

**Technische Universität Dresden
Institut für Software und Multimediatechnik
Lehrstuhl Softwaretechnologie**

**Software Engineering - Software Measurement
Summer semester 2014**

Referent: Harry M. Sneed (MPA)

Lecturing Schedule

Time and Rooms see Website!

Wednesday, 18th June: Software Measurement Fundamentals

1. Lecture: Software Metrics (METS)
2. Lecture: Measurement Processes (MEAS)

Thursday, 19th June: Software Measurement Application

3. Lecture: Metric Applications (META)
4. Lecture: Measurement Case Study (W&W)

Friday, 20th June: Software Requirement Measurement

5. Lecture: Software Requirement Metrics (RMET)
6. Lecture: Measuring Requirements (METR).

1st Exercise: Measuring a Requirement Specification

Wednesday, 25th June: Software Size Measurement

7. Lecture: Software Quantity Measurement (QUAN)
8. Lecture: Software Complexity Measurement (COMP)

Thursday, 26th June: Software Quality Measurement

9. Lecture: Software Quality Measurement (QUAL)
10. Lecture: Software Risk Analysis (RISK)

Friday, 27th June: Software Design Measurement

11. Lecture: Database Design Metrics (DMET)
12. Lecture: UML-Design Metrics (UMET)

2nd Exercise: Measuring a UML Design

Wednesday, 02nd July: Software Productivity Measurement

13. Lecture: Software Productivity Measurement (PROD)
14. Lecture: Software Life Cycle Measurement (MESS)

Thursday, 3rd July: Software Cost Estimation

15. Lecture: Software Engineering Economics (ECON)
16. Lecture: Code-based Cost Estimation (COST)

Friday, 4th July: Software Code Measurement

17. Lecture: Software Code Metrics (CMET)
18. Lecture: Code Measurement Case Study (.NET)

3rd Exercise: Measuring Java, COBOL & SQL Code

Wednesday, 9th July: Software Test Measurement

19. Lecture: Software Test Metrics (TMET)
20. Lecture: Defect Projection (EPRO)

Thursday, 10th July: Software Maintenance Costing

21. Lecture: Maintenance Cost Estimation (MEST)
22. Lecture: Estimating Costs of Change (CHNG)

Friday, 11th July: Software Auditing

23. Lecture: Software Product Evaluation (EVAL)
24. Lecture: Software Measurement Workbench (MEWB)

4th Exercise: Measuring a Software System in its entirety

Tools: Students will receive the automated measurement tools REQAUDIT, UMLAUDIT, JAVAUDIT, COBAUDIT, SQLAUDIT, TCSAUDIT and SOFTEVAL to solve the exercises.

Exam: All students will be requested to write a short paper in English language on the purpose of measurement in software engineering, summarizing the results of the exercises and comparing the costs with the benefits of measurement. The exam grade accounts for 60% of the final grade. The other 40% is determined by the exercise grade.

Exercises: Students will create teams of 2-3 persons. Measurement tools will be made available for all the measurement levels – requirement, design, code and test. Every week each team has one of the four measurement exercises to solve and to submit the results of the measurement in pdf format by the following Friday to the instructor. The grade for the team is inherited by all members of that team. Exercise results should be sent to the following email address:

Harry.Sneed@t-online.de

Docent: Harry Sneed is currently working as a tester and auditor for the ANECON GmbH in Wien & Dresden. In addition, he is teaching Software Engineering for Wirtschaftsinformatiker at the University of Regensburg, Software Maintenance, Test and Measurement for Phd students at the University of Szeged, Software Evolution and Product Management for the Fachhochschule Hagenberg as well as Software Measurement and Test Automation for the Fachhochschule Wien. He has worked for over 40 years in the IT field, written 22 books and published more than 400 articles.

Seminar Material: Circa 24 power-point foils for each of the 24 topics plus the 4 exercises with 4 measurement objects. To this comes a self-study check list of 240 questions on the subject of software measurement. This material will be made available to the students on the Moodle server. In addition students are given a copy of the book “Software in Zahlen” by Harry Sneed and Richard Seidl. As supplementary literature, the following books from Harry Sneed are recommended:

- Sneed, H.: Software Management, Rudolf Müller Verlag, Köln, 1987
- Sneed, H.: Software Qualitätssicherung, Rudolf Müller Verlag, Köln, 1988
- Sneed, H.: Softwarewartung, Rudolf Müller Verlag, Köln, 1989
- Sneed, H./ Hasitschka, M./ Teichmann, M.-T.: Software Produktmanagement, dpunkt Verlag, Heidelberg, 2004
- Sneed, H.: Software Projektkalkulation, Hanser Verlag, München-Wien, 2005
- Sneed, H.: Software Management Handbuch, Editor: Tieke, W., Hanser Verlag, 2009
- Sneed, H / Seidl, R.: Software in Zahlen, Hanser Verlag, München-Wien, 2011
- Sneed, H. Seidl, R.: Software Evolution, dpunktVerlag, Heidelberg, 2013