

Course IT 1 (and IT 2)

For Non-Computer-Scientists

FH Oberösterreich

Studiengänge Öko-Energie-Technik und Bio- und Umwelttechnik

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(Course could also be offered to Erasmus Incomings and for Erasmus Teacher's Mobility in other countries)

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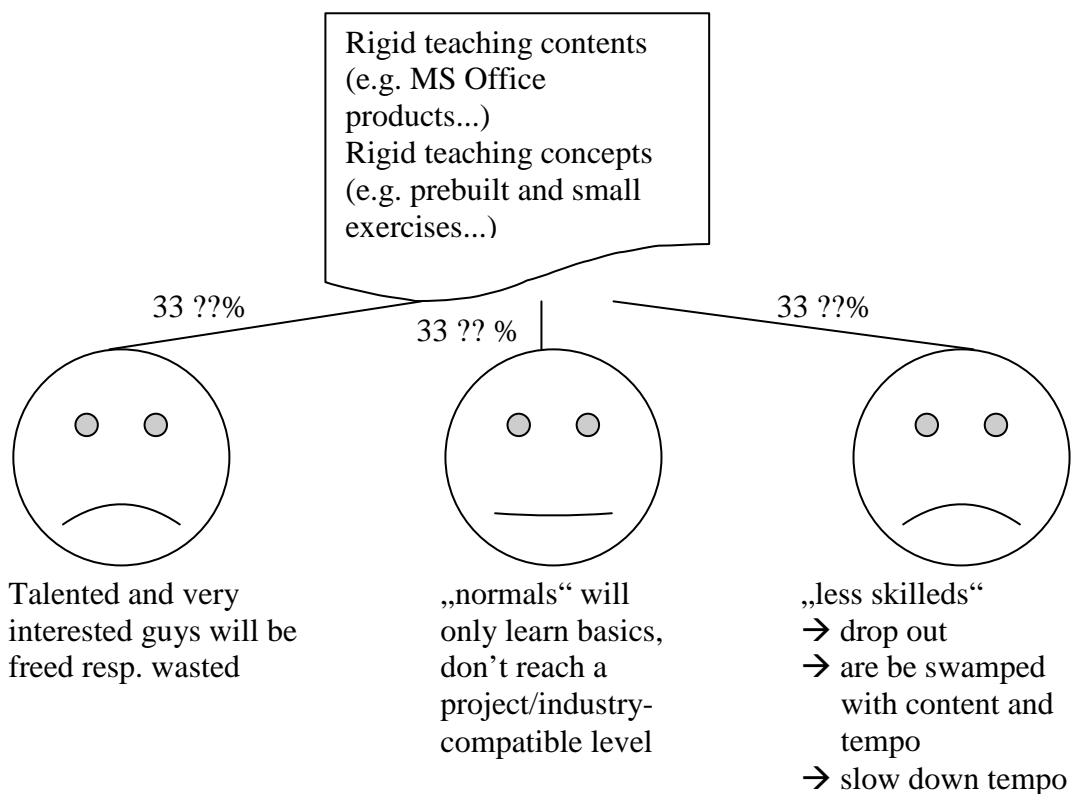
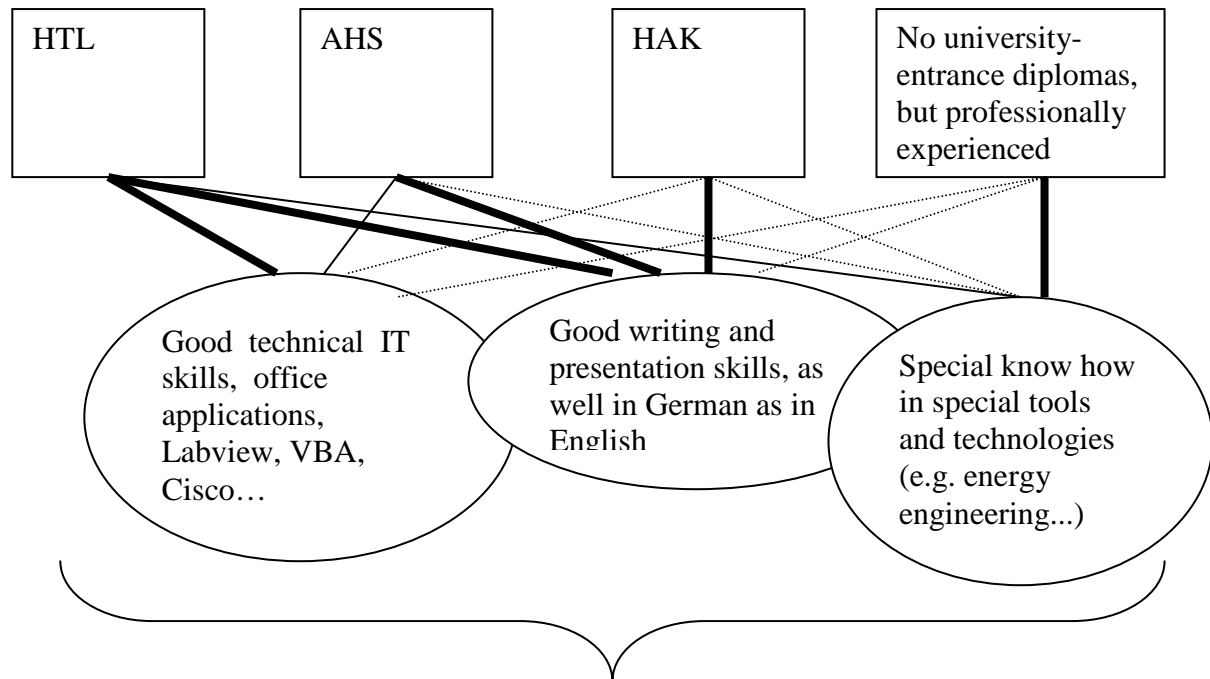
1 Learning Targets

- Professional competences
 - o Developing a Computer Science project with standards like UML and OEP
 - o Programming with Labview, VBA-Excel, C# ...
 - o DBMS
 - o Computer Networks
 - o Typical office applications (text processing, DTP, Email, Instant Messaging, Spreadsheets, Presentation, ...)
- Capacity for teamwork (soft skills and communicative competence)
- Apply typical “office”-applications up to organizing teamwork by Instant Messaging
- Scientific working (scientific lecturing and writing)
- Provoke creativity and acting on student’s own initiative

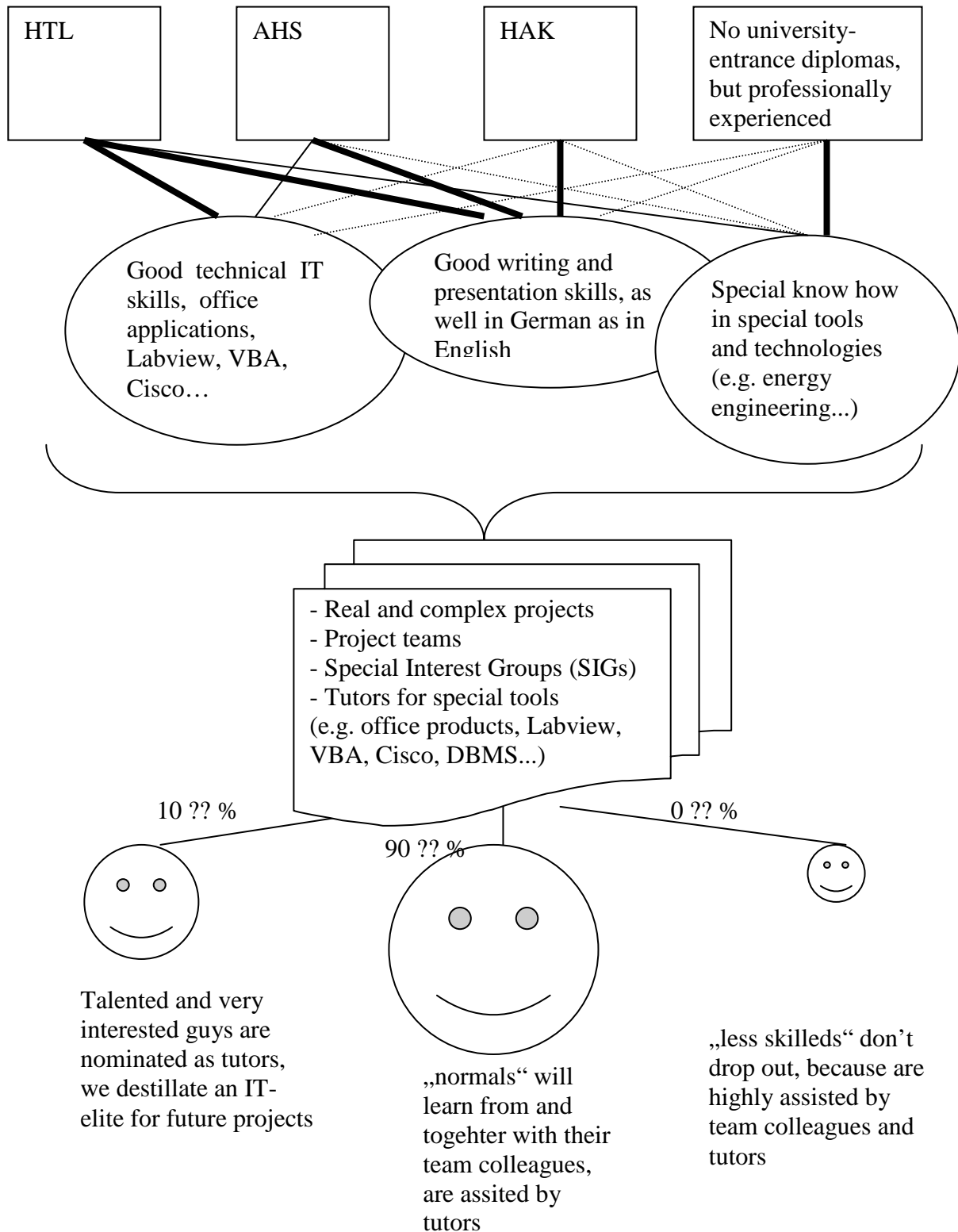
2 Situation and pre-conditions

Attendees with

- very different educational requirements
- very different professional qualifications
- different ages



Therefore real projects, team working, special interest groups, tutors...



3 Realisation

3.1 Project idea

- Everybody comes up with a project idea up to the 2. plenum date and prepares a PPT presentation of exactly 3 minutes.
- Evaluation criterias for the presentation are discussed.
- Aims:
 - o „Sell“ your project
 - o Win at least 4 or 5 applicants as team members
 - o Send email + PPT-attachment to professor until 1 day before 2. plenum date
- Provoke creativity / presentation skills / communicative competence /
tools learned: email, PPT, ZIP/RAR ...

3.2 Application as a team player

- Write an application by text processing + scan/insert picture + CV with your skills needed in the project
- You can apply for more projects.
- Send application via email + attachments to project leader with Cc to professor until 1 day before 3. plenum date
- Project leaders send email to applicants with positive/negative answer ASAP
- Project leaders send email to professor with names of team members
- Teams/project leaders organise Instant Messaging groups per team (professor included?)
- Design a project website
- Aims:
 - o Building teams (for further learning together), selection of needed skills in the project
 - o Learning accuracy (orthography, grammar, ...)
 - o Tools learned: , word, scan, google and other search engines/mywebsearch (“what’s RAR”), Instant Messaging (ICQ, Yahoo, AOL, ...), frontpage or better tools...

3.3 Find the Use Cases of your project

- Loan out the UML book from the library (Peter Forbrig:....) → UML version 1.0
- Search for UML 2.0 in the internet
- Identify the relevant business processes and define the Use Cases by Visio / Rose
...
- What shall how supported by IT?
- Presentation of the Use Cases as PPT with Visio / ... diagrams included
- Aims:
 - o Requirements analysis, discuss business (resp. technical) processes with the customers and reengineer them
 - o Tools learned: ... Use Cases with Visio / Rational Rose / Poseidon..., library and remote access

3.4 Particularize a business (or technical) process as an activity diagram (or state chart, depending on the kind of project)

- Look at UML 2.0 and the changes regarding activity diagrams
- Presentation of the activity diagrams as PPT with Visio / ... diagrams included
- Aims:
 - o Requirements analysis, discuss business processes with the customers and reengineer them
 - o Tools learned: ... Activity diagrams (or state charts) with Visio / Rational Rose / Poseidon..., library and remote access

3.5 Design class diagrams

- Classes / Attributes / Methods / Objects / Instantiation / Inheritance / Generalisation/Specialisation, Whole/Part, Associations, Cardinalities...
- Model Driven Architecture (MDA)
- Generating code from MDA
- Presentation of the class diagrams as PPT with Visio / ... diagrams included
- Aims:
 - o From requirements analysis to implementation, discuss class diagrams with the customers and redesign them
 - o Tools learned: ... class diagrams with Visio / Rational Rose / Poseidon...

3.6 Decide for an appropriate programming language and an Integrated Development Environment (IDE)

- Types of computers, How a computer works, Operating systems, From low to high level programming languages, machine languages, specialised languages, general purpose languages
- Paradigms of programming: Procedural / Object oriented / MDA...
- ... continued and completely developed/programmed next semester

3.7 Write an scientific paper about your project and present it at a (simulated) scientific conference

- Learn the principles of scientific working / writing / presenting

4 Schedule

Date	Subject	Type	hours	Room/ Equipment	Tutors/SIGs (also optionally and additionally offered by 2 tutors)
1a	Presenting concept of the course (targets, contents, dates, eval.-criteria)	plenum	1	Beamer; internet	
1b	Build PPT presentation of project ideas, send email + PPT-attachment to professor	exercise	2x2	PPT email Internet zip / rar	Office tools
2a	Presentations of project ideas, evaluating /discussing the results	plenum	1	Notebooks beamer internet	
2b	Applying for projects, building teams	exercise, home office, virtual room	2x2	Email Word Scanner IM	Office tools, Instant Messaging tools
3a	Presenting teams, leaders and players, Overview UML Overview Standard Processes (OEP..) What is a Software Development Method Introducing scientific working	plenum	1	Beamer; internet	
3b	Design Use Cases, Write scenarios, Prepare Use Case presentation	Exercise home office, virtual room	2x2	Visio, Rose, Word, PPT	UML-tools, Office tools
4a	Presentations of use cases, evaluating /discussing the results	plenum	1	Beamer; internet	
4b	Redesign use cases/scenarios, read chapter "activity diagram" resp. "state chart", search UML 2.0 in internet	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	UML-tools, Office tools, Search engines
5a	Overview activity diagram resp. state chart Examples of the last semester	plenum	1	Beamer; internet	
5b	Distribute BPs to team players, design activity diagrams / state charts, prepare activity diagram presentation (in english)	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	UML-tools, Office tools, Search engines

6a	Presentations of activity diagrams, evaluating/discussing the results	plenum	1	Beamer; internet	
6b	Redesign activity diagrams / state charts, Read chapter “class diagrams”	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	UML-tools, Office tools, Search engines
7a	Overview class diagram, Examples of the last semester	plenum	1	Beamer; internet	
7b	Design class diagrams, prepare class diagram presentation (optional in english)	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	UML-tools, Office tools, Search engines
8a	Presentations of class diagrams, evaluating/discussing the results	plenum	1	Beamer; internet	
8b	Redesign class diagrams	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	UML-tools, Office tools, Search engines
9a	Overview implementation: Decide for an appropriate programming language and an (Integrated Development Environment (IDE)	plenum	1	Beamer; internet	
9b	Redesign class diagrams, Presenting programming languages and IDEs , Introducing programming	Exercise, home office, virtual room	2x2	Visio, Rose, Word, PPT, google etc.	Labview, VBA, UML-tools, Office tools, Search engines
10a	Writing an scientific paper about your project and preparing a presentation at a scientific conference Learning the principles of scientific working / writing / presenting	plenum	1	Beamer; internet	Labview, VBA, Networks, DBMS
10b	dto		2x2		Labview, VBA, Networks, DBMS, WebSites
11-13	buffer				Labview, VBA, Networks, DBMS, WebSites

14/15	Presentations of the papers/projects, Send papers to professor	plenum	10	Beamer; internet	Labview, VBA, Networks, DBMS, WebSites
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Schedule of IT 2 will follow...

5 *Appendix:*

5.1 Example of a final project paper of IT 1

5.2 Example of a final project paper of IT 2 (Labview)

5.3 Example of a final project paper of IT 2 (VBA)

5.4 Example of a final project paper of IT 2 (combined Labview and Excel VBA)

5.5 Scientific Working




5.6 How Instant Messaging Works

Wissenschaftliches Arbeiten - Wissenschaft und Wissenschaftlichkeit von Psychologie und Pädagog - Microsoft Internet Explorer

Adresse <http://paedpsych.jk.uni-linz.ac.at/INTERNET/ARBEITSBLAETTERORD/ArbeitsblaetterWissen.html>


Wissenschaftliches Arbeiten

NEU:
[Online-Tests](#) mit sofortiger Auswertung

<p>Situativer Interessen Test</p>  <p>Der SIT ist ein differentieller Test zur Bestimmung von Berufs- und Freizeitinteressen nach dem Modell von Holland.</p> <p>ca. 5 Minuten</p>	<p>Locus of Causality</p>  <p>Der LoC dient zur einfachen psychometrischen Erfassung des Rotterschen Konzepts des Locus of Control.</p> <p>ca. 5 Minuten</p>	<p>Lerntypen-Test</p>  <p>Das Screening-Verfahren HALB-Test soll die in manchen Kreisen erstaunlich weit verbreitete Lerntypentheorie Vesters relativieren.</p> <p>ca. 4 Minuten</p>
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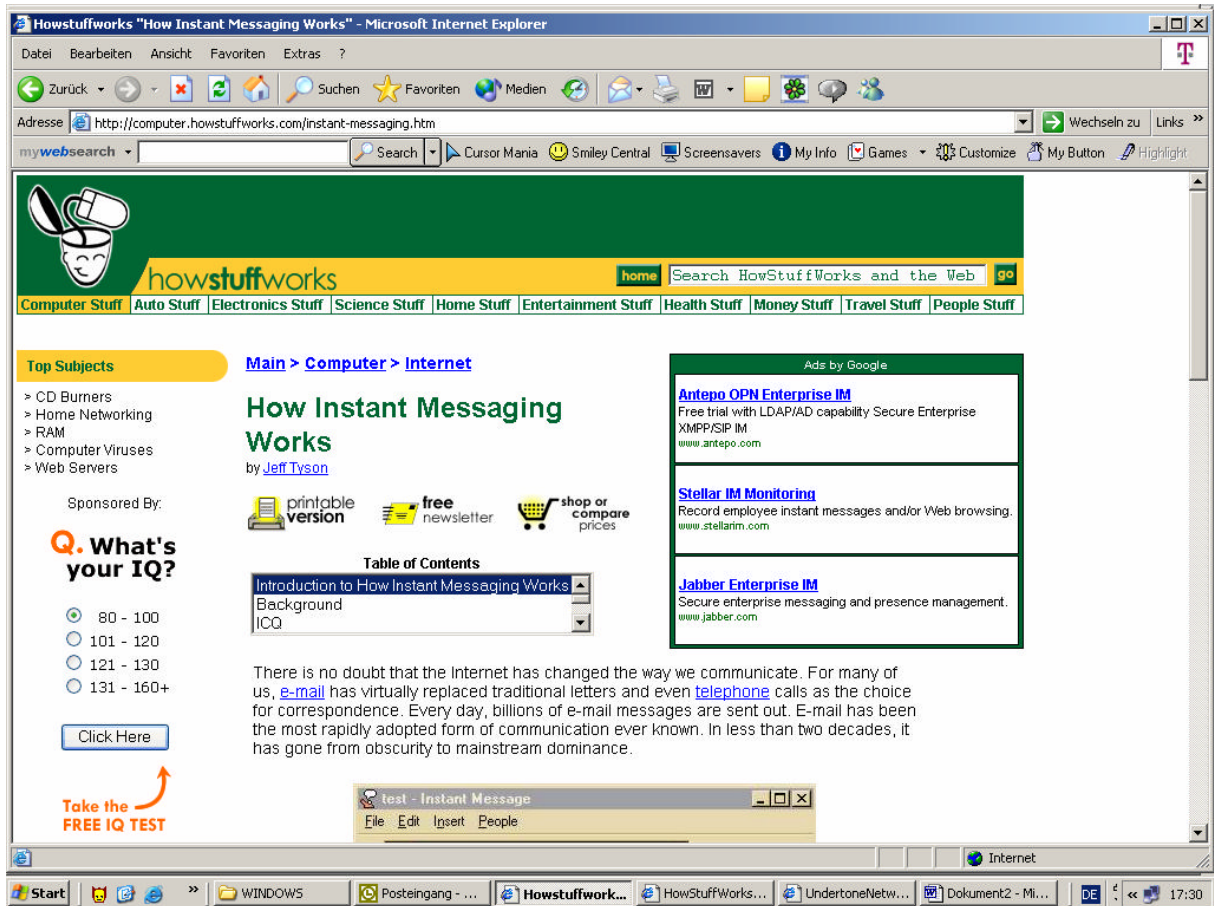
Jetzt neu organisiert und wesentlich erweitert:

- [Das schriftliche Referat](#)
- [Das Referat: Die Konzeption](#)
 - [Schreibtechnik](#)
 - [Themeneingrenzung & Schreibprobleme](#)



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<http://paedpsych.jk.uni-linz.ac.at/INTERNET/ARBEITSBLAETTERORD/ArbeitsblaetterWissen.html>



Example for Instant Messaging and team working



Example for Internet telephony and team working (www.skype.com)