



Software Engineering Institute | CarnegieMellon

SEI Software Architecture Workshop for Educators

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

Len Bass, Larry Jones, Judy Stafford
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Session Objectives

Brainstorm, share and refine ways to include software architecture methods and concepts in college and university courses.

Form working relationships among participants and nurture an educators software architecture “community.”

SEI resource:

http://www.sei.cmu.edu/architecture/comm_resources.html

Agenda

- ▶ **8:30 – 9:00** Introductions and recap of previous workshops
- 9:00 – 10:00** ArchE presentation
- 10:00 – 12:00** Experiences teaching architecture topics
 - Each participant updates the group on their experiences (approx 10 minutes per presentation)
- 12:00 – 1:00** Working lunch
- 1:00 – 2:00** Group discussion continued
 - Continued presentations on experiences teaching software architecture concepts
 - How might we incorporate “Documenting” concepts into courses?
- 2:00 – 2:45** Next steps and wrap up (with ice cream in the middle!)
 - How to connect in the future
- 2:45** End of the workshop (hard stop!)

2004 Workshop Attendees

Marty Barrett	East Tennessee State University
Len Bass	SEI
Mike Battig	Saint Michael's College
Steve Chenoweth	Rose-Hulman Institute of Technology.
Janet Hartman	Embry-Riddle Aeronautical University
Larry Jones	SEI
Mike Lutz	Rochester Institute of Technology
Manton Matthews	University of South Carolina
Linda Northrop	Software Engineering Institute
Arturo Sanchez	University of North Florida
Celia Schahczenski	Montana Tech of The University of Montana
Jim Tomayko	Carnegie Mellon University
Robert A. Willis	Hampton University
Rob Wojcik	SEI

2004 Discussions - 1

Fitting essential concepts into a “small package”

- one week in a single software engineering course

Threading concepts throughout the curriculum

A single course in software architecture and design (Rose Hulman)

How do you teach synthesis?

Forums for spreading the word

- OOPSLA (Educator’s workshop, panels, workshops, Design Fest, birds-of-a-feather session)
- SIGCSE
- CSEET

2004 Discussions - 2

Forums for spreading the word

- OOPSLA (Educator's workshop, panels, workshops, Design Fest, birds-of-a-feather session)
- SIGCSE
- CSEET (Conference on Software Engineering Education & Training)
- Frontiers in Education
- ITiCSE (Innovations and Technology in CS Education) sponsored by SIGCSE
- Consortium for Computing Sciences in Colleges

Funding sources

- NSF, Department of Education, Andrew Mellon Foundation, US Labor Department, ACM SIGCSE

2005 Attendees

Mari Anvari	ZIFIT
Len Bass	SEI
Roger Champagne	Ecole de technologie superieure
Mario Garcia	Texas A&M University - Corpus Christi
Elsa Golden	Carnegie Mellon University
Larry Jones	SEI
Roger Lee	Central Michigan University
Bhabani, Misra	University of St. Thomas
Warren Moseley	Southwestern Oklahoma State University
Parviz Partwow-Navid	California State University
Rodney Rambally	University of Trinidad and Tobago
William Sheers	Washington & Jefferson College
Ludwig Slusky	California State University
Mei-Huei Tang	Gannon University
Jim Tomayko	Carnegie Mellon University
Rob Wojcik	SEI
Cui Zhang	California State University

2005 Discussions - 1

How to think architecturally

- What are the skills needed to be an architect?
- What are architects thought processes?

Key ideas to incorporate into software engineering course(s)

- quality attributes
- working in groups

2005 Discussions - 2

Exercises and tool support for exercises

- maintenance exercise as a motivator
- students start their own company
- students present case studies
- take on the role of advocate for a particular quality attribute
- Lego robot project

Forming and expanding the software architecture educator's community

- influence model curricula
- share contacts and work products
- apply to be an SEI visiting scientist

2006 Attendees

Mohammad Ayati	Cal State Los Angeles
Mehdi Beheshtian	University of La Verne
Vijay Deokar	Cal State Los Angeles
Ajantha Herath	The Richard Stockton College NJ
Suvineetha Herath	The Richard Stockton College NJ
Allen Holliday	Cal State Fullerton
Adam Hurang	Cal State Los Angeles
Suradet Jitprapaikulsarn	Naresuan University
C.Luis Fernando Castro	Universidad Autonoma Metropolitana
Eduardo Rodriguez-Flores	Universidad Autonoma Metropolitana
Robert Silverman	Cal State Stanislaus
Ming Wang	Cal State Los Angeles
George Wang	Cal State Northridge

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ArchE Presentation

See Len's slides.

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Seed Topics for Discussion

Software Architecture Documentation in Undergraduate Curricula

- What from the course can be used in undergraduate courses?
- What format is best? How would you include the topics?
 - a complete course in software architecture versus embedding software architecture in existing courses
 - weaving software architecture into a curriculum
 - packaging blocks of instruction: what to include and where to include it
- What materials would you need to teach the topics?
 - supporting instructor materials
 - exercises and lab assignments
 - pedagogical examples

Software Architecture Documentation in Graduate Curricula

- Same topics as above

Others?

Group Discussion

Brainstorm topics

Cluster topics

Prioritize topics

Develop time budget

Discuss topics

- Larry facilitate
- Len record
- Judy kibitz

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