Detailed Schedule for Analysis

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Students will not be responsible for the subject material covered in lectures marked with $\star$. Homeworks are abbreviated as *HW*. Homeworks that are short are marked as *miniHW*. Guest lectures are marked as *guest*.

Model checking: A technique to automatically verify properties of concurrent systems.

SMV: A model checker built first here at CMU.

Nitpick: A relational language like Z, but more light-weight.

Ladybug: A tool for analyzing designs expressed in Nitpick developed by Craig Damon.

Alloy: An object modeling language developed by Daniel Jackson of MIT.

Alcoa: An analyzer for designs expressed in Alloy.

xSuds: A tool developed at Telecordia for computing testing metrics and doing data-flow analysis.

Book refers to the following text:

Statistical Methods in Software Engineering (Reliability and Risk),
N.D. Singpurwalla and S.P. Wilson,
Springer-Verlag, New York, Inc.

Published in 1999 (Yup, this is brand new folks).

Lecture	Date	Day	Subject	Homeworks
1	Jan 18	T	Course overview	-
2	Jan 20	Th	Model checking basics	-
3	Jan 25	T	Model checking basics	*HW 1* out
4	Jan 27	Th	Introduce SMV	-
5	Feb 1	T	SMV continued	*HW 1* in / *HW 2* out
6	Feb 3	Th	Overview of other model checkers	-
7	Feb 8	T	Model checking real time systems	*HW 2* in / *HW 3* out
8	Feb 10	Th	Nitpick	-
9	Feb 15	T	Ladybug	*HW 3* in / *HW 4* out
10	Feb 17	Th	Alloy	-
11	Feb 22	T	Alcoa	*HW 4* in / *HW 4* out
12	Feb 24	Th	Midterm	-

Figure 1: First half of the course

Lecture	Date	Day	Subject	Homeworks
13	Feb 29	T	Data flow analysis	-
14	Mar 2	Th	Testing metrics	*HW 5* in / *HW 6* out
15	Mar 7	T	Testing metrics	-
16	Mar 9	Th	xSuds (Guest)	*HW 6* in
17	Mar 14	T	Reverse Engg (Case study)	*miniHW* 7 out
18	Mar 16	Th	Program Analysis (Guest)	*miniHW* 7 in
19	Mar 21	T	Program Analysis (Guest)	-
20	Mar 23	Th	Probability basics (book)	*HW 8* out
21	Apr 4	T	Probability basics (book)	*HW 8* out/*HW 9* in
22	Apr 6	Th	Markov chains (basics)	-
23	Apr 11	T	Markov chains and testing	-
24	Apr 13	Th	Software reliability (book)($\star$)	*HW 9* in
25	Apr 18	T	Software reliability (book)($\star$)	-
26	Apr 20	Th	Software risk (book)($\star$)	-
27	Apr 25	T	Software risk (book)($\star$)	-
28	Apr 27	Th	Closing	-
29	May 2	T	Presentations	-
30	May 4	Th	Presentations	-

Figure 2: Second half of the course