The Development and Deployment of Embedded Software Curricula in Taiwan

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Outline

- Introduction
- Our strategies
- Embedded software curricula
- Results and experiences
- Conclusions and future work
MOE/VLSI Program/ESW Consortium

MOE Advisory Office

SoC Office

EDA Office/Consortium

P&L Office/Consortium

MSD Office/Consortium

P&L PAC

EDA PAC

ATP Office

HRQ Office

S&I PAC

MSD PAC

ESW Course & Curriculum

ESW Office

Intl. Corp. Programs

ESW Forum

Std. Act. & Promotion

Ind. & Aca. Forum

Partner Universities
ESW Consortium/ESW Curriculum

- ESW curriculum task group
  - Develop reference ESW curricula for universities
  - Develop or enhance courseware including Labs for ESW courses
  - Promote ESW curricula for CS/EE depts.
Curricula from ACM, IEEE-CS, other universities

Embedded software curricula

New course or course module

Seek for project leaders

Team up course development team

Course development

Course trial run

Advisory board

Inputs from other task groups, profs. and industry executives

Regular course development meeting

Regular course promotion workshop

Deployment phase

Development strategies
Deployment strategies

- Embedded software curricula CFP
- Proposal and budget review
- Project grant and curricula deployment
- Progress review and On-site visit

Regular course promotion workshop

ESW office

Review boards and MOE
Embedded software curricula

- Universities
  - train students with research, design and development abilities

- Technical universities
  - offer trainings to students with technical skills and implementation abilities
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Results and experiences

- 12 course development projects since 2004
  - 8 courses for universities
  - 4 courses for technical universities

- 12 projects
  - about total USD 600,000 for the course development
  - total USD 150,000 per year for maintenance

- 43 professors from more than 20 universities involve the course development
  - 18 professors are from EE and related departments
  - 25 professors are from the CS department
Five curricula promotion workshops
- more than 400 attendees including professors, students, and engineers from industries

Received 24 proposals and approved 11 proposals in 2005
- total USD 600,000 is funded for the first year. It is expected to have some amount of budget for the second year
Results and experiences (Cont.)

- ESW education infrastructures have been established in the 11 universities
  - > 30 new courses or courses with enhancements are lectured in the 11 universities in the first year
  - > 1000 students enrolled these courses under the ESW curricula deployment program

- ESW consortium announced the call for proposal for technical universities in 2006
Results and experiences (Cont.)

- **Challenges and issues**
  - the common education platform
    - to develop different sets of hands-on labs over various platforms
    - require all hands-on labs to be developed over one or two common hardware platforms
  - the development of hands-on labs
    - TA notes, reference source codes or reports, and knowledge and experiences learned from the labs are extremely important

- **Establish a database for hands-on labs**
  - Lab road map
  - >100 labs
  - peer review
Conclusions and future work

- The paper presented the strategies to develop and deploy ESW curricula in Taiwan
- The reference ESW curricula were proposed for universities and technical universities
- New courses and hands-on labs were developed to support the curricula
- The deployment program encourages universities to establish ESW curricula and the ESW education laboratory
Conclusions and future work

- Our future working items are
  - a common teaching platform
  - construct a complete Lab database
  - develop more advanced courses
Thank you!