

Summary (Draft)

SNART Seminar on Undergraduate Education in Real-time Systems

19 October 1999

Chalmers University of Technology
Göteborg

Agenda

1. Presentations of real-time courses at universities represented at the meeting
2. General discussion about education in real-time systems
3. SNART special interest group on undergraduate education in real-time systems

Minutes

1. Presentations

Presentations of courses on real-time systems (10 min each)

Jan Jonsson, Chalmers tekniska högskola
Ellus Brorsson, Högskolan i Dalarna
Joakim Eriksson, Högskolan i Skövde
Thomas Gustavsson, Luleå tekniska universitet
Roger Johansson, Chalmers Lindholmen
Simin Nadjm-Tehrani, Linköpings universitet
Christer Norström, Mälardalens högskola
Martin Törngren, Kungliga tekniska högskolan
Pelle Wiberg, Högskolan i Halmstad
Karl-Erik Årzén, Lunds tekniska högskola
Magnus Broberg, Högskolan i Karlskrona/Ronneby
Hans Hansson (substitute for Wang Yi), Uppsala universitet

Short presentations of specific courses (5 min each)

Hans Sandholt, Chalmers (mechatronics)
David Sands, Datavetenskap, Chalmers (concurrent programming)
Martin Fabian, Signaler och System, Chalmers (control- and communication systems)

Short presentation on the industrial needs (5 min)

Mathias Lewin, Sigma Systems AB

Copies of the presentation slides will be distributed to the seminar participants. If possible the slides will also be posted on the SIGURT Web page (see below).

2. General discussion about undergraduate education in real-time systems

After the presentations followed a 30 minute general discussion about education in real-time systems. Some of the issues discussed were:

- The need for teaching design methodology for real-time systems.
- Are students too focused on exams?
- The need for better laboratory classes:
 - lab equipment must be robust enough for large student groups
 - lab assignments should be proper real-time applications with explicit response time requirements
 - realistic labs tend to focus the students on irrelevant practical problems rather than important principles.

3. SNART special interest group on undergraduate education in real-time systems

It was decided to form a special interest group within SNART on undergraduate education in real-time systems. A tentative name for the group is SIGURT, “Snart’s Interest Group on Undergraduate education in Real-Time systems”, or in Swedish “Snarts Intressegrupp för GrundUtbildning i RealTidssystem.” (The name was proposed by Johan Karlsson after the meeting.) It was agreed that SIGURT should support the following activities and services:

Meetings

Meetings should be organised at least once a year. Each meeting should address a specific topic related to undergraduate education in real-time systems. Meetings should preferably be scheduled together with other conferences or SNART events.

Web site

The SIGURT home page will be hosted by ARTES in Uppsala in conjunction with SNART’s home page. Tentative content of the web site is:

- Mailing list to group members
- Links to home pages for real-time courses
- Links to web pages where each university present their courses in the real-time area.
- Books reviews/tools reviews
- Course material database containing
 - lecture notes
 - exercises
 - exam problems
 - lab assignments

Material to the web page should be supplied by the members of SIGURT. In the course material database, members are expected to post material that they are willing to share with other members free of charge. It was agreed that some of the material, e.g. exam problems, must be protected by password so that only members have access to it.

Open issues concerning the web page are:

- How do we maintain the authors copyright of material published on the web page?
- Should peer review be used to ensure the quality of the material?
- Do we need a “code of conduct” for how to use the material?
- What material should be open and what should be password protected?

A proposal for how to deal with these issues should be produced before the next meeting.

Joint development of course material

An import task for SIGURT is to encourage members to cooperate in joint projects for development of new course material. The possibility to send a joint application to Grundutbildningsrådet next year will be investigated.

Working group on Model programs

A working group will be formed to develop model programs for undergraduate education in real-time systems for master and bachelor programs. The purpose of the model program is to provide recommendations on what topics in the real-time area that should be taught in compulsory as well as elective courses. The model program should also include pointers to suitable books, articles and other course material. Note that the purpose of the model program is *not* to specify specific courses, since it is inevitable - and indeed desirable - that each university will maintain its own unique set of courses in the real-time area.

Actions

1. Seminar participants to send presentation slides to Madeleine Persson, Institutionen för datorteknik, Chalmers tekniska högskola, 412 96 Göteborg, e-post: madelein@ce.chalmers.se.
2. Johan Karlsson to produce a written summary of the workshop which will be sent to all participants and later published at the SIGURT home page.
3. Each university to produce one Web page describing their courses in real-time systems. The URL for this page should be sent to Roland Grönroos.
4. Johan Karlsson and Jan Jonsson to write an introduction for the SIGURT home page.
5. Martin Törngren, Johan Karlsson and Jan Jonsson to organize the next meeting of SIGURT in Stockholm in conjunction with the next SNART-meeting in May, or the EUROMICRO conference in June.
6. Martin Törngren, Jan Jonsson and Johan Karlsson to present at the next meeting a proposal for how to handle the open issues concerning the web site. All participants are encouraged to provide their views on these issues to Martin, Jan or Johan.
7. All participants are encouraged to submit material to the SIGURT home page, such as book reviews, tools review, course home pages, etc.