**Course Information**

Wing Handout 1 4 September 2001

## 1. Administrative Staff

Class Time: 10:30-11:50 TR. Lectures: NSH 1507
Prof. Jeannette Wing, wing@cs.cmu.edu, x8-3068, WeH 8219. Office hours: 1-2 Thursdays.
Margaret Weigand (secretary), weigand@cs.cmu.edu x8-2568, WeH 8120.

The course web page is:
http://www.cs.cmu.edu/afs/cs/academic/class/17654-f01/www/index.html

## 2. Schedule

| Date | Meeting | Topic | Lecturer | Lab/Homework | Reading |
|---|---|---|---|---|---|
| 9/4 | 1 T | Introduction to Analysis and Artifacts | J | Lab#1 (req) out | [BB] |
| 9/6 | 2 R | Requirements Analysis: Formalization | J | | |
| 9/11 | 3 T | Design Analysis I: high-level | J | | |
| **9/13** | **4 R** | **Presentation of Lab#1** | S | Lab#2 (travel) out, Project out | [Bloom] |
| 9/18 | 5 T | Design Analysis II: low-level | J | | [Wing87, Wing88, Wing96] |
| **9/20** | **6 R** | **Presentation of Lab#2** | S | Lab#3 (C string) out | |
| ***9/25*** | ***7 T*** | ***No class/Guest*** | | | |
| **9/27** | **8 R** | **Presentation of Lab#3** | S | | |
| *10/1* | | *Make-up class: Please attend Peter Ryan's talk 3:30 pm 5409 WeH.* | | | |
| **10/2** | **9 T** | **Interface Analysis: Lab#4 (switch) in-class** | J, S | | |
| ***10/4*** | ***10 R*** | ***No class/Guest*** | | | |
| 10/9 | 11 T | Performance Analysis: queueing theory | J | HW out | [Jain0, Jain1] |
| 10/11 | 12 R | Performance Analysis: stochastic models | J | **Lab#4 write up due** | [Jain2] |
| 10/16 | 13 T | Code Analysis: Verification | J | | [Gries, HJ1, HJ2] |
| 10/18 | 14 R | Code Analysis: Slicing | J | | [Binkley] |
| 10/23 | 15 T | Code Analysis: Tools | O'Brien | | |
| 10/25 | 16 R | Model Checking: STS, CTL | J | Lab#5 (temporal logic, C code) out **HW due** | [CGP] |
| 10/30 | 17 T | Model Checking: symbolic (BDD), explicit | J | | |
| 11/1 | 18 R | Model Checking: SMV | Chauhan | | |
| 11/6 | 19 T | Model Checking: state reduction techniques | J | | |
| **11/8** | **20 R** | **Presentation of Lab#5** | S | Lab#6 (switch, again) out | |
| **11/13** | **21 T** | **Protocol Analysis: Lab#7 (AFS) in-class** | J,S | | [Satya] |
| 11/15 | 22 R | Security Analysis: authentication logic | J | Lab#6 write up due | [BAN] |
| 11/20 | 23 T | Re-engineering | O'Brien | | [SM] |
| *11/22* | *R* | *No Classes (Thanksgiving)* | | | |
| **11/27** | **24 T** | **Presentation of Lab#7** | S | | |
| 11/29 | 25 R | Security Analysis: protocol analysis | J | | [KMM] |
| 12/4 | 26 T | Survivability Analysis | Mead | | [E99,M00] |
| **12/6** | **27 R** | **Presentation of Project** | **S** | **Project write up due** | |
| **12/11** | **28 T** | **Presentation of Project** | **S** | | |

The outline is subject to change as the term progresses.

## 3. Textbooks

**Required**

[PST] Potter, Sinclair, Till, *An Introduction to Formal Specification and Z*, Second Edition, , Prentice Hall, International Series, 1996.

[MK] Jeff Magee and Jeff Kramer, *Concurrency: State Models and Java Programs, ,* Wiley, 1999.

**Optional** (on reserve in Engineering and Science Library)

[CGP] Edmund M. Clarke, Jr., Orna Grumberg, and Doron A. Peled, *Model Checking,* The MIT Press, 1999.

[Jain] Raj Jain, *The Art of Computer Systems Performance Analysis*, John Wiley and Sons, 1991.

4. **Grading**

1 homework = 10%
7 labs = 70% (5 take home, 2 in-class)
1 project = 20%

The one homework assignment should be done individually.

The lab assignments should be done in teams of three. You are responsible for finding team members. You do not have to stick to the same team for all assignments.

The grading for each lab assignment and the term project will be based on: the quality of the finished work, the team's oral presentation, the team's written documentation (formal specification and English explanation), class participation in the discussion and critiques, and instructor's discretion. Since I will be using multiple criteria for grading teamwork, it is possible for members of the same team to get different grades on the same lab assignment.

There will be no in-class exam.

**5. Reading Assignments**

Please do the reading for a given lecture *before and after* the lecture. I will be assigning additional readings from the textbook and distributing papers to read throughout the term. Reading assignments for 17-651 Models of Software Systems should be done in parallel with this course.