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Tools and Environments: Overview

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Who Am I?

My academic job:

- Professor of Distributed Computing
- Head of Software Systems Engineering Research
- Director of Research
- Deputy Head of Department
- PC Co-Chair of Int. Conf Software Engineering 2007
- Associate Editor IEEE Transactions on Software Engineering
- we@acm.org
- http://sse.cs.ucl.ac.uk

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Who Am I?

My industrial hat:

- Co-Founder of
  - Zuhlke Engineering GmbH (1998)
  - Zuhlke Technology Group (2000)
  - Zuhlke Engineering Ltd (2001)
  - Systemwire (2002)
- Consultancies for
  - UBS
  - HSBC
  - JP Morgan Chase
  - Siemens
  - Credit Suisse
  - British Airways
- Contributor to international standards:
  - UML 2 (Diagram Interchange)
  - FpML
- Expert Witness
  - At European Court Luxembourg
  - At US Court in Iowa
- Chartered Engineer

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Course Objectives

- Software tools and their integration into environments are essential to handle the complexity of modern software projects
- GS04 takes orthogonal view to all other courses:
  - Learn how modern tools and integrated development environments support large-scale software construction
  - Gain experience in using these tools
  - Understand the needs and principles of tool integration
  - Appreciate the rationale and princples of extension mechanisms available in modern tool platforms and standards

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Caveat emptor

- You can get away without using most of these tools on your toy projects
- If you try to do this on any large-scale development effort it will utterly fail
- You will not appreciate this until you experience large-scale development yourself
- Wherever possible, I will draw on my industrial experience to illustrate the need for tools and environments with examples
- But fundamentally you need to trust me on this

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Course Outline

Date	Time	Type	Topic	Materials
07-Jan	11-12	Lecture	Overview and Concepts	Handouts
07-Jan	12-13	Lecture	Program Editors	Handouts
10-Jan	10-11	Lab	Program Editors	Worksheet
10-Jan	11-12	Lecture	The Eclipse Platform	Handouts
10-Jan	12-13	Lecture	Developing Eclipse Plug-ins	Handouts
11-Jan	10-11	Lecture	Developing Eclipse Plug-ins	Handouts
14-Jan	11-12	Lecture	Object and Model Management in IDEs	Handouts
14-Jan	12-13	Lab	Using the Java DOM in Eclipse JDT	Worksheet
17-Jan	10-11	Lecture	Static Analyzers	Handouts
17-Jan	11-12	Lab	Building a static Analyzer	Worksheet
17-Jan	12-13	Lecture	Debuggers	Handouts
18-Jan	10-11	Lab	Finding defects with a debugger	Worksheet
21-Jan	11-12	Lecture	Version + Configuration Management Tools	Handouts
21-Jan	12-13	Lab	Using Subversion	Worksheet
24-Jan	10-11	Lecture	Build Management	Handouts

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Course outline (cont'd)

24-Jan	11-12	Lab	Using ant and maven	Worksheet
24-Jan	12-13	Lecture	Unit Testing tools	Handouts
25-Jan	10-11	Lab	JUnit and TPTP coverage analysis	Worksheet
28-Jan	11-12	Lecture	Acceptance Testing Tools	Handouts
28-Jan	12-13	Lab	FIT and Fitnesse	Worksheet
31-Jan	10-11	Lecture	Guest Lecture: the JetPac IDE of UBS	Handouts
31-Jan	11-12	Lecture	Performance testing tools	Handouts
31-Jan	12-13	Lab	Performance testing web apps with JMeter	Worksheet
01-Feb	10-11	Lecture	UML Design tools	Handouts
04-Feb	11-12	Lecture	Extension mechanisms in Magic Draw	Handouts
04-Feb	12-13	Lab	Designing with Magic Draw	Worksheet
07-Feb	10-11	Lecture	Metrics tools	Handouts
07-Feb	11-12	Lab	Metrics tools	Worksheet
07-Feb	12-13	Lecture	Spare slot	Handouts
08-Feb	10-11	Lecture	Revision	Worksheet

Note: I will reserve the right to change this as I see fit!

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Requirements

- Attend the lectures and lab sessions
- Read the further reading lists provided at the end of hand-outs (these will be examined!)
- Complete coursework (15%)
- Written examination (85%)

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Organisation

- Register on course mailing list (gs04 or 4024)
- Lecture notes, worksheets and model solutions will be available from my web site at http://www.cs.ucl.ac.uk/staff/w.emmerich/lectures
- Six hours per week for the first five week of term in Malet Place Engineering Building 1.21
  - Mon 11am-1pm
  - Thu 10am-1pm
  - Fri 10am-11am

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Summary

- Introductions
- Motivation and learning objectives for the course
- Course outline
- Course organization

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