

The IT programme

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Head of programme

(using slides from the Personal Development Project,
Bernelo/Honsberg/Järelöv/Blennow/Peterson)

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The IT programme

- Swedish name “**Informationsteknik**”
- International classification: “**Software Engineering**”
- IEEE/ACM definition of Software Engineering:

Software engineering is the discipline of *developing* and *maintaining* software systems that behave reliably and efficiently, are affordable to develop and maintain, and satisfy all the requirements that customers have defined for them. [...] Software engineering is different in character from other engineering disciplines due to both the intangible nature of software and the discontinuous nature of software operation. It seeks to integrate the principles of *mathematics* and *computer science* with the *engineering practices* developed for tangible, physical artifacts

Structure of Education

- 5 years engineering programme
- 3 years Bachelor education
major part in Swedish, but already here many English courses
- Associated Master programmes (organisational):
 - *Software Engineering*
 - *Interaction Design and Technologies*
- Accredited Master programmes (degree related):
 - the accredited programmes
 - *Computer Science*
 - *Computer Systems and Networks*
 - Management and Economics of Innovation
 - Entrepreneurship and Business design

Curriculum Year 1

(Mathematics see extra slide)

- Introduction to computer engineering
- Object-oriented programming 1
- Object-Oriented programming 2
- Design and construction of graphical user interfaces
- Object-oriented programming project
- Engeneering competence
- Communication in Swedish

Curriculum Year 2

(Mathematics see extra slide)

- Software Engineering project
- Embedded systems programming
- Data structures and algorithms
- Many elective courses

Curriculum Year 3

(Mathematics see extra slide)

- Technology for a global sustainable society
- Model-driven software development
- Career planing
- Communication in English

Mathematics courses

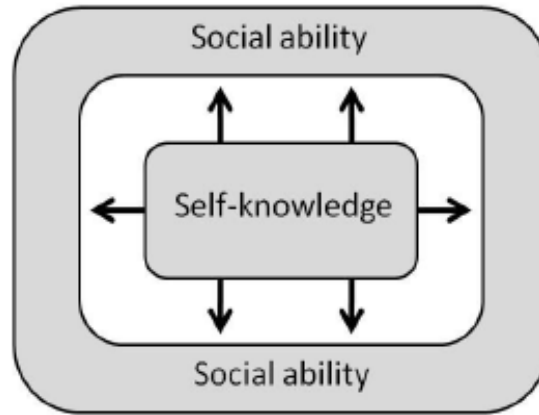
- Discrete mathematics, period 2, year 1
- Linear algebra, period 3, year 1
- Calculus, period 1, year 2
- Mathematical statistics, period 2, year 2
- Mathematical modelling and problem solving, period 2, year 2
- one more elective course

Special features of IT programme

- Course in Engineering competence
 - Roles of IT engineers
 - Self-determination and self-steered learning
 - Group dynamics
 -
- Course in Career planing
- Courses in Communication
- Non-traditional ordering of Mathematics courses
- Course in Mathematical modelling and problem solving
- Mentor programme (joint with programmes E and CE)
- "Personal Development" project (with E and CE)

EDIT model of Personal Development

Two guiding principles

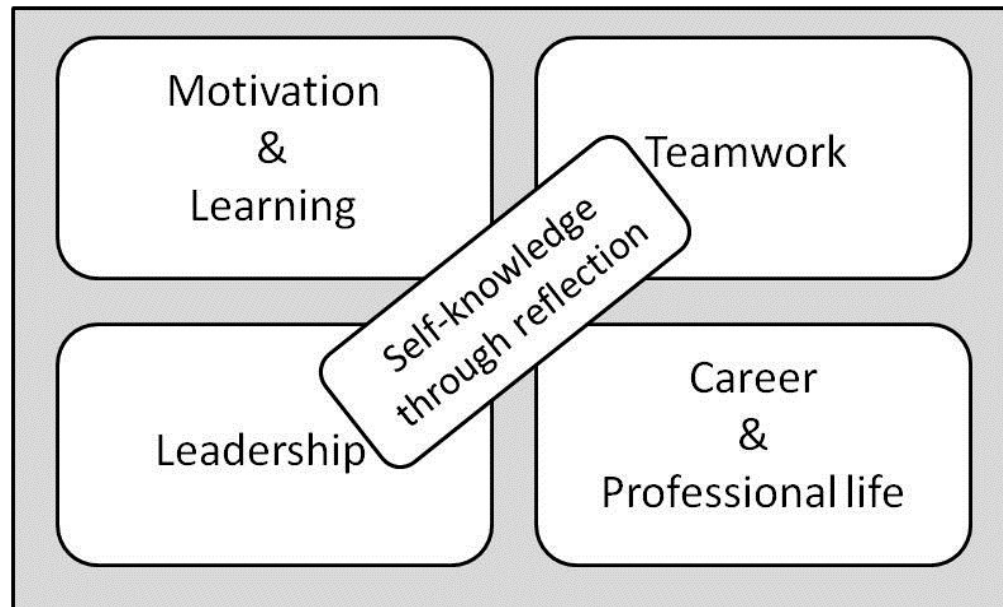


Self-knowledge (inner dimension) leads to **social ability** (outer dimension)

Feeling belonging, feeling liked, self-perception & self-respect
vital for personal and professional efficiency

EDIT model of personal development

- 4 themes + reflection



Selected 4 themes supporting 2 guiding principles

EDIT model in context

- Swedish Qualifications Ordinance (3 categories, 12 outcomes)
 - Competence and skills
 - demonstrate the capacity for teamwork and collaboration with various constellations
 - Judgement and approach
 - demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.
- Chalmers vision, goals and strategies (2008-2015)
 - “Chalmers’ educational programs focus on the individual’s development with supervision, problem-solving, industrial and research contact, sustainable development and reality-based leadership.”
- Constructive Alignment (Chalmers-wide adoption)

Examples of implementations

- Study skills (CE+SE)
 - 1st term, had lectures - added reflection workshops
- Group dynamics (SE+EE)
 - Year 1 & 2, in existing project courses, added lectures & reflection workshops
- Career course (SE) & mentoring program (all programs, 23 students)
 - Years 3 & 4
- Added learning outcomes in existing courses (EE, SE)

Outcomes

- Generally appreciated by students, however want tools not lectures (esp. group psychology)
- Evoked processes in students that we have to handle
- Group dynamics (EE):
 - Higher satisfaction in project-group work
 - Better agreement about project goals
 - Student counselor role in course appreciated by discipline teachers
- Teachers positive due to potentially higher pass rates and milder conflicts in project courses
- External stakeholders want “the usual stuff”, i.e., engineers with self-awareness who are ready to engineer

Questions?