

# Towards a Common Frame for European CS/Informatics Education

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Preferred duration: 15 min.

I am going to attend the preconference program

## 1. Short introduction of myself, my institution and the degree programs of my faculty (2 min.)

In Hungary, higher education in informatics has two basic roots: it has been evolving as a branch of mathematics at science universities, while as a field of electrical engineering at technical universities and high schools. In engineering studies, before Bologna, high school level 3-year programs and university-level 5-year programs were taken place in separate organisations, students had to choose between levels as they entered into higher education. The two types of organisations differed significantly in scientific reputation and in the style of education as well.

The new Hungarian Law of Higher Education defines three 7-semester BSC degree programs in informatics: computer engineer (bachelor in technical informatics), computer program designer (bachelor in computer programming), computer economist (bachelor in business informatics). Our Faculty started a new BSC program in technical informatics in September, 2005.

## 2. How to implement the Bologna-process (5 min)

“easily readable and comparable degrees”

What about the number of degrees in EU in informatics?

How to compare them?

*We need*

- *definition for the discipline of informatics*
- *an agreement on a (small) number of degrees*
- *a list of topics for each degree*
- *a list of outcomes for each degree*

“two main cycles”

It is a particular problem for German-style universities (e.g. Hungarian ones) to change from a longer massive theoretical background first and specialisation with more practice later to a reverse order education – *with the same staff*.

“The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification.”

*There should be no difference between BSC degrees of universities and that of high-schools.*

“system of credits”

credit = unit of ???

“quality assurance”

ISO ???

*Sufficient resources (including staff)...*

*Attention: next ministerial conference in London, 2007.*

### 3. The scope of informatics – about the discipline (3 min)

Evolution from computer-techniques to informatics...

Sometimes new buzzwords are necessary, but...

Essential change in computer application: not the computer itself (for what and how can you use it), but the understanding of the domain and its processes as well, that is the information is in the focus.

An experimental definition (in Object-Oriented style):

Informatics is an area of professional knowledge and skills, subjects of which are:

- the information itself (nature of it, metrics for it, representations, data-information-knowledge ...)
- operations on the information (processing, transferring, extracting, storing, ...)
- tools and systems for executing operations on the information (computers, computer systems, hardware, software, ...)
- operations on such tools and systems (design, implementation, maintenance, ...)

### 4. Different kinds of degree programs in informatics (5 min.)

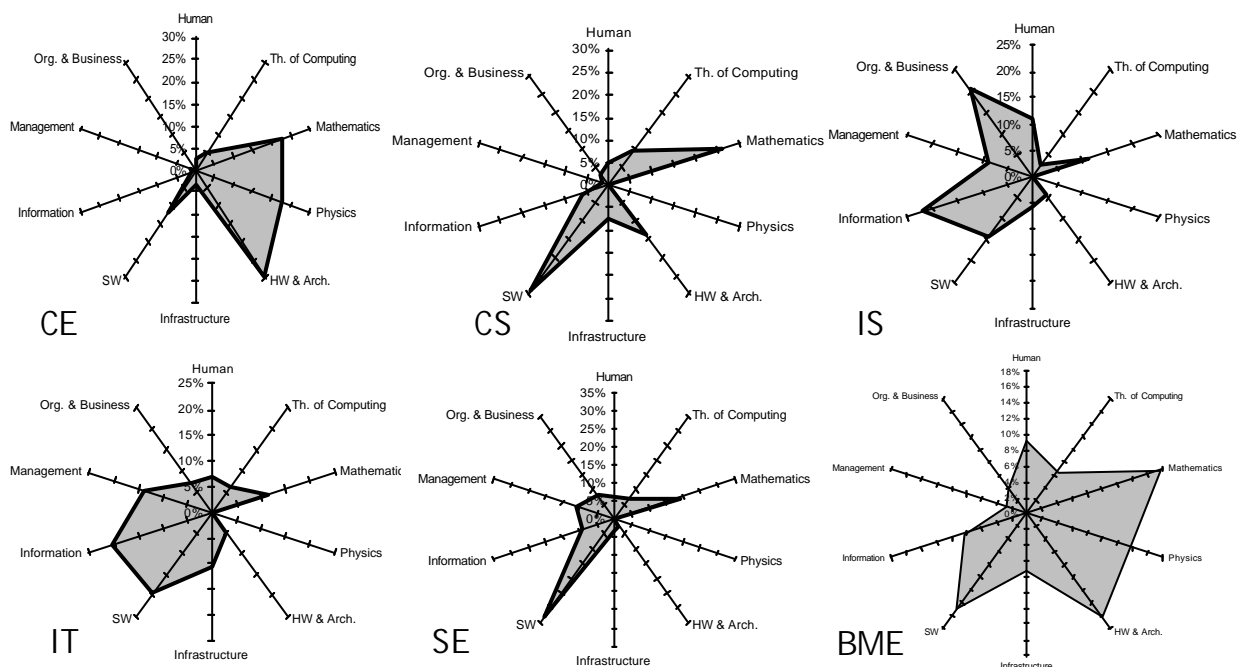
The ACM – IEEE-CS Computing Curricula Series is a very good basis.

Graphical representation of different disciplines in CC 2005 Overview Report is powerful and impressive as a qualitative explanation.

What we could improve is to put metrics into the tabular comparison showing not only the relative weight of a topic in different programs but also the relative weight of topics within a program.

To get an easy-to-understand and comparable picture we should define the coordinates of the problem space of informatics, and could use a radar-diagram for visualisation.

An example: result of our analysis of ACM-proposed programs and our BSC in technical informatics program presented on figures of that style.



EuroTICS could refine the coordinates and metrics, and in this space programs in informatics in Europe could be highly comparable.