

Pedagogical development of Master's Programmes for the Bologna Structure at Chalmers - IMPACT

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Abstract

Chalmers has adapted the Bologna model with a 3-year BSc (since 2004) and a 2-year MSc (since 2007). All MSc level studies are organised in ~50 MSc programmes taught in English. This is part of our long term strategic development towards a full integration of the Bologna process. When Chalmers decided to develop the new MSc programmes the project IMPACT was established (2007-2009) to support this huge process. The main objectives of IMPACT was to 1) establish internationally competitive and attractive programmes for national as well as international students and 2) make students graduating from the programmes competitive in an international job market. IMPACT has supported over 100 pedagogic subprojects selected in an open and transparent application procedure. Near 90% of the resources were used by direct development work or training of staff in English presentation. This paper presents IMPACT's strategy, some subproject examples and quality assurance (sub-project applications and reports, yearly questionnaires, workshops and group interviews.) The overall impression is that IMPACT has enabled teachers to engage in pedagogical development beyond the regular curriculum development, strengthening the full range of Chalmers' programmes. Enrolment is steadily increasing (615 foreign students started in 2008) and the admitted students produce good results.

Keywords: Bologna, MSc Programme, Pedagogy, Quality Assurance.

1. INTRODUCTION

Chalmers University of Technology in Gothenburg, Sweden, conducts research and education in science, engineering, architecture, technology management and economics, and nautical science in close collaboration with industry and society. Chalmers is one of Sweden's largest universities of technology with about 10,600 students and some 2,200 employees. The university's yearly turnover is 2,200 MSEK of which two thirds relates to research and research education, to a large extent at an international forefront. Chalmers is a non-governmental university, having contracts with the Swedish ministry of education, but owned by the Chalmers University of Technology Foundation. This identity and a strong management give the University resources, flexibility, determination and power to act in accordance with our vision: Chalmers - for a sustainable future. Chalmers early decided to transform and implement the first and second cycle education to the Bologna model with a three year Bachelor's and a two year International Master's programme. All students starting their Bachelor since 2004 have been following the first cycle and in 2007 the first students entered the second cycle, in which all Master's level studies are organised in international Master's programmes. This is part of the long term strategic development towards a full integration of the Bologna process for higher education. The Bologna process aims to establish a European area of higher education by 2010 and the objectives are to

- Establish a system of easily transferable accessible and comparable degrees (Bachelor's, Master's, Doctoral)
- Establish a European Credit Transfer System (ECTS)
- Promote mobility
- Promote cooperation within Europe concerning quality assurance
- Promote a European dimension in higher education.
- Promote Life Long learning
- Actively engage students in the development

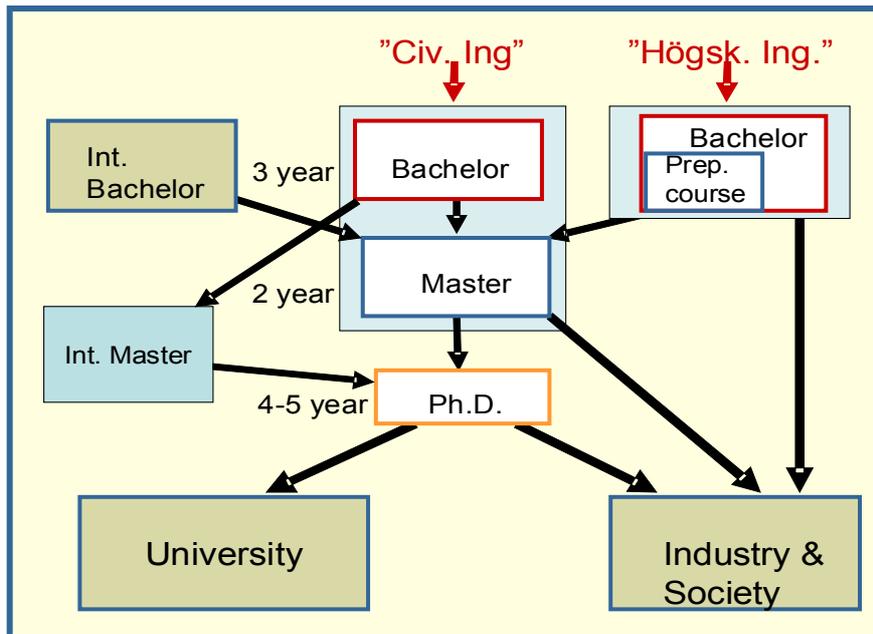


Figure 1: Swedish interpretation and implementation of the Bologna system

The main ideas and goals within the Bologna agreement are best reviewed in the homepage of the process. [<http://www.europaeum.org>]. The early strategic decision (to use English on all master programmes) at Chalmers started a very active and intense period for the staff (teachers and others involved in the development and implementation process) at Chalmers. For the first period no extra financing was introduced into the system outside normal course development money which had the implication that the job had to be done in parallel with other obligations such as research and teaching. (This is unfortunately the normal way of implementing new teaching and learning strategies in the University world.) Early on, everybody involved in the process realised that this drastic change needed significant amounts of resources for a successful development and implementation process and for long term quality assurance (international competitiveness) of the programmes. Therefore the departments (with strong support from Chalmers' leadership) put together an application for the development of 44 Master's programmes at 16 departments and sent that application to the Chalmers Foundation. This strong support from the whole Chalmers was the driving force for the project together with the acute need for development resources for the programmes. The application was awarded 30MSEK over three years for the development and implementation process. (Note that, at many Swedish Universities, the implementation of the Bologna structure is not as fully developed as the Chalmers model.)

Ph.D. programme in Sweden

So far, the Ph.D. programme in Sweden is not included in the change of education system. The Ph.D. programme in Sweden consists of three years of research, one year of courses and one year of teaching with all three subjects in parallel. For the students the teaching is very useful in terms of experience and training to present material for different student groups and with different learning strategies. The total Ph.D. programme in Sweden is therefore 5 year. Thesis consists of about 3-5 papers (at least 50% published) and a summary and is defended in public with an external opponent and is graded (fail or passed) by a committee of 3 external persons.

2. ORGANISATION

Organisation of the undergraduate programmes in Sweden is an ongoing process with a number of groups involved. A project like IMPACT must be seen from that view. The project is organised with a steering committee, a reference committee and a project group. The members are spread over all parts of Chalmers with expertise in sustainable development, pedagogy, leadership, etc. In the figure, the IMPACT project is set as part of the whole undergraduate education system at Chalmers. GUN is the "committee of undergraduate studies" and PA stands for Programme directors. The yearly budget for the Master's level education at Chalmers is around 25 M € out of which perhaps 10% (or 2.5€) could be counted as "curriculum development" and the rest is the running cost of the education. The IMPACT project adds around 1M € yearly specifically aimed at curriculum development and is thus supports a rather large part of the pedagogical development at Chalmers.

Project Organisation

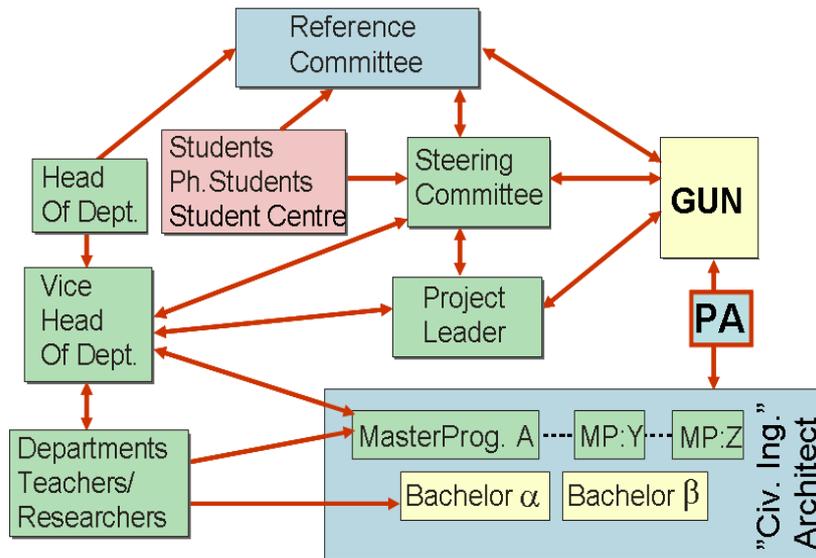


Figure 2: Organisation of IMPACT at Chalmers.

3. PROJECT PROCESS

Much of the resources within IMPACT were directed towards applications from the departments describing project ideas with focus on the IMPACT goals. The applications were reviewed by experts in the field and some were accepted and provided financing for one year. Application and reporting of the projects were done with full transparency in a web based portal which also doubles as project documentation. The project reports were reviewed by the steering committee and some were revised according to suggestions from the committee. This provides comprehensive documentation of what has been done in the project as a whole. The main focus areas of the 2007/2008 efforts within the IMPACT project were:

- Powerful coordination of the programmes with Bachelor's, bachelor engineering programmes and with research schools.
- Strengthening the coupling within and between MP – courses and areas, - red thread strengthening;
- Ensuring that diversity and sustainable development are implemented in the programmes and their structure.

For the academic year 2008/2009 the efforts were directed to the coordination of Master's programmes with research schools, and the surrounding society / industry together with the development of a Master's thesis (6 months and 12 months) structure involving components such as research facilities / industry contacts and so on. The English competence development (with evaluation report) is best described by the documentation on the homepage (www.chem.chalmers.se/impact/projekt.htm) but a brief summary of the courses (Teaching in English I and II) is also added last in this document. (Magnus Gustafsson from the Centre for Language and Communication is the author of that part.) A course in rhetoric is presently also included in the competence development program for the teachers combined with a training programme for the administrative staff handling the international student communication.

4. AIM AND GOALS

The overall goal of the IMPACT project was to develop 44 competitive international Master programmes at Chalmers. The project started with a workshop (Lökeberg, Marstrand October, 2006, http://www.chem.chalmers.se/impact/workshop_lokeberg.htm) where the overall goal of the project was discussed and developed in a bottom up process resulting in the following eleven subgoals.

1. Develop internationally competitive Master's Programmes with clear goals for improving the knowledge and competence of students.
2. Coordinate the Master's Programmes with Bachelor's-, Bachelor Engineering- and other Master's Programmes and with graduate schools in a clear and well structured way.

3. Improve the connection within programmes by means of well defined learning outcomes and more visible common themes in the programmes.
4. Deliver all programmes and courses in English, using a pedagogy designed for active and life-long learning.
5. Ensure that the issues of diversity and sustainable development are considered in the delivery of the Master's programmes.
6. Strengthen the teachers' competence in terms of pedagogy and English communication
7. Provide new learning resources in English that are more than mere translations of existing material.
8. Set up a format for feed-back from important stakeholders.
9. Design a system of assessment for the Master's programmes to be used in long term quality assurance.
10. Set up common arenas for experience sharing and/or other means of support for the promotion of pedagogical development.
11. Institute adequate administrative routines for programme support and, for example quality assured admissions.

IMPACT has so far supported over 100 projects (23 – 2007, 50 – 2008 and 39 – 2009) spread over the goals in terms of resources according to the following table and figure. Some of the goals have been in the process prioritised down because the responsibility of these goals was taken over by a certain body within the university (goal 9 and 11).

Goal	1	2	3	4	5	6	7	8	9	10	11
Cost (kSEK)	4922	4377	4108	3362	3127	1901	1144	2559	896	3055	270
%	16	15	14	11	10	6	4	9	3	10	1

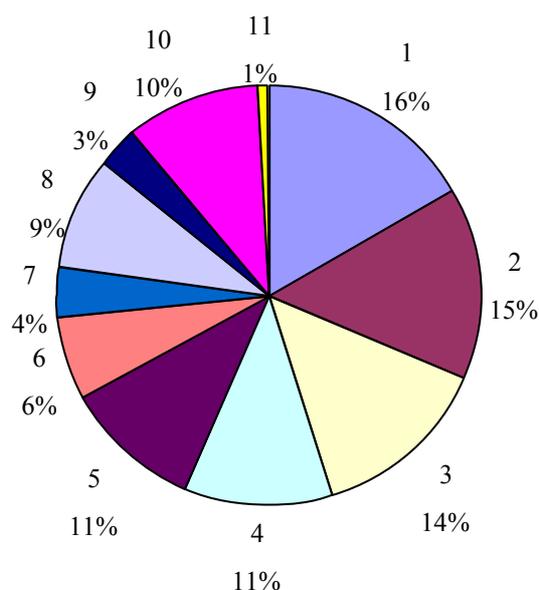


Figure 3 Percentage of project resources divided on the goals of the project .

5. EVALUATION AND QUALITY ASSURANCE

Chalmers education in general is evaluated through a common course and programme evaluation process which we will not describe here. The creation of the Master's programmes started before the IMPACT process and followed a common process inspired by CDIO (see [Malmquist and Arehag, 2007]).

The IMPACT project is documented and evaluated in several ways:

- The sub-projects reports and applications (23 in 2007, 50 in 2008, 39 in 2009). Four of the projects are summarised in the next section and one is described in [Berglund and Malmquist, 2007].
- The steering committee evaluated and commented on all the reports from 2007 and 2008.
- In Dec. 2007 and 2008 all the vice heads of the departments answered a questionnaire about the project development. The results are very supportive for the project leadership and steering committee:

Question (abbreviated)	Dec. 2007	Dec. 2008
IMPACT improved the competitiveness of the MSc programmes	82%	100%
Resources have been used effectively	91%	100%

Information in IMPACT was most satisfactory	100%	93%
IMPACT contributes to the fulfilment of its goals	91%	100%

- Results from the questionnaire also show that the departments strongly support knowledge platforms and more effective evaluation and quality control. These results influenced the direction of IMPACT's focus in the later project application procedure.
- In mid-2008 IMPACT initiated a self-evaluation of all the Master's programmes where all programme directors answered around 20 questions modelled around the IMPACT goals. The results of the self-evaluations have been used in the yearly follow-up meetings with Chalmers' engineering education and in the group interviews (see below). The accumulated answers and an analysis have been collected in a report (in Swedish) with a summary below. The same self-evaluation will be done in 2009 as well so that we can see if we are moving in the right direction.
- All projects within the 2008 application process are quality assured through group interviews with project leaders, department vice heads and IMPACT direction. The projects are grouped by departments and for each project, a short description of the project, possibilities and strengths, problems, the contributions to IMPACT's top-level goals and possibilities of knowledge transfer to other parts of Chalmers is discussed. For each department we go through the self-evaluations of the associated Master's programmes and discuss the application round for projects 2009. All the interviews have been performed and all involved have been positive towards a similar interview round in 2009. The interviews identified many opportunities for new collaboration and worked well as an arena for pedagogical discussions. We also identified two (out of 52) projects where the work had not been started (due to personnel moving or being occupied on other tasks). The two departments involved returned the money in accordance with the contract.
- A final external evaluation of the whole IMPACT project has just been started.

Results from the self-evaluation – questions (Q) and answer summaries (A)

Q: What was the most positive with IMPACT?

A: Many mention “buying time” for development, more contacts between teachers, coordination and collaboration and that the project has a simple and clear structure.

Q: What was less good with IMPACT?

A: Around 30% had no remark, 20% had remarks about different kinds of extra work (application, reporting, workshops, questionnaire, ...), 16% thought the subprojects were too narrow and the rest had mixed comments.

Q: IMPACT's contribution to planning?

A: Around 30% think IMPACT contributed a lot (>50%), 20% emphasise contributions to diversity and sustainable development, 20% say that much was done before IMPACT was started, 20% had other comments: teacher meetings, programme development, course development and 20% no comment. (The sum is > 100% because the alternatives are overlapping.)

Q: IMPACT's contribution to implementation

A: About 15% say marginal or no effect, 73% some effect (English, learning goals, course development, pedagogy development, examination forms) and 12% don't know.

Q: IMPACT contribution to programme evaluation and renewal?

A: About 40% say no or marginal effect, 51% some effect (contacts with industry, alumni, international contacts, English, etc.) and 10% don't know.

6. INTERESTING PROJECTS WITHIN IMPACT

In this part we present four examples of IMPACT projects focused around:

- A) Collaboration between programmes
- B) Diversity and sustainable development
- C) Individual preparation course
- D) Stakeholder involvement and feedback.

A: Collaboration between CSE Master's programmes – Computer Science and Engineering

Project Goals

The overall goal of the project was to improve the quality (depth and breadth) of the learning within the Master's education **without increasing the resources**. More detailed goals are:

- Increase the collaboration within and between the teaching teams / research groups.
- Better contact between students and between teachers on neighbouring programmes.

- Make better use of the competence of the research groups and strengthen the connection to research.

Results:

- Synchronised and shared tracks between five programmes (placement of electives, shared courses between programmes, updated course plans, reducing overlap, guest lectures, etc.)
- Established contacts between teacher groups have been strengthened.
- Guest lectures bring specific extra knowledge to students of related programmes. Almost all the courses are all taught by researchers active in this field. A package of Master's courses suitable for Doctoral education has been specified.
- One programme (CS-ALL) has started a mentor programme where teachers serve as first-year mentors, to give students individual guidance.
- Besides the curricular problems we also realised that all programmes need administrative support from the CSE Department and the Study Centre, for common routines: information flow, admission, publicity, and master's theses.
- Scheduling and coordination of the prerequisites is not merely an administrative matter. It has the purpose to give the key courses the proper places in the respective programmes.
- Several external / international activities: Swedish initiative in Resilient Computing, participation in two European Workshops on Education in Resilient Computing, participation in an Erasmus-Mundus application on Distributed Systems Engineering (M. Papatriantafilou), and (P. Jansson) participation in an Erasmus-Mundus application on Foundations and Applications of Software Technology.

Added value

Creative meetings between students on different specialisations / programmes. Cross-functional teams enable better learning. Better economy (fewer, larger courses) means larger scope for a commitment to quality. More stable curriculum for the research-level education. More advanced Master's courses. Reduced time for the research level education is achieved. Students from different programmes meet in shared courses. Group work in projects and programming assignments are common in the courses, and there is a clear correlation between active participation in the group work and the exam results. Our set of larger compulsory courses makes it possible to afford also smaller elective courses. The overview of Master's / Doctoral sharing of courses has only just begun, but looks promising.

Partners

Dept. of Computer Science and Engineering (CSE), Networks and Distributed Systems (NDS), Computer Science – Algorithms, Languages and Logic (CS-ALL), Secure and Dependable Computer Systems (SDCS), Engineering Mathematics and Computational Science (EMCS), Communication Engineering (ComEng), Bioinformatics and Systems Biology (BISB). Software Engineering and Technology (SET).

B: Mapping of diversity aspects with the aim of developing learning strategies for sustainable development – Chemical and Biological Engineering

Project Goal

All students, independent of gender, ethnic background etc. must be welcome and comfortable at Chalmers. They should also actively participate and contribute to the discussions and development of the subjects. Teaching and learning for sustainable development deals to a large extent with systemic thinking and with the ability to understand different perspectives. Perspective shifts are seen as important in transformative learning – the type of learning that may change the way you think and behave. Communication across borders of any kind is an important part of this learning process. Sometimes the ability can be described as the ability to change between different geographic, generational, scientific and cultural perspectives. The heterogeneous students groups in the Master's programmes provide an opportunity to support discussions involving experience exchange and learning processes that will promote the ability to shift perspectives. Teaching platforms, making use of the heterogeneous structure of the student group, will be developed in terms of a new learning strategy. The course in Global Chemical Sustainability will be the pilot course for this project.

Process

- Literature study on transformative learning, perspective shifts and teaching and learning methods
- Workshops on perspectives and diversity
- In depth interviews with students with heterogeneous background
- Course evaluation – student questionnaire and discussions

- Conference paper for international discussions

Added Value

Diversity can, correctly used, be a means for gaining better quality in the learning process. This knowledge can be used in all Master's programmes at Chalmers (and elsewhere). In the same process, the discrimination problem will become non-existent in the programme in a constructive way.

Evaluation

Results from in-depth interviews, questionnaires, workshops etc. will be reported and discussed in written and oral form. The student participation in the evaluation is essential.

C: Individual Preparation Course – Civil and Environmental Engineering

Project Aim

Provide the students with aid for self studies, (lectures and assignments in Mathematics, MATLAB and Signal Processing) using developed and intelligent learning material. The developed material and computer facilities can be combined in different ways to reach the individual goals of every student entering the Master's programme. The self study package is produced and implemented in the programme 2007 and will be evaluated in 2008. The Individual preparation course was first implemented during the fall of 2007/08 and will run every year from now on.

Process

Development of the material is the main part of the project according to plan. The work is done by staff at the division of Applied Acoustics.

Added Value

The material supports a form of learning that is individual where the students can take greater responsibility for their own learning process and do that stage wise. This is a step towards “advanced learning” and life long learning. The teacher workload will be decreased and the teachers can act more like supervisors, mentors in the process with increased teaching and learning quality. This project shows how Chalmers, through new learning strategies, can decrease the possible differences for individual students coming from many nations in the world entering the programmes at Chalmers.

Evaluation:

The course is evaluated through a continuous quality assurance procedure.

D: Improved industry connections within the Master's programme Radio and Space science – Radio and Space Science

Project Goal

The aim of the project is to improve the connections between the industry and the academy in terms of the research oriented Master's programme at the department. This way we can show for applying students how the industry interaction will increase their learning and motivation for studying this research area. The possibility of a future job in relevant industry sectors is also included in the project. The project is performed in connection with the industries Saab Space, Saab Microwave Systems, Volvo Technology in Göteborg and SP “Technical Research Institute of Sweden” in Borås. A number of industry related project and assignments will be developed in the projects, sometime with supervisors from industry as well as from academy. Industry visits, demonstration as well as invited lectures are used in the project.

Added Value

Improved industrial application methods will be implemented in the programme. This in itself will increase the pedagogic structure of the programme. Updating of the courses to state of the art in different areas. Better contacts between industry and students.

Evaluation

Questionnaires, increased number of applicants to the programmes. Evaluation of the courses.

7. CONCLUSIONS

The IMPACT project must so far be considered as a very successful project. It has through a careful design and implementation procedure, including a bottom up process, provided resources to a great number of well formulated, performed and implemented pedagogic project for the overall aim of developing strong and internationally competitive Master's Programmes at Chalmers. This project will strongly increase the possibility for Chalmers to compete with their Master's programmes in an international perspective. This project also shows that Chalmers considers the Master's Programmes as a strategic focus area linking Bachelor's and Doctoral education with the aim of being a major player in the European higher education area. It also emphasises the importance of cooperation and coordination of the Master's programmes with industry and the surrounding society. The strong focus on sustainable development for Chalmers (Chalmers strategy document) is also further strengthened through the realisation of IMPACT. The final evaluation of the project success will be measured by indicators such as number of applicants, evaluation of the Master's programmes, student satisfaction and attractiveness of our graduated students on an international job market.

Acknowledgement

The Chalmers foundation is gratefully acknowledged for their financial support (30 M SEK). Many thanks also to all the project leaders, teachers and vice head of the departments for their strong efforts and all other people at Chalmers who has contributed in other ways to the IMPACT project and especially Magnus Gustafsson for the enthusiastic contribution in the English courses.

References

- Berglund, F. and Malmqvist, J., *CDIO-based Master Programme in Product Development*, Proc. 3rd International CDIO Conference, MIT, 2007
- Christie, M (Ed), *Shifting paradigms in Engineering Education*, ISBN 91-631-8476-1, Chalmers, Gothenburg, Sweden, 2006
- Confederation of EU Rectors' Conferences and the Association of European Universities, *The Bologna Declaration on the European space for Higher Education: An Explanation*, 2000
- Malmqvist, J. and Arehag, M., *Experiences from using Integrated Program Descriptions to Support Program Development*, Proc. 3rd International CDIO Conference, MIT, 2007

Links

Bologna: <http://www.europaeum.org/>, <http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>
Chalmers strategy document http://www.chalmers.se/en/sections/about_chalmers/chalmers_strategies
Homepage IMPACT <http://www.chem.chalmers.se/impact/>
Presentations of the IMPACT project <http://www.chem.chalmers.se/impact/present.htm>

APPENDIX A: HOMEPAGE FOR APPLICATIONS AND REPORTS

Top: list of projects applied for in 2007 (some funded during 2008). Bottom: project application form.

The image shows two screenshots of the Mozilla Firefox browser displaying the IMPACT portal. The top screenshot shows the 'Research projects' page for the year 2007. The bottom screenshot shows the 'Register new project' form.

Research projects

2006 | 2007 | 2008

Displaying 1-50 of 75 research projects
< 01 02 >

Acronym	Title	Department	Reported	Updated	Status	Template
S2_ADM	Admin	Signaler och system	22 Oct	09 Jul	Rejected	[Fri ansökan..
AQM	Advanced Quantum Mechanics	Fundamental fysik	16 Oct	08 Jul	Accepted	[Ansökan 200..
TillMek-FA2	Aktiv vibrationsstyrning Labb	Tillämpad mekanik	18 Oct	09 Jul	Accepted	[Fri ansökan..
TillMekFA2, kompletteringar	Aktiv vibrationsstyrning Labb	Tillämpad mekanik	03 Dec	09 Jul	Rejected	[Fri ansökan..
MMT-1	Amping-up course moments/projects	Material- och tillverkningsteknik	18 Oct	08 Jul	Accepted	[Ansökan 200..
APEX	AnPassing av EXempel till en mångfaldssituation	Energi och miljö	19 Oct	08 Jul	Accepted	[Genus/mångf..
BrandM	Brand management	Teknikens ekonomi och organisation	19 Oct	08 Jul	Accepted	[Genus/mångf..
TillMek-GM1	Breaking cultural barriers in automotive education - (Auto-Culture)	Tillämpad mekanik	19 Oct	09 Jul	Accepted	[Genus/mångf..
TillMek-GM1, kompletteringar	Breaking cultural barriers in automotive education - (Auto-Culture)	Tillämpad mekanik	03 Dec	09 Jul	Rejected	[Genus/mångf..
SolveIT	Concepts for Problem-Solving Training on Different Levels	Data- och informationsteknik	18 Oct	18 Jun	Accepted	[Ansökan 200..
CoArchMas	Cooperating masterprogrammes in Architecture	Arkitektur	18 Oct	08 Jul	Accepted	[Ansökan 200..
Desus	Design for sustainable development - utveckling av hållbarhet i olika kontexter	Arkitektur	18 Oct	08 Jul	Accepted	[Hållbar utv..
BoM-DSSU	Diskussionsforum som stöd i undervisning (DSSU)	Bygg- och miljöteknik	19 Oct	08 Jul	Accepted	[Fri ansökan..
Diversity@CSE	Diversity@CSE - the quality of being different	Data- och informationsteknik	19 Oct	08 Jul	Rejected	[Genus/mångf..

Register new project

Edit Project | Permissions

Project

Title:

Acronym:
Short acronym or code used to identify this project

Status: Save as draft
 Submit for review
 Save as rejected
 Save as accepted
 Save as finished

Project leader:

VPref:

Fortsättning? (ange tidigare projektakronym eller "Nej")

Created:

Categories:

Project info: Please enter project name and identification code. Please note that only administrators can modify the application after it has been submitted for review. Administrators may change the project date, this affects which index-page tab the projects gets sorted under.

Categorization: Please select issues in a SINGLE category for this

IMPACT-project application

Login

Username:

Password:

Login

IMPACT-project application

- Ansökan 2009 pott 2: Avnämarperspekt
- Ansökan 2009 pott 1: Programutveckling
- Ansökan 2009 pott 3: Hållbar utveckling
- [Hållbar utveckling 2008 - avslutad]
- [Ansökan 2007 - avslutad.]
- [Fri ansökan 2008 - avslutad]
- [Genus/mångfald 2008 - avslutad]
- Administer

Logged in

Claes Niklasson

Logout

APPENDIX B: TEACHING IN ENGLISH I AND II

(Magnus Gustafsson, Centre for Language and Communication, Chalmers)

IMPACT arranges for further education for teachers at Master's level courses

Acting on a project report from 2006 regarding preparing teaching faculty for teaching in English, the IMPACT board has requested two courses for teachers delivered by the Centre for Language and Communication – teaching in English I and II. The courses are free of charge but the departments are expected to staff teaching faculty to make it possible to participate.

Teaching in English I

Teaching in English I is a three-credit course and the first in a planned sequence of three steps towards preparing teaching faculty at Chalmers facing the task of teaching in English. To date it has been delivered five times. The course is a language course oriented towards teaching in English at the various Master programmes at Chalmers. It is offered to 20 participants and runs over a quarter with four-hour sessions once a week for a total of 6 weeks plus individual supervision. The format of the course involves seminar discussions as well as time for individual supervision and individual work in the language lab. The course also includes reading, writing, and presentation assignments and it will require time outside of the scheduled sessions. On completing the course, participants receive a 3-credit certificate outlining the course and its scope:

- Learning outcomes: improving English grammar proficiency, enhancing written and oral proficiency for learning situations, and analyzing texts and presentations for assessment practices
- Assignments include: course relevant assignments such as mini-presentations, course descriptions, articulation of learning objectives, assignment instructions, exam questions, and design of visuals
- Learning activities involve: seminar discussions, proficiency oriented exercises and mini-activities, individual work in the lab and individual supervision

Strengths and weaknesses of Teaching in English I

The course focuses on language proficiency and teaching challenges involved in teaching in English. The target group is teachers who are to be involved or are involved in teaching a Master's course in English and who feel that they need to improve their English. The course has two strands where one provides a pedagogical orientation. The course seminar discusses the process from preparing a course, to delivering it and assessing the student learning. The second strand is a language strand including a methodical progression through typical grammar difficulties as well as a focus on course related vocabulary, common vocabulary confusions, sentence and paragraph structure, style and aspects like small talk and cross cultural issues.

This two-strand organization of the course is its main strength. The necessary language proficiency components are provided a context of relevant teaching and learning contexts and exercises are meaningful and well-situated in the everyday business of teaching in English. A significant strength of the course is that it is facilitated by teachers who are familiar with the teaching situation at Chalmers and, importantly, also teach the same category of international master students in English. Another significant but indirect strength of the course is that it offers an opportunity and a forum to stop and think about the challenges of teaching in English. Importantly, it also brings teachers and PhDs from many different departments and programmes together.

The problems and weaknesses of the course are related to the teaching and staffing situation at Chalmers. The course design depends on a significant amount of work outside of scheduled seminar sessions and the creation of teaching material to be brought to the seminars for discussion and revision. However, most of the teachers on the course barely have the time to make it to the sessions and there is an obvious risk that they simply use old material for course assignments with little if any resulting revision. Some of the teachers also express the need for more training and a dedicated writing course to polish their own writing skills. This is indicative also of a structural weakness in the course since the time frame of six or seven weeks severely limits the amount of proficiency progression possible.

Teaching in English II

Teaching in English II is a 4,5 credit course with a possibility of receiving a 3-credit recognition of prior learning in the 15-credit higher education diploma issued by Professor Michael Christie with the Centre for Competence and Knowledge Building in Higher Education (CKK) at Chalmers. The course is offered as a term-long seminar oriented towards teaching in English and adapting teaching and learning activities at the various Master programmes at Chalmers. With the overall context of teaching in English to non-native speakers of English, the course content is geared towards constructive alignment in a learning perspective; communicating objectives, assignment design, assessment schemes, self and peer assessment, critical reading, writing-to-learn, peer learning, lecturing, supervision, feedback, and teacher-teacher support. Apart from the seminars and workshop activities with meetings every third week, the course also includes individual supervision and time to work on an individual development project. It is, consequently, not a proficiency oriented course and therefore requires prior participation in Teaching in English I or good English proficiency. The course is time-consuming with reading and writing assignments and it requires time outside of the scheduled seminars.

- Learning outcomes: enhancing one's ability to adapt teaching and learning activities to new conditions, exploring alternative assessment methods, increasing student responsibility, working actively with critical reading and writing-to-learn activities
- Learning activities involve: seminar discussions, workshop activities, pursuing a project relevant to one's practice, peer observations and supervision
- Assignments include: pursuing one's project, articulating or interpreting the learning objectives of one's course context, designing and revising learning activities for one's course context, designing assessment schemes and criteria for one's course context

Strengths and weaknesses of Teaching in English II

One of the strengths of the course is that it allows for a longer period of development than Teaching in English I and that it hence allows for the design and pursuit of a small educational development project through which to apply and consolidate the insights and findings generated in the seminars. It is also important to note that the course has an agenda that problematises the notion of translation of Swedish courses into English and focuses instead on the educational development dimension of taking on a genuine learning perspective.

The immediate usefulness of the projects is a strength in itself as the issues are heartfelt and the concerns that inform the projects are very real. Projects on the course can include redesigning for greater activity and student learning focus as a course moves from a large group setting in Swedish to a small group setting in English. Other projects might focus on improving student learning in already existing MSc courses through careful design of assessment or through assignment alignment. In other cases, the crucial development demands lecturing and activity designs and formative assessment for such environments. The projects have to allow the participants to address precisely the issues they face and the facilitation of the projects is therefore demanding on participants as well as on course facilitators but it is also this demanding discussion that drives the seminar.

The major weakness of the course is the stressful work situation the participants experience. Not being able to pursue a course, not being able to prepare properly and read up as planned because of the teaching and / or research one has to do really only creates frustration for the participants and reduces the potential impact of the course. To really adopt the learning perspective and redesign a project accordingly takes time and participants need to be able to address issues in their courses. This, then, is something departments must acknowledge.