

Problem-based learning: the example of Internships

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Overview

- **Internship courses**
- **Collaboration with geo-ICT companies**
- **Challenges and potential issues**
- **Conclusions**

Internship courses at KU Leuven

- **Project- or problem based work/assignments are possible at the university**
 - But collaboration with companies in doing so might be more difficult
- **A way to solve this is to define internship courses**

Various companies
Internship projects
Flexible
Intense

Internship courses at KU Leuven

Internships have been organised for years

MSc. in Earth Observation (2008-2009 to 2014-2015)

Compulsory, 7 ECTS + 2 for seminars on geo-ICT

MSc. in Bioscience Engineering: Agro- & Ecosystems Engineering (since 2015-2016)

Track Geo-Information, Optional, 7 ECTS

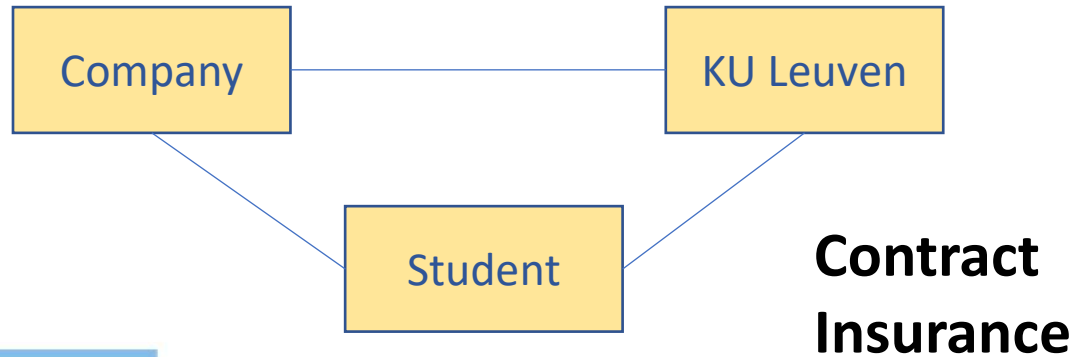
MSc. in Geography (from 2012-2013)

Optional, 15 ECTS (9 ECTS until 2014-2015)



Currently internship courses are still offered as part of the MSc. Bioscience Engineering (6 ECTS) and the MSc. in Geography (15 ECTS). Elective.

Internship courses at KU Leuven



KU LEUVEN

CONTRACT FOR AN INTERNSHIP PERIOD IN BELGIUM Last updated June 2016

- Details of the organisation / company

Name: Geosparc NV
Address: Bruggesteenvweg 587, 9030 Ghent, Belgium
Company Number: BE808353458
Represented by: Dirk FRIGNE
Title of representative: CEO
Hereafter referred to as "the Organisation".

- Details of the educational institution

KU Leuven, EES: Spatial Applications Division Leuven (SADL)
Address: Celestijnenlaan 200 E, 3001 Leuven
Company Number: 0419.052.173
Represented by: Danny VANDENBROUCKE

Learning objectives

- Technical competences
e.g. Using acquired knowledge and competences to describe the problem
- Functioning within the organisation
e.g. Judiciously acting according to the rules and agreements within the organization
- Reflection on the learning process, the outcomes and performance
e.g. Formulating strengths and weaknesses and ability to reflect on the professional attitude



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Internship courses at KU Leuven

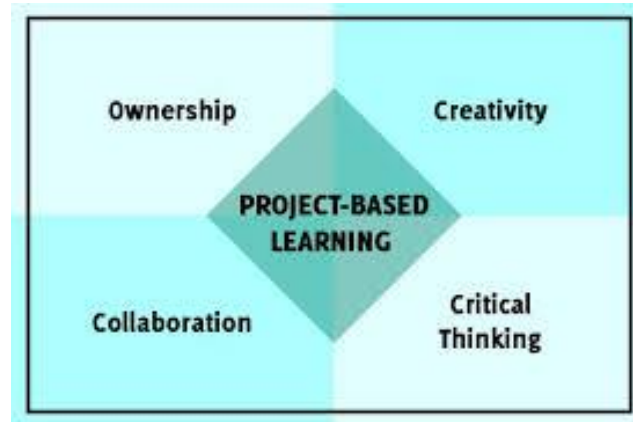
- Technical development of **INSPIRE data specifications** and metadata
- Semi-automatic **recognition** and measurement of **road markings** in mobile mapping images
- Transformation, **modelling** and migration of geodata using **ETL-tools**
- Publication of traffic accident data on the **semantic web**
- **Geodata harmonization** for municipalities using the Feature Manipulation Engine of Safe Software
- From INSPIRE to e-Gov: testing tools in a **SCRUM** environment



- Technical development of INSPIRE data Set-up of a 3D building dataset of the GeoSolutions workspace for **indoor navigation** (2014-2015)
- A **3D model of trees** in Brussels and its publication in a web environment (2015-2016)
- Testing the GIM IMKL Reader and **developing** an offline IMKL **Viewer** with QGIS and IntraMaps Roam (2015-2016)

Internship courses at KU Leuven

Annually, internship offers are collected, usually **between 5 and 10 geo-ICT companies** react positively. Also public agencies can participate (e.g. NMA). Students can hear about the ‘projects’ offered during a regular class. They can be candidate for one or more (priority list)



Belgium: around 60 geo-ICT companies

Name + URL
GeoSolutions - http://www.geosolutions.be/activity.aspx
GeoAutomation - http://www.geoautomation.com/
GIM - http://www.gim.be/ewcm/ewcm.nsf
Eurosense - http://www.eurosense.com
Siggis - http://www.siggis.be/
GeoSparc - http://www.geosparc.com/
National Geographic Institute - http://www.ngi.be/
GeoID - http://www.geoid.be/
Spatial Applications Division Leuven – www.sadl.kuleuven.be
Merkator - https://www.merkator.com/
Flemish Institute for Nature and Forest Research - https://www.inbo.be/
European Space Agency - http://www.esa.int/ESA

Internship courses at KU Leuven

Spread over max. 2 semesters but can be concentrated in shorter period of time (20-40 days). Deliverables:

- Initial project description – personal planning
- Intermediate report
- Final report
 - Positioning of host and intern within host
 - Technical report
 - Self-assessment, assessment of internship for MSc.
- Public presentation (30') and defense towards jury

Evaluation: internship host + academics
(supervisor, coordinator, external evaluators)



**Project set-up
can become
complex**

Internship courses at KU Leuven

Topics proposed by host, possibly ammended based on feedback of KU Leuven

Mostly no 'continuity' in topics from one internship or year to the next

Internship findings and experiences and tools may be integrated in course material at KU Leuven:

Spatial Databases

Internship findings, experiences and tools are typically re-used by host

Internship usually fits in larger project, which guarantees dedicated supervision within host

Most internship reports are in the public domain

Considerable effort for the three sides

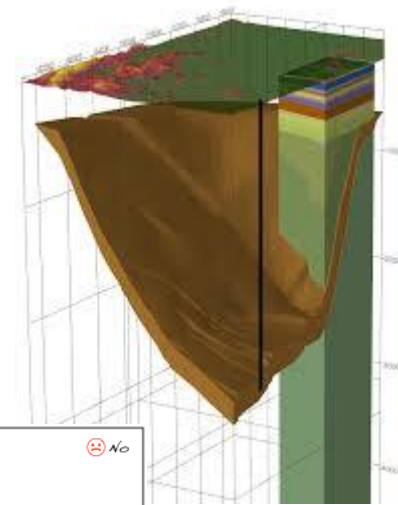


Internship Report: Geo Solutions
Set-up of a 3D building dataset of the Geo Solutions workspace for indoor navigation

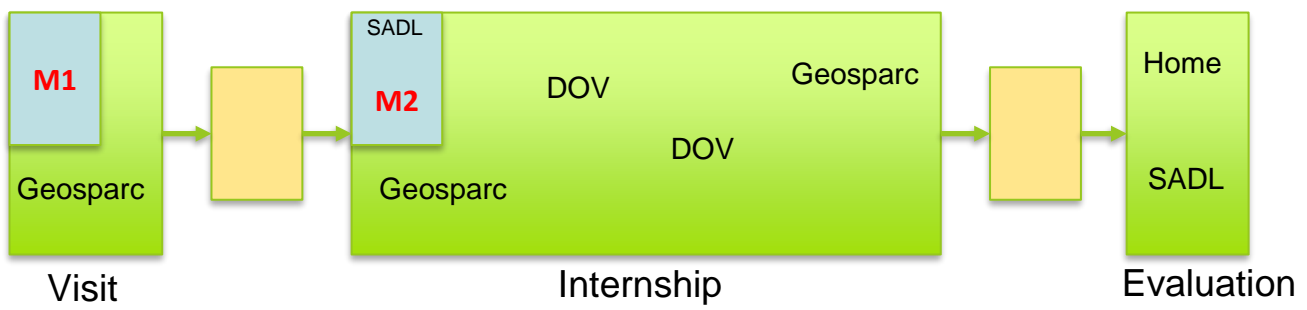
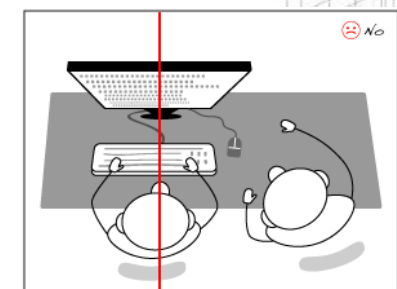
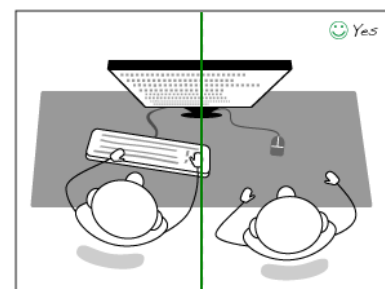
By William Ouellette

Internship courses at KU Leuven

Internships must be **‘designed’** carefully, although that is a joint effort. They **build** further **upon ‘regular’ courses** taken by the students. They might be supported by additional **‘ad-hoc’ training** that facilitates the preparation and implementation of the internship



SCRUM methods



Some conclusions

- **Internships as a course offer brings flexibility**
 - Content can vary from year to year, and from internship to internship
 - It allows problem- or project-based learning easily
 - It allows intense collaboration between the university, the company and the student
- **It is challenging though**
 - Considerable ‘investment’ by all parties involved
 - Some projects might be more difficult (e.g. real ICT-related projects)
 - Interactions with more parties might be needed (e.g. public authority)

Thanks for your attention

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