How to Update a Geo-Information Curriculum? Process and Content to Be Attractive for New Students and Useful for the Labor Market

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Vision Education

- Curriculum up to date
  - Technology developments
  - Societal changes
  - Didactics

- Curriculum attractive and useful
  - Students
  - Labor market
  - Lecturers

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How to update: step 1

- Analysis
  - Actual curriculum: strengths and weaknesses
  - Changes in outside world
    - Technology
    - Society
    - Didactics

How to update: step 2

- Structure and choices
  - Definition of final qualifications and learning objectives
  - What can be kept?
  - What can be skipped
  - Major and or minor changes

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How to update: step 3 Development

- Selection of
    - New software
    - New cases
    - New topics
- New didactics
- Update skills and knowledge of lecturers
- Communication with labor market and alumni
- Planning time for development

Example Geo Media & Design (BSc)

- First iteration of curriculum started in 2009
  - Driving force: Need from labor market for people, well suited in GI technology and usage, connected with data and visualisation

- First year 2012 (20), first graduates (15) July 2016
  - Development during the course from year 1 towards year 4
  - Now influx of 50 students
  - All students have either a job or went for a Master

Geo Media Design: step 1 analysis

- Technology
  - Increase availability open, big data
  - Business Intelligence (e.g. dashboards)
  - Mobile
  - Emphasis on User interface design
- Society
  - Citizens involvement, increase digital literacy
- Didactics
  - Life long learning
  - E-learning

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Geo Media Design: step 2 results of analysis and choices

- Design from world problems / challenges

- Stronger integration of Geo, Media & Design

- Professionalisation not seperate, but integrated with knowledge, skills and attitude

- More emphasis on data handling and visualisation / User Interface Design

- Increase autonomous learning of students

- Use project with team members with different roles, according talent based approach

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Comparison (step 3)

Old (competencies)	New (end qualifications)
Designing and using spatial information systems	Handling geo information technology
Designing and developing digital geo-information	**Working with data**
Geographical way of thinking and working	Spatial thinking
Spatial visualisation and visual interaction	Design
Sustainable development of the green domain	-
Initiating and supervising creative and innovative processes	Investigate and Analyze
Entrepreneurial and able to identify opportunities	Act as an entrepeneur
Able to work in a project-based context	Professional conduct
Communication skills	**Act as intermediary**

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Old curriculum

Year	Term 1	Term 2	Term 3	Term 4
1	World Systems	European Processes	Geo-IT	Virtual Excursion NL
	Course Introduction	Graphic Design	Weather & Climate	New Media
	Professionalisation			
2	1. Work Experience Internship 10 weeks	Global & Local	User Interface Design	Geo Trends
		Marketing	Urban Geography	Virtual Reality & Animation
	Professionalisation			
3	Bachelor Class Spatial Planning in the Netherlands in 2030	2. Project Internships: In the Netherlands (min. 10 max. 15 weeks) Abroad (min. 10 max. 20 weeks)		
	Professionalisation			
4	Specialisation project of student's own choice		3. Graduation Assignment: 20 weeks	
	Professionalisation			

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New Curriculum (under development)

Year	Term 1	Term 2	Term 3	Term 4
1	Mapping natural hazards	Population Dynamics	Climate Chances	Water on the move
2	Orientation internship: 10 weeks	Smart cities	Sustainable agriculture	Energy transition
			Geo-trends	
3	Minor/ 2 Project internships (one abroad): 10, 15 or 20 weeks			
4	Choice of specialization: engineer, analyst or designer All: Business & consultancy		Graduation assignment (20 weeks)	

Discussion

- How to incorporate wishes of employers?

- Attractive for new students?

- Quality of new educational material

- Needed update of lecturers
  - Age
  - Change management
  - Time

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Conclusion

- In a dynamic (GI) world:
  - Continous incremental update
  - Every 6 (?) year major overhaul
  - Use evaluation outcomes continously

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