

Generating Software from Specifications

Prof. Dr. Uwe Kastens

WS 2013 / 14

Lecture Generating Software from Specifications WS 2013/14 / Slide 001

Objectives:

Start

In the lecture:

Welcome

Objectives

The participants will learn

- to **use generators** for specific software tasks,
- to **design domain specific languages (DSLs)**,
- to **implement domain specific languages (DSLs)**,
- to **use the Eli system** to create generators.

The participants will **define their own application project and implement it.**

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Objectives:

Be aware of the objectives

In the lecture:

Items are explained

Questions:

Do these objectives fit to yours?

Contents

	Chapter in GSS Book
1. Introduction	1
2. Constructing Trees	6
3. Visiting Trees	4
4. Names, Entities, and Properties	3
5. Binding Names to Entities	5
6. Structured Output	2
7. Library of Specification Modules	-
8. An Integrated Approach (Structure Generator)	7
9. Individual Projects	-
10. Visual Languages Developed using DEViL	

Phase 1: Lectures, practical tutorials, and individual work are tightly interleaved

Phase 2: Participants work in groups on their projects.
During lecture hours advice is given, problems are discussed,
and experience are exchanged.

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Objectives:

Understand the lecture outline

In the lecture:

It will be explained

- Order of the topics,
- interleaving with practical work,
- project work.

References

- U. Kastens: **Generating Software from Specifications Elektronik Script, SS 2012**
<http://ag-kastens.upb.de/lehre/material/gss>



- Uwe Kastens, Anthony M. Sloane, William M. Waite: **Generating Software from Specifications**, Jones and Bartlett Publishers, 2007

- **Eli Online Documentation and Download**
<http://eli-project.sourceforge.net> (download)



- **DEViL - Development Environment for Visual Languages**
<http://devil.cs.upb.de>

Papers on DSL and Reuse:

- Mernik, Heering, Sloane: When and How to Develop Domain-Specific Languages, ACM Computing Surveys, Vol. 37, No. 4, December 2005, pp. 316-344
- Ch. W. Kruger: Software Reuse, ACM Computing Surveys, 24(2), 1992
- R. Prieto-Diaz: Status Report: Software reusability, IEEE Software, 10(3), 1993

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Objectives:

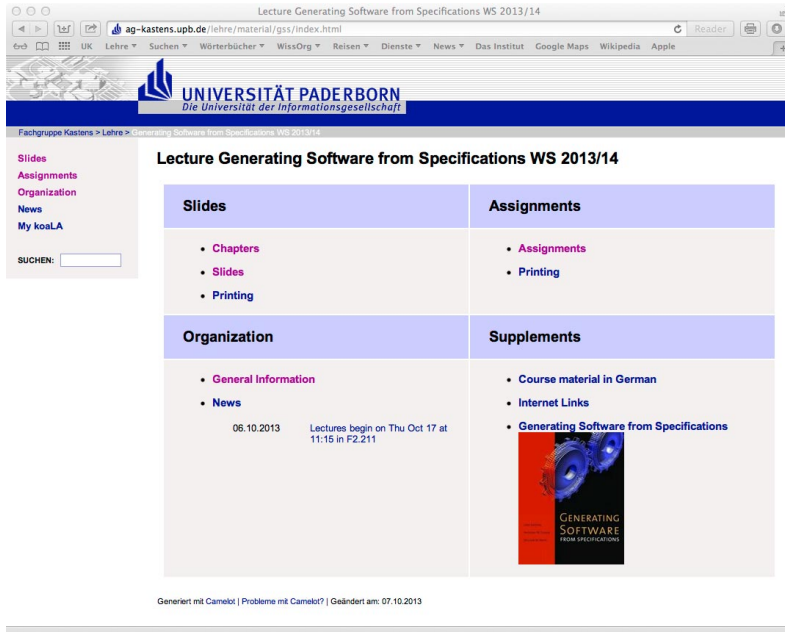
Know where to access which information

In the lecture:

The characteristics of the references will be explained.

Home Page of GSS Lecture

GSS-0.5



The screenshot shows a web browser window displaying the home page of the GSS Lecture. The browser address bar shows 'ag-kastens.upb.de/lehre/material/gss/index.html'. The page header includes the University of Paderborn logo and the text 'UNIVERSITÄT PADERBORN Die Universität der Informationsgesellschaft'. Below the header, there is a navigation menu with links for 'Slides', 'Assignments', 'Organization', 'News', and 'My koalA'. A search bar is located on the left side. The main content area is titled 'Lecture Generating Software from Specifications WS 2013/14' and is divided into four sections: 'Slides', 'Assignments', 'Organization', and 'Supplements'. The 'Slides' section lists 'Chapters', 'Slides', and 'Printing'. The 'Assignments' section lists 'Assignments' and 'Printing'. The 'Organization' section lists 'General Information' and 'News', with a date '06.10.2013' and a note 'Lectures begin on Thu Oct 17 at 11:15 in F2.211'. The 'Supplements' section lists 'Course material in German', 'Internet Links', and 'Generating Software from Specifications', which includes a book cover image. At the bottom, there is a footer with the text 'Generiert mit Camotot | Probleme mit Camotot? | Geändert am: 07.10.2013'.

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Objectives:

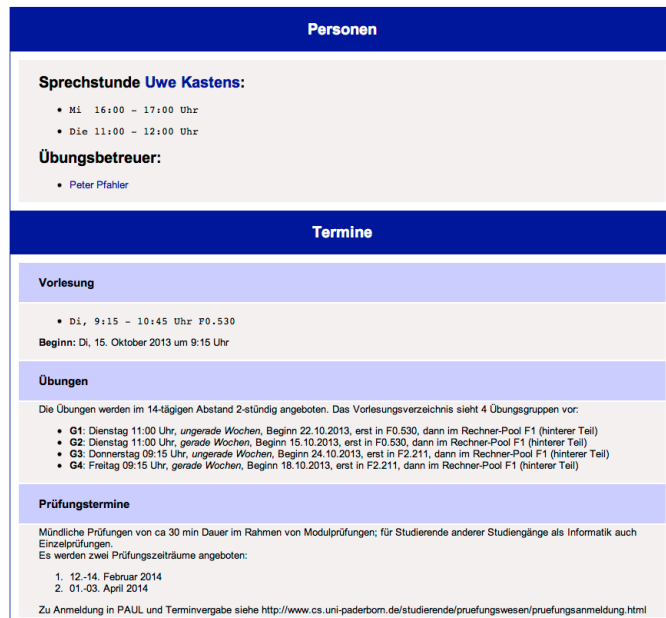
Find the GSS home page

In the lecture:

It will be explained how to use the lecture material.

Organization

GSS-0.6



The screenshot shows the 'Organization' page of the GSS Lecture. The page is divided into three main sections: 'Personen', 'Termine', and 'Übungen'. The 'Personen' section is titled 'Sprechstunde Uwe Kastens:' and lists two time slots: 'Mi 16:00 - 17:00 Uhr' and 'Die 11:00 - 12:00 Uhr'. Below this, it lists the 'Übungsbetreuer:' as 'Peter Pfahler'. The 'Termine' section is titled 'Vorlesung' and lists a lecture time slot: 'Di, 9:15 - 10:45 Uhr F0.530'. Below this, it lists the start date: 'Beginn: Di, 15. Oktober 2013 um 9:15 Uhr'. The 'Übungen' section lists four exercise groups: 'G1: Dienstag 11:00 Uhr, ungerade Wochen, Beginn 22.10.2013, erst in F0.530, dann im Rechner-Pool F1 (hinterer Teil)', 'G2: Dienstag 11:00 Uhr, gerade Wochen, Beginn 15.10.2013, erst in F0.530, dann im Rechner-Pool F1 (hinterer Teil)', 'G3: Donnerstag 09:15 Uhr, ungerade Wochen, Beginn 24.10.2013, erst in F2.211, dann im Rechner-Pool F1 (hinterer Teil)', and 'G4: Freitag 09:15 Uhr, gerade Wochen, Beginn 18.10.2013, erst in F2.211, dann im Rechner-Pool F1 (hinterer Teil)'. The 'Prüfungstermine' section lists two exam dates: '1. 12.-14. Februar 2014' and '2. 01.-03. April 2014'. At the bottom, it lists the registration link: 'Zu Anmeldung in PAUL und Terminvergabe siehe http://www.cs.uni-paderborn.de/studierende/pruefungswesen/pruefungsanmeldung.html'.

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Objectives:

Find the GSS home page

In the lecture:

The organization of the lecture will be explained.