

# Generating Software from Specifications

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WS 2013 / 14

## 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.**

## Contents

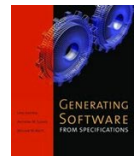
	Chapter in GSS Book
1. Introduction	1
2. Constructing Trees	6
3. Visiting Trees	4
4. Names, Entities, and Properties	3
5. Binding Names to Entities	5
6. Structured Output	2
7. Library of Specification Modules	-
8. An Integrated Approach (Structure Generator)	7
9. Individual Projects	-
10. Visual Languages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

## References

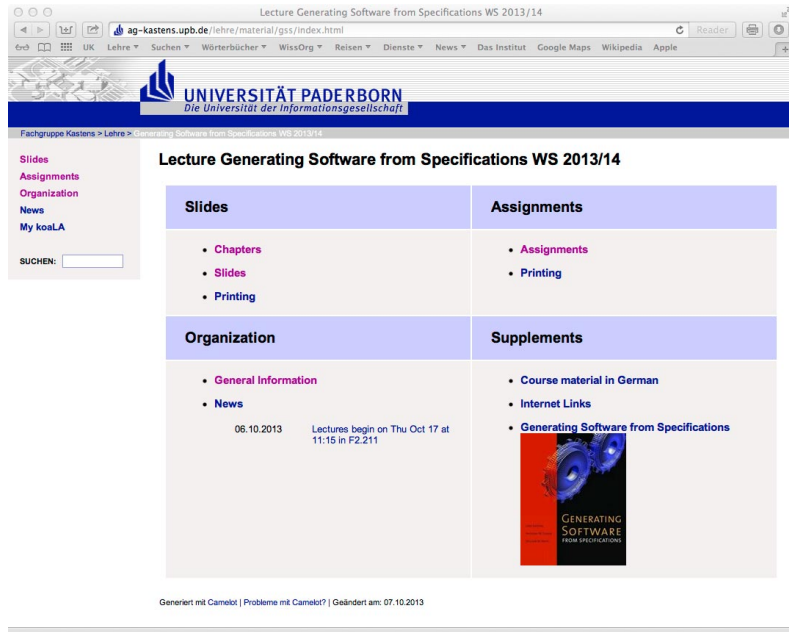
- U. Kastens: **Generating Software from Specifications Elektronik Script, SS 2012**  
<http://ag-kastens.upb.de/lehre/material/gss>
- Uwe Kastens, Anthony M. Sloane, William M. Waite: **Generating Software from Specifications**, Jones and Bartlett Publishers, 2007
- **Eli Online Documentation and Download**  
<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

# Home Page of GSS Lecture



The screenshot shows a web browser window displaying the home page of the GSS Lecture. The browser address bar shows the URL [ag-kastens.upb.de/lehre/material/gss/index.html](http://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". The main content area is titled "Lecture Generating Software from Specifications WS 2013/14". On the left, there is a navigation menu with links for Slides, Assignments, Organization, News, and My koalA, along with a search box labeled "SUCHEN:". The main content is organized into four columns: Slides (Chapters, Slides, Printing), Assignments (Assignments, Printing), Organization (General Information, News), and Supplements (Course material in German, Internet Links, Generating Software from Specifications). A small image of the book cover "GENERATING SOFTWARE FROM SPECIFICATIONS" is shown in the Supplements column. The footer indicates the page was generated with Camlet and last updated on 07.10.2013.

# Organization

Personen
<p><b>Sprechstunde Uwe Kastens:</b></p> <ul style="list-style-type: none"> <li>• Mi 16:00 – 17:00 Uhr</li> <li>• Die 11:00 – 12:00 Uhr</li> </ul> <p><b>Übungsbetreuer:</b></p> <ul style="list-style-type: none"> <li>• Peter Pfahler</li> </ul>
Termine
<p><b>Vorlesung</b></p> <ul style="list-style-type: none"> <li>• Di, 9:15 – 10:45 Uhr F0.530</li> </ul> <p>Beginn: Di, 15. Oktober 2013 um 9:15 Uhr</p>
<p><b>Übungen</b></p> <p>Die Übungen werden im 14-tägigen Abstand 2-stündig angeboten. Das Vorlesungsverzeichnis sieht 4 Übungsgruppen vor:</p> <ul style="list-style-type: none"> <li>• G1: Dienstag 11:00 Uhr, <i>ungerade Wochen</i>, Beginn 22.10.2013, erst in F0.530, dann im Rechner-Pool F1 (hinterer Teil)</li> <li>• G2: Dienstag 11:00 Uhr, <i>gerade Wochen</i>, Beginn 15.10.2013, erst in F0.530, dann im Rechner-Pool F1 (hinterer Teil)</li> <li>• G3: Donnerstag 09:15 Uhr, <i>ungerade Wochen</i>, Beginn 24.10.2013, erst in F2.211, dann im Rechner-Pool F1 (hinterer Teil)</li> <li>• G4: Freitag 09:15 Uhr, <i>gerade Wochen</i>, Beginn 18.10.2013, erst in F2.211, dann im Rechner-Pool F1 (hinterer Teil)</li> </ul>
<p><b>Prüfungstermine</b></p> <p>Mündliche Prüfungen von ca 30 min Dauer im Rahmen von Modulprüfungen; für Studierende anderer Studiengänge als Informatik auch Einzelprüfungen. Es werden zwei Prüfungszeiträume angeboten:</p> <ol style="list-style-type: none"> <li>1. 12.-14. Februar 2014</li> <li>2. 01.-03. April 2014</li> </ol> <p>Zu Anmeldung in PAUL und Terminvergabe siehe <a href="http://www.cs.uni-paderborn.de/studierende/pruefungswesen/pruefungsanmeldung.html">http://www.cs.uni-paderborn.de/studierende/pruefungswesen/pruefungsanmeldung.html</a></p>