Learning by Developing – New Ways to Learn. European Project Semester

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We cannot predict the future, but:

*International, global market, hard competition.*
*Ever increasing amount of knowledge in science and in technology.*

Nobody can cope with that alone.
*Engineers will have to cooperate in teams with people of different skills.*
*Engineers will have to operate internationally.*
Subconclusion:

In the future engineers must be able to:
Work in interdisciplinary teams.
Operate internationally.
Speak foreign languages.
Cooperate with people of different cultures.
Communicate well.
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European Project Semester

What is ”European Project Semester”? 

A semester for engineering students and other students who have completed at least 4 semesters.

A mixture of courses (5 ECTS) and project work (25 ECTS).

International and interdisciplinary teamwork.

Project work in cooperation with industry.
Where and when?

Copenhagen University College of Engineering (Elsinore) since 1995.
Avans Hogeschool in 's-Hertogenbosch, Netherlands, since 2002.
Høgskolen i Oslo, Norway, since 2003.
Technical University of Lodz, Poland, since 2005.
Universidad Politécnica de Valencia, Spain, since 2005.
Fachhochschule Kiel, Germany, from 2008.
Universitat Politécnica de Catalunya, Spain, from 2008.
Formation of teams:
Students choose projects (1st, 2nd and 3rd priority).
All teams are international (at least 3 nationalities).
Students’ qualifications meet the demands of the projects.
Students know their projects before they arrive and should be prepared for the project work.
Belbin Test.
The Belbin team roles:
Plant
Coordinator
Shaper
Monitor Evaluator
Teamworker
Implementer
Completer Finisher
Specialist.
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EPS-groups spring 2009:

1: Design of a FM transponder for a pico satellite: DE, ES, ES.
2: The future for effektive railways in Denmark: ES, FR, NL.
3: The future for effective railways in Denmark: BE, ES, ES, FR, MA.
4: Sensors as building blocks for intelligent environments: DE, ES, FR, KR., PL.
5: Sensors as building blocks for intelligent environments: ES, FR, KR, PL.
6: RUF monorail fundaments combined with wind turbines: DE, ES, FR, TW.
7: RUF monorail fundaments combined with wind turbines: DE, ES, ES, FR, FR.
8: Setting up a marketing plan for RUF in relation to the climate: BE, ES, FR, FR, TR.
9: Setting up a marketing plan for RUF in relation to the climate: FI, FR, NL, PT, TW.
10: Commuter travel time, RUF compared with other systems: DE, DE, ES, FR, PL.
11: Automation of industrial processes & system integration: DE, ES, NL, PL, PL.
12: Automation of industrial processes & system integration: DE, EE, ES, FR.
13: Development of a willow harvesting machinery: DE, DE, RO, RO.
14: Adding new functionalities to office machines, prototype: ES, ES, FR, FR.
15: Development of a digital controlled gas torch: DE, DE, ES, FR.
16: Development of a digital communication device for scuba diving: BE, ES, ES.
Courses taught in the EPS (5 out of 30 ECTS):

Teambuilding, communication, international marketing: 1.5 ECTS.

Project management, project review, systematic innovation: 2.7 ECTS.

European law, environmental subjects: 0.8 ECTS.

Language: English, basic Danish (3+1 ECTS).
Group project work must be well organized. Students must learn to prepare and chair meetings and to write minutes of the meetings. Supervisors help with technical advice, follow the team-process closely and help with all kinds of problems including conflicts.
Assessment:
Peer and self assessment (twice).

Exam:
Oral presentation (individual).
Technical content of the report (partly individual).
Communication value of the report (partly individual).

Teamwork: Average marks from supervisors, distributed by the students! Lazyness doesn’t pay!
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Challenges:
Different cultures, nationalities and fields of study.
Polychronic – Monochronic.
Formal – Informal.
Direct – Indirect.
Expressive – Reserved.
Relation-focus – Deal-focus.
Conflicts caused by misunderstandings or different opinions.
Peer and self assessment:

Technical contribution in major field, quality.
Technical contribution in major field, quantity.
Willingness to build upon the ideas of others.
Understanding of the team process.
Leadership.
Positive attitude.
Initiative.
Average marks for teamwork:
Quantity of work
Quality of work
Initiative
Cooperation
Planning
Attitude
Ability to solve problems and conflicts.
1039 EPS-students so far from 35 countries:

Benefits of European Project Semester:
Students learn actively.
Students become motivated and committed.
Students become creative.
Synergy, more "we", less "you and I".
Students mature.
Students get an international network and keep in touch.
Students learn to appreciate diversity.
An "eye-opener".
Very positive statements.
Conclusion:

Students are different, professors are different, subjects are different.

All teaching will be boring if it is always done in the same way.

Teaching should be a mixture of good ingredients. An international semester with project-based teamwork like the EPS is a valuable ingredient.
Further questions?
www.ihk.dk/international
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Thanks for your attention!
Remerciement pour votre attention!
Multumesc pentru atentia voastra!
¡Gracias por su atención!
Li ringrazio della Loro attenzione!
Ich danke Ihnen für Ihre Aufmerksamkeit!
Tak for opmærksomheden!
Kiitos huomiostanne!
Copenhagen University College of Engineering

Ingeniørhøjskolen i København (IHK)

- Established in 1881
- New modern facilities in 1995
- Accredited as University College in 2007
Copenhagen University College of Engineering

- 1500 Full time and degree students
- 300 Exchange students
- 150 Summer school students
- 400 Graduates per year

- 450 Students in continuing education programmes

- 120 Professors and 60 Adm.-Tech. staff

- 120 International partner institutions
Copenhagen University College of Engineering
Programmes at IHK

• Five 3½-year BEng programmes
• One 4½-year BEng programme in Global Business Engineering
• Exchange programmes
• Summer school
• Continuing Education
3½-years BEng-programmes

*Five programmes taught in Danish*

- Production engineering
- Mechanical engineering
- Electronics and Computer eng.
- Power Electronics engineering
- Civil engineering
Three BEng - programmes
all taught in English

• Electronics and Computer Engineering

• Information and Communication Technology

• Engineering Design and Industrial Innovation
Key words on education

• Problem based learning
• Project organized learning
• 50/50 courses and projects
• Close cooperation between students, professors and companies
• Very diversified group of students
Programmes for Incoming Exchange Students

- European Project Semester
- International Business Semester
- International Design Semester
- Innovation and Business Design
- ... and many English taught courses in Civil Engineering, Electronics and IT
Incoming Exchange Students

- Accommodation
- Buddy system with IHK students
- Danish and English language courses
- Sports clubs
- Social and cultural activities
- Wireless network on campus
International Business Semester

30 ECTS

- Project Management
- Strategic Analysis and Development
- Quality Management
- Production and Inventory Management
- Marketing

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International Design Semester

30 ECTS

Materials, Design and Manufacturing Technology

Design Project

Production Technology and CAD
European Project Semester

30 ECTS

- Systematic Innovation
- Environmental issues
- European law
- Cross cultural Communication
- Project Planning
- Management
- Marketing
- English Language
Innovation and Business Design
Semester - 30 ECTS
Summer school 2009

Each Course is 7,5 ECTS

- 4 courses from 6 July – 24 July
- 4 courses from 27 July – 21 August

Additionally offered:
Danish Language and Culture Course in August (5 ECTS)
Copenhagen University College of Engineering

Video Presentations about Copenhagen and Copenhagen University College of Engineering -> please visit our web at www.ihk.dk/international/about
Please, find more detailed information on the web:

www.ihk.dk/international