Proceedings

22\textsuperscript{nd} Conference on Software Engineering Education and Training

CSEET 2009

17-20 February 2009 • Hyderabad, Andhra Pradesh, India
Table of Contents

Foreword
Conference Organizers
Reviewers

Keynotes
Software Engineering: Research-Led Education with Human Values ................................................................. 1
  Rajeev Sangal
Software Engineer to Global Leader: Service Provider and Trusted Advisor ............................................................. 2
  Ed Cohen
Making Quality Attributes First Class Entities ......................................................................................................... 3
  Len Bass

ASEET
Software Architecture Design ......................................................................................................................... 4
  Len Bass
Delivering Software Engineering Skills ........................................................................................................... 5
  Lynn Carter
Teaching an Introductory Software Engineering Course in a Computer Science Program ........................................ 7
  Pankaj Jalote

Session 1: Performance Evaluation and Assessment
Case Studies as Assessment Tools in Software Engineering Classrooms .............................................................. 8
  Kirti Garg and Vasudeva Varma
  Robert Feldt, Martin Höst, and Frank Lüders
Software Engineering Education at TCS Induction - An Experience Report ..................................................... 16
  Smita Skandan and Meera Sidhardhan
Session 2: Curriculum and Teaching Materials

A Requirements Engineering and Management Training Course for Software Development Professionals .................................................................20
  João M. Fernandes, Ricardo J. Machado, and Stephen B. Seidman

Using Software Project Courses to Integrate Education and Research: An Experience Report .................................................................26
  Supannika Koolmanojwong and Barry Boehm

Session 3: Learning Environments and E-learning

Agile Software Factory for Student Service Learning ..................................................34
  Joseph Chao and Mark Randles

An Evaluation of Using a Game Development Framework in Higher Education ..................................................41
  Bian Wu, Alf Inge Wang, Jan-Erik Strøm, and Trond Blomholm Kvamme

Session 4: Curriculum and Teaching Materials

Application and Appreciation: Changing Course Structure to Change Student Attitudes ..................................................45
  Janet E. Burge

IT SPIRAL: A Case Study in Scalable Software Engineering Education ..................................................53
  Michael Barker and Katsuro Inoue

  Gil Taran, Ryan Miller, Ramesh Seela, and Ali Shojaeddini

Session 5: Internships and Projects

A Study on a Multidimensional Model of Mum Effect among IT Students ..................................................69
  Sakgasit Ramingwong, A.S.M. Sajeev, and Lachana Inchaiwong

Designing a Multi-disciplinary Software Engineering Project ..................................................77
  Patricia Lago, Joost Schalken, and Hans van Vliet

Shared Timeline and Individual Experience: Supporting Retrospective Reflection in Student Software Engineering Teams ..................................................85
  Birgit R. Krogstie and Monica Divitini

Session 6: Curriculum and Teaching Materials

The Role of Collaboration Diagrams in OO Software Engineering Student Projects ..................................................93
  Lili Hai

Toward an Approach to Programming Education to Produce Qualified Software Developers ..................................................101
  Jaime F. Castillo, Carlos Montes de Oca, Efrain Salomón Flores, and Perla Velasco Elizondo

Software Engineering Approach for Teaching Development of Scalable Enterprise Applications ..................................................105
  Ritu Arora and Sanjay Goel
Session 7: Industry-Academia Collaboration Models

Engineering a Software Supported Health Risk Appraisal Method: A Joint Effort between Academia and Health Care Industry ................................................................. 113

Sotiris Skevoulis, Joe Campedelli, Karen Holdsworth, John Verel, and Saby Tavales

Industry Academia Collaboration: An Experience Report at a Small University ................................................................. 117

Padmanabhan Krishnan, Kelvin Ross, and Percy Pari-Salas

A Training Process for Faculty Members in Collaborative Degree Programs: Design, Implementation and Feedback ........................................................................ 122

Gil Taran, Mario Zenha-Rela, Paulo Marques, and Pedro Bizarro

Session 8: Learning Environments and E-learning

Issues in SE E-learning Development – Changing Phases and Challenges Going Forward ............................................................................................................. 130

H.A. Padmini and Shakila S.R.

Web Based Software Modeling Exercises in Large-Scale Software Engineering Courses ................................................................. 138

Birgit Demuth and Daniel Weigel

Using Wikis to Support Teamwork Skills in Software Engineering Courses .......................................................................................... 142

Maha Al-Yahya

Automating an eLearning System - A Case Study .......................................................................................... 150

Sridhar Chimalakonda and Kesav V. Nori

Session 9: Internships and Projects

Risks in Students’ Software Projects ................................................................. 154

Tero Ahtee and Timo Poranen

A Scalable Approach to Graduate Student Projects: Hundreds with Industry Every Year .......................................................................................... 158

J. Barrie Thompson and Helen M. Edwards

Using Quality Audits to Assess Software Course Projects .......................................................................................... 162

Wilson Pádua

Dimensions for Categorizing Capstone Projects .......................................................................................... 166

Janet E. Burge and Gerald C. Gannod

Session 10: Education Theory and Pedagogy

Problem Based Learning in the Software Engineering Classroom .......................................................................................... 174

Ita Richardson and Yvonne Delaney

Applying PBL in Software Engineering Education .......................................................................................... 182

Simone C. dos Santos, Maria da Conceição Moraes Batista, Ana Paula C. Cavalcanti,

Jones O. Albuquerque, and Silvio R.L. Meira

A Community of Learners Approach to Software Architecture Education .......................................................................................... 190

Remco C. de Boer, Rik Farenhorst, and Hans van Vliet

Displacing the Sage on the Stage: Student Control of Learning .......................................................................................... 198

Jocelyn Armarego
Session 11: Education and Training for Current SE Practice

Innovative Strategies to Build IT Workforce ................................................................. Lakshmi Prayaga, Laura J. White, and Sikha Bagui .......................................................... 202

Are Our Students Prepared for Testing Based Software Development? ........................................ Vandana Bhattacharjee, Madhumita S. Neogi, and Rupa Mahanti .................................................. 210

Sixteen Roles Performed by Software Engineers in First One Year ........................................ Mallikarjun Maram, Prasad Prabhakaran, Shekhar Murthy, and Nagaraju Domala ....................... 212

Software Engineering Education for Bioinformatics .......................................................... Medha Umarji, Carolyn Seaman, A. Gunes Koru, and Hongfang Liu ............................................. 216

Session 12: Education Theory and Pedagogy

Using Ontologies to Aid the Teaching of Software Engineering ........................................ Sapna P.G. and Arunkumar Balakrishnan ............................................................ 224


Pair programming as a teaching tool: a student review of empirical studies ......................... Pearl Brereton, Mark Turner, and Rumjit Kaur ............................................................. 240

Session 13: Industry-Academia Collaboration Models

A Dynamic Framework for Software Engineering Education Curriculum to Reduce the Gap between the Software Organizations and Software Educational Institutions ................................. GVB Subrahmanyam ............................................................. 248

Industry-Academia Collaboration via Internships .............................................................. Salaka Sivananda, Vinaya Sathyanarayana, and Peeta Basa Pati ............................................. 255

Session 14: Education and Training for Current SE Practice

DCPE Rollout: Scaling Performance Engineering Training and Certification across a Very Large Enterprise ................................................................. Rajesh Mansharamani, Arunava Bag, Kishor Gujarathi, Kunal Gupta, Amol Khanapurkar, Manoj Nambiar, and Mehul Raval ......................................................... 263

A Global and Competition-Based Model for Fostering Technical and Soft Skills in Software Engineering Education ................................................................. Olly Gotel, Vidya Kulkarni, Moniphal Say, Christelle Scharff, and Thanwadee Sunetnanta ....... 271

Tutorials

Enriching the Culture of Software Engineering Education through Theories of Knowledge and Learning ................................................................. Sanjay Goel ............................................................. 279

Software Engineering: A System Dynamics Simulated Pedagogical Practice .......................... Kumar Saurabh and Balasubramanian Krishnan ............................................................. 283

Innovative Teaching of Software Engineering: Practical Approach with Labs ......................... Suthikshn Kumar ............................................................. 287
Workshops

SWEBOK Refresh and Continuous Update: A Call for Feedback and Participation .........................................................291
  Pierre Bourque
The Graduate Software Engineering Reference Curriculum (GSwERC) .................................................................293
  David Klapholtz, James McDonald, and Arthur Pyster
Improving Communication Skills of SE Students through Curricular Innovation .....................................................295
  Janet E. Burge and Paul V. Anderson
An Examination of Learning Technologies That Support Software Engineering and Education .........................................................297
  Mel Rosso-Llopart
  Gil Taran, Vasudeva Varma, and Kirti Garg
How Can We Scale-Up Student Admissions and Graduate Completions? .................................................................301
  J. Barrie Thompson and Helen M. Edwards

Author Index