

WET
Workshop on Education and Training
TOOLS USA, 2001
Facilitators: Heidi Ellis and Richard Mitchell

A successful Workshop on Education and Training (WET) was held at TOOLS-USA 2001 on August 29th. The workshop participants were:

1. Nuaman Al-Lahabi who has an M.S. in IT, over 20 years of employment in the computer industry and works as trainer of Windows NT, other MS products. Nuaman is interested in enterprise requirements and believes deeply in continuing education.
2. Emily Oh who is just starting Ph.D. at UC Irvine. She is investigating educating undergraduates in software engineering by building a simulation of the software engineering process using the Sims as a model.
3. PedroGuerreiro who is from the New University of Portugal. Pedro teaches Software Engineering and is interested in keeping up with change.
4. Tero Ahtee from the Software Systems Laboratory at Tampere University of Technology.
5. Jean Bezin. from the University of Nantes. Jean is a pioneer educator in OO Software Engineering and a major contributor to ECOOP. He is interested in Model Driven Applications
6. Abdul Rahman who is interested in both training and education.
7. Gerry Engel from the University of Connecticut in. Gerry has spent time at NSF and is currently vice president of conferences and tutorials for the IEEE Computer Society and is also involved in computer science accreditation efforts.

We started the session at 9:00 a.m. by asking the question:

For Industry, what do you want taught?

We then went around the room and compiled a list of participant opinions that included:

Nuaman: Need theory plus practical experience.

Emily: Life cycle issues leading to small project.

Pedro: Programming skills. Databases, OS, Networks, Web awareness.

Abdul: OODB vs Object-relational DB vs Relational DB.

Jean: Need ERP, Enterprise Modeling. Big demand in near future to migrate existing systems to component based systems. Moving from code-based SE to model-based SE. Migrations occurring much faster in industry, e.g. Mainframe to OO (C++) to Java to Web based.

Tero: Real-time systems plus whole life cycle. Project Management. Not enough emphasis on testing at his U and probably not elsewhere either. Tools.

Gerry: Computer Science, Computer Engineering, Information systems, Software engineering, computational science, IT. Working on curricula for first four for Undergraduates. Due out in November. Looking for common core.

Gerry: Common core + SE + practicum + supporting courses. HCI.

Heidi: Algorithms and complexity.

Nuaman: We need Standards. Better if they come from Academic community.

Nuaman: At undergrad level, teach theory and general courses for first three years, then practical stuff in fourth year.

Heidi: Personal and learning skills, how to adapt to change.

Jean: Agree

Pedro: Disagree, not with idea necessarily, but not practical, students won't pay attention to these.

Jean: Should know history, why decisions were made, so they can get a feel of how things change.

We then progressed into a general discussion of the benefits and need for lifelong learning and how to prepare students to learn more on their own. We discussed the half-life of CS knowledge. How long before you can't tell a CS grad from a generic science grad? It was mentioned that a very informal study in the UK that showed that 18 months after graduation an employee's educational background could not be discerned, overshadowed by raw talent.

<LUNCH>

After lunch, we broke into two groups (Group 1 and Group A) to discuss what we thought software engineering and information sciences education programs should contain, drawing from the topics identified during the morning. The two groups took slightly different approaches to the problem.

Group 1: This group identified several potential new degree programs as a way of handling the expanding educational needs in the field of computers. It was this group's opinion that software engineering is more deeply technical, focussed on software. Information Sciences is more managerial a la MIS, So needs higher awareness of more different areas, e.g. hardware, public policy. The group then compiled the following list of possible new educational tracks:

- A. HCI
- B. Knowledge Engineering
- C. Tool Building
- D. Project Management
- E. Graphics, Visualization
- F. Networks/Telecomm
- G. Persistent Data Management
- H. Hardware Engineering

Group A: This group attempted to answer the question "What should not go into SE or IS degrees?" The group identified the fact that platforms and business are both changing rapidly. There needs ways to cope with both kinds of changes. This group defined software engineering as dealing with platform changes, while information sciences is more concerned with business changes. This group identified less important issues for both disciplines:

SE less important issues:

1. Computability and Complexity
2. DB
3. HCI
4. Formal Methods
5. Public policy

IS less important issues:

1. Computability and complexity
2. HW/Architecture
3. Op. Sys. And low level Networking info
4. Ethics

In addition, this group recognized the need for coverage of security and interoperability topics in both programs.

After discussing each group's results, participants were encouraged to vocalize one "thing" that they would attempt to do better or different in the future as a result of this workshop:

Gerry: define difference between SE and IS.

Richard: Understand HCI better

Pedro: Add historical/archeology information to his teaching.

Jean: Pay more attention to Intersection of SE and IS.

Heidi: Pay more attention to Knowledge Engineering.

Jim: Look into SE/DB interface.

The last activity of the day was a short discussion of the future direction of WET. Suggestions were:

1. Cut fees in half.
2. Get a speaker, e.g. author of The Killer Robot.
3. Construct an e-mail list of current attendees.

WET ended at 5:15 p.m. Sunday July 29, 2001.

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