annex that shall contain, at the least, the following data:

a) A list of students participating in the practicums outlined by this agreement.
b) The students' dates of birth.
c) The name of the academic tutor.
d) The name of the tutor nominated by the company/organisation.
e) The number of academic credits that are obtained through the practicums and the name of the module to which these said credits shall apply.
f) A plan for the development of the agreement: type of training, start and conclusion dates, monitoring, form of assessment, etc.

Ninth.- 1. This agreement shall take effect from the moment of its signing, and its duration shall be XX (years).

2. The agreement can be rescinded for any of the following causes:

a) By mutual accord of the parties, such accord given in writing.
b) For a complaint made by either one of the parties, made with a minimum of three months' application.
c) For general causes established by current legislation.

Tenth.- Any modification that alters the content of the present agreement must be expressed by mutual accord and by both parties, in an annexe document, for the said modification to be valid.

Therefore, in proof of their conformity with the content of this agreement, the parties sign this document in quadruplicate in the place and on the date indicated.

The Vice-Chancellor

The Company/Organisation

By authorisation,

The Dean/Director of (Faculty/School)

AGREEMENT APPENDIX

1. Participating student: XXXXXX
2. The academic tutor will be: XXXXX

3. The tutor appointed by **XXXX(company name)**: Mr/Ms. XXXX
4. The student will get XX credits for the following subject XXXX
5. The tasks carried out by the student will be XXXXXXXXXXX
6. The duration of the training will be from (starting date) XXX to (ending date) XXX
7. In order to assess the student, we will take into consideration not only the report provided by the appointed tutor but also the report made by the student.

With the authorization of (company name) XXXXX

The vice-chancellor

Dr. Jordi Bartrolí (authorised signature)

Dean of the Faculty of Sciences

Bellaterra (Cerdanyola del Valles) , (date) XXXX

EVALUATION FORM OF THE JEMES CISU STUDENTS PROJECT BY THE HOSTING INSTITUTION/COMPANY

Hosting Institution:	
Supervisor name & e-mail:	

Student name :	
ID type and number:	

1. Value the previous training of the student in order to the needs of the work that you have proposed to him/her within the framework of the project:

Very good	Good	Regular	Poor	Very poor
❒	❒	❒	❒	❒

2. Value the following skills of the student:

	Very good	Good	Regular	Poor	Very poor
a) Capacity to organize the work	❒	❒	❒	❒	❒
b) Capacity to solve problems	❒	❒	❒	❒	❒
c) Capacity for social relationship	❒	❒	❒	❒	❒
d) Communication skills	❒	❒	❒	❒	❒
e) Capacity to carry out the assigned work	❒	❒	❒	❒	❒
f) Capacity for work in groups	❒	❒	❒	❒	❒
g) Initiative skills	❒	❒	❒	❒	❒
h) Capacity to adapt to the surroundings	❒	❒	❒	❒	❒
i) Interest in the work	❒	❒	❒	❒	❒

3. Please, indicate which knowledge or which training would have been useful for the student according to the experience of the work that the student carried out

4. Evaluate in a global way the work carried out by the student *(1 minimum – 10 maximum)*

Global mark:	

5. Please, indicate any suggestions that you may consider interesting.

Signature:

Date:

Instructions: Please, sign this form, put it in a close envelop and send it to:

Professor Xavier Gabarrell

Department of Chemical Engineering
Escola d'Enginyeria
Universitat Autònoma de Barcelona
08193 Cerdanyola del Vallès, Barcelona

Alternatively, you may give it to the student instead of sending it by regular mail.

Memorandum of Project work activities

As soon as you finish your dedication to the Project work you MUST write a 2-3 pages report of your activities. This report will count 50% of your qualification.

The written report to be submitted to xavier.gabarrell@uab.cat at the end of your stay must necessarily consist of the following parts, which are detailed below:

(a) Introduction: This part describes the hosting institution in which the student has made the stay, including all the following information: Objective (goals) of you project activities and brief description of the project were you enrolled

(b) work done by the student: This part must be, necessarily, the central body of the report and it should describe the main tasks that the student has done during its stay. This description should include essentially, a brief summary of tasks developed as Project work activities, responsibilities given to you and any other comments you want to highlight. Confidentiality issues should be respected at all times. It is the responsibility of the student to find a way to reconcile the description of work with interest in the field of the JEMES CiSu Master and scrupulously respecting any confidentiality requirements at the same time.

(c) Autoevaluation: the student must explain what he has learned during the Project, what weaknesses or strengths can be drawn from their experience.