Software Engineering for Industry Oriented Research and Education at TGGS

1 September 2009

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Software Systems Engineering (SSE)

“Putting strong emphasis on complex systems with deep connections to application specific environments in the modern industrial business world”

Topics of Interest :
- Software Engineering
- Software Architecture
- Data Communications
- Radio Frequency Identification (RFID)
- Wireless Technology
- Multimedia systems
- Security systems
- Computer Graphics
- Embedded Systems
- Advanced Database System
- Efficient Algorithms
- Image Processing
- Compilers for Scientific Computing

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King Mongkut’s Institute of Technology North Bangkok
The Sirindhorn International
Thai-German Graduate School of Engineering
RWTH Aachen University

Digital Smart Community
Intra Vehicle Communications
Rural Broadband Communications
Building Automation System

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Software Systems Engineering (SSE)

<table>
<thead>
<tr>
<th>Course Coordinators</th>
<th>TGGS: Dr. rer. nat. Toni Anwar</th>
<th>RWTH: Prof. Dr. rer. nat. Otto Spaniol, Computer Science IV, RWTH, Faculty of Mathematics, Computer Sciences and Natural Sciences</th>
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<tbody>
<tr>
<td>Permanent Staffs Bangkok</td>
<td>Dr. rer. nat. Toni Anwar, Dr. Suprangsit Muetutsatorn, Dr. Kulwadee Somboonwiwat</td>
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| RWTH Chairs engaged | • Computer Science IV (Prof. Dr. Spaniol) - Data Communications & Internet, Multimedia Communications  
• Computer Science XI (Prof. Dr. Kowalewski) – Embedded Software System  
• Computer Science III (Prof. Dr. Nagi) – Software Architecture  
• Software Construction (Prof. Dr. Lichter) – Software Engineering  
• Computer Science VII (Prof. Dr. Kobbel) – Computer Graphics, Image Processing  
• Computer Science XII (Prof. Dr. Naumann) – Compilers for Scientific Computing  
• Computer Science V (Prof. Dr. Jarke, Prof. Dr. Schröder) – Advanced Database  
• Computer Science X (Prof. Dr. Borchers) – Human Computer Interface  
• Theoretical Computer Science (Prof. Dr. Rossmanith) – Efficient Algorithms  
• Computer Science II (Prof. Dr. Katoen) – Theoretical Computer Science |
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TGGS-SSE Research Area

- Building Automation
  - Broadband Access (BPL, ADSL, Cable Modem), Short Range Communication (RFID, ZigBee etc.), Advanced Database System
- Rural Broadband Communication
  - Wireless (WiMax, WiFi, Satellite etc.) & Fixed Broadband (BPL, Fibre Optic etc.)
- Vehicle (land & underwater) Communication
  - Short Range Communications (RFID, Wireless Sensors etc.), Advanced Database System, Image Processing, Simulation etc.
- Digital Smart Community
  - Next Generation Networks, Short Range Communications, Broadband Access, Advanced Database, etc.
- Software Engineering
  - CMMI, Agile
- Computer Graphics & Image Processing
  - Image Processing, Visualization, Digitized Image Applications
  - Advanced Database System, Image Processing, Short Range Communications
- Web Services

Software Quality Assurance and Software Test

- Software has found an enormous dissemination in the past years. There is almost no technical innovation that can be achieved without the use of software. The business processes of most companies are implemented in software, the ability of an insurance company to introduce a new product in the market, or the ability of a hospital to introduce a new service depends heavily on the ability to deliver high-quality software.

Many enterprises have recognized the importance of software for their business and the need to be able to develop software to high quality. This can be achieved by efficient evaluation and testing of software. In this course, the various methods to develop software and the structure of a software engineering company are explored; the role of software testing and the different software testing techniques are presented, that should be known and applied in a systematic professional software testing process.

Benefits of Attending this Course

- Overview of current technology and practical applications
- Practical techniques for software testing

What You Will Learn

1. Software Quality Assurance – an Introduction
   - What is Quality?
   - Quality Characteristics
   - What is Testing?
   - What is Software Testing?
   - Relationships of Software Testing
2. Introduction to Testing and Testing Strategies
   - Classification of Tests
   - Properties of Tests
   - Types of Defects
   - General Test Evaluation
   - Test Approaches – An Overview
   - Testing is Necessary, Adequate and with SW Testing
3. Test Automation – Principles and Limitations
   - Metrics and Base Concepts
   - SW Testing and Test Automation
4. Boundary Value and Equivalence Partitioning Tests
   - Boundary, Random and Worst Case Tests
   - Weak and Strong Equivalence Partitioning Tests
   - Criteria Testing
   - Conformance Testing
   - State Model Testing
   - Metrics and Base Concepts
   - Maturity of Software Testing
   - Test Case Model. Criteria to Terminate
   - Error seeding and error hiding

24 September 2009

Software Quality Assurance and Software Test

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27/F, 27/F, Q House, Sin Hing Building (S SE) 11 floor, Sofitel Road, Sathorn, Bangkok 10120
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Thank you for your attention!