Class Meetings
Monday and Wednesdays 10:30p – 11:50p
Room 265, 300 S. Craig St.
Instructors
Dave Root droot@cs.cmu.edu
Rm 272 (x8-5198)
Office Hours: by appointment

Mel Rosso-Llopard rosso@cs.cmu.edu
Rm 270 (x8-4614)
Office Hours: by appointment

Gil Taran gil@andrew.cmu.edu
Rm 266 (x8-6191)
Office Hours: by appointment

Marco Vieira mvieira@dei.uc.pt

Portugal

Teaching Assistants
Upeka Bulumulle upekabulumulle@yahoo.com
Office Hours TBD

Uma Menon urm@andrew.cmu.edu
Office Hours: By Appointment
Objectives
Large scale software development requires the ability to manage resources - both human and computational - through control of the development process. This course is a breadth oriented course, designed to help technically-trained software engineers to acquire the knowledge and skills necessary to lead a project team, understand the relationship of software development to overall project engineering, estimate time and costs, and understand the software process. The nature of software development is sufficiently unique to require specialized management techniques, especially in the areas of the estimating and scheduling.

**Organization**
This course is structured around lectures (~55%) and case studies (~45%). Student participation is critical part of the course content and is an essential part of the student's grade.

**Communication**
Office hours, Email, BlackBoard: [www.cmu.edu/blackboard](http://www.cmu.edu/blackboard) (login with your andrew ID)

**Grading**
- Participation: 10% (attendance and class discussions)
- Questions on Readings: 10%
- Case Studies: 60% (40% individual, 20% group)
- Final Report: 20%

**Texts**

**Cases and Readings you will have to buy**
These are case studies and readings you will need to buy from Harvard Business Review online. These typically cost $3.70 each and can either be sent to you hard copy or downloaded. The link to the course material is: [http://harvardbusinessonline.hbsp.harvard.edu/relay.jhtml?name=cp&c=c14508](http://harvardbusinessonline.hbsp.harvard.edu/relay.jhtml?name=cp&c=c14508)
I will also send you this link to the Harvard site. You will have to register with the site. The course ID is c14508. Email me if you have any problems.

1. Microsoft Corporation: Office Business Unit # 9-691-033
2. Cimetrics # 9-399-108
3. Microsoft Office 2000 # 9-600-09
4. Leadership that gets results # R00204
5. The Satera Team at Imatron Systems, Inc. (A) #9-803-14

Assignments are always due before class on the day noted unless otherwise shown under the Exercise/Assignment!

### General Project Management and Course Overview - Primary Instructor: Dave Root

#### 8/27

**Course Overview**
- MSD Introduction
- OBU Case Introduction

**Read:** Tsui Ch's 1-3
**Pressman Ch's** 1 & 5
**Assignment:** Reading Questions (RQ) Intro due 9/5

#### 8/29

**CASE Exercise Discussion Study**

**Case study:** HBR MS OBU
**Assignment (individual):** Case OBU due 8/29
Processes/Lifecycles - Primary Instructors: Dave Root /Tony Lattanze

9/3 LABOR DAY, NO CLASS

9/5

Software Development Lifecycles

Read:
Pressman Ch 3
SDLC comparison
STCS Lifecycle Comparison
Iterative vs. waterfall software development
Computer World 2004
Assignment: RQ SDLC due 9/5

9/10
(Semester course drop deadline)

CASE Exercise Discussion Study

Assignment: Case_SDLC_Grp_MSD.doc due 9/10

9/12

Introduction to Processes & How to Choose
Supplemental reading:
Agile Lessons Learned
XP on a large Project

Read:
Pressman Ch's 2 & 4
Tsui & Karam Ch's 4, 5 & skim 7
The CMMI Concept: awprofessional-articles
Extreme Programming: A Gentle Introduction: extreme programming
The Process: Objectmentor RUP vs XP
SCRUM Overview:
Case Studies:
Software Project Failure: "The Reasons, The Costs: "Cost of software failure"
Major Causes of Software Project Failures: Causes Failure
Why Software Systems Fail: "why systems fail"
Analysis of the Denver International Airport Baggage System: "Denver Airport"
ACDM: CMU-ISRI-05-103
Rockwood paper: Choose Your Weapon Wisely
Recommended Reading:
"Agile Review and analysis of methods"
Reading Questions: RQ Process due 9/12

9/17

Process Assignment Review

Selecting processes and recognizing their role in project failures.
Assignment (individual):
Case Process due 9/17

Estimation - Primary Instructor: Mel Rosso-Llopard

9/19

Software Estimation Techniques
Supplemental reference: FP training booklet
Sample FP Exercise and answer key (do not turn in)

Read:
Pressman Ch's 22 & 23
T&K 13.3.1 pg 351-361
Assignment (individual): FP exercise
Reading Questions: Review question 7. due 9/24
FP COCOMO Exercise (individual) due 9/24
Use the FP Tool (in the zip file)

9/24
In class- Wideband Delphi
CASE Exercise Discussion Study

Case Study (group):
When_a_team_run_a_race.pdf
Assignment (group): Case Estimation

**Requirements Management - Primary Instructor: Dave Root**

9/26

Requirements Elicitation and Documentation
Supplemental References
CCB charter template
Change control process
IEEE Standard 830 1998
In Search of Excellent Requirements
Issues in Requirements
Requirements Review Checklist
Why do Requirements Change
Writing Quality Requirements
Also look at past MSE projects at
http://dogbert.mse.cs.cmu.edu

Read :
Pressman Ch 7
Tsui and Karam Ch 6
SEI Technical Report (TR) 12.92 (skim sections 1 through 6)
SEI TR 03tr016 (skim entire report)
Assignment: RQ Requirements

10/1

Managing Requirements Change: Requirements 2

No assignments
CASE Exercise Discussion
Requirements 3
Guest lecturer/Discussion lead: Tony Lattanze

Case Study (individual):
University of Waterloo, Dan Berry
Assignment (individual):
Case Requirements
(note, this has 2 parts with the second part to write 1 page on the
requirements and process of making a peanut butter and jelly sandwich, to
be turned in and discussed in class)

Managing Customer Expectations - Primary Instructor:
Gil Taran

10/8

Expectation Management:
Managing Customer Expectations

Read:
The Art of Expectations Management
Assignment: RQ Expectations
Also Due:
Individual Project Paper TOPIC due

10/10

Expectation Mgmt Video and Discussion

Case MCE

Risk Management - Primary Instructor: Gil Taran

10/15
(Course withdrawal drop deadline)
Identifying and Managing Software Risk
Risk I
Also look at the Risk Statements Document

Read:
Risk or Opportunity
Software Risk Management
Pressman Ch 25
Reading Questions: RQ Risk

10/17

Risk II

***Please take the Mid Course survey located under Survey*** due by 10/24 Participation counts for grade, answers are anonymous

10/22

CASE Exercise Discussion Study
Risk II Case Study

Case Study (individual) HBR Cimetrics
Assignment (individual): Case Risk due 10/24

10/24

The Risk Game, in class exercise

Planning, Tracking, and Oversight - Primary Instructors: Mel Rosso-Llopart

10/29

Planning Software Development:
Project Planning
Read: Tsui and Karam CH 13
http://isb.wa.gov/policies/portfolio/tr25/tr25_l2c.html
Reading Questions: RQ Plan Schedule
Assignment:
Individual Project Paper **Outline** due. Include initial bibliography. Note that this may change as you write your paper, we just want to see what direction you are going, that you have some research.
MSD Project Assignment

**10/31**
**Happy Halloween**

Tracking and Oversight of Software Development
MSD Project Tracking

Read: Pressman Ch 24
Assignment: RQ Track Oversight

**11/5**

CASE Exercise Discussion Study

Case (individual): MS OBU & MS Office 2000
Assignment (individual): Case Planning Tracking

**Managing Technical People, Leadership, and Teamwork**
- **Primary Instructors:** Dave Root/Gil Taran

**11/7**

Managing Technical People and leadership errors
Supplemental reading: "the smart ignoramous" by Dan Berry
*(more ignorance file)*

Read: Pressman Ch 21
Singing for Themselves
Leadership is critical in IT
Participative Leadership
HBR "Leadership that gets results"
Assignment: RQ Leading Technical People

11/12

CASE Exercise Discussion Study

Case study (group)
HBR Satera Team Assignment (group)
Assignment: Case Managing Technical People

Quality Assurance - Primary Instructors: Marco Viera, Dave Root

11/14

Building Quality into Software
SQA

Read: Pressman Ch's 26 & 27
Tsui and Karam Ch's 8 & 10
IEEE 02
Fagan 02
Skim: Fagan 99
Assignment: RQ SQA / testing

11/19

Testing Strategies

Read:
Pressman Ch's 13 & 14
Verification and Validation
http://satc.gsfc.nasa.gov/assure/agbsec5.txt
Cyclomatic Complexity: Software Technology Roadmap
http://www.sei.cmu.edu/str/descriptions/cyclomatic_body.html
Comparing the Effectiveness of Software Testing Strategies Basili, V.R.; Selby, R.W.; Software Engineering, IEEE Transactions on
Volume SE-13, Issue 12, Dec. 1987 Page(s):1278 - 1296
Trends in reliability and test strategies
Varadan, G.S.; Software, IEEE
Volume 12, Issue 3, May 1995 Page(s):10

11/21 - 11/23 THANKSGIVING HOLIDAY NO CLASSES, UNIVERSITY OFFICES CLOSED

11/26

CASE Exercise Discussion Study

Case Study: Tale of Three Processes: Reflection on Software Development Process Change at Tartan, Sutherland Assignment (group): Case Tartan Processes

Current Topics: Jim Herbsleb, Tony Lattanze (no assignments so you can work on your papers)

11/28

Strategic Planning with Architecture
Tony Lattanze


12/3

Open Source
Jim Herbsleb
Open_Source_MSDF05.pdf

Read: Wang_IEEE_SW.pdf Hecker_IEEE_SW.pdf

12/5

Final Paper Due
Snow day if needed to make up for lost class period
Turn in individual Project Final paper with 1 page executive summary and bibliography.
MSDProjectAssignment2005.doc
Assignments are always due before class on the day noted unless otherwise shown under the Exercise/Assignment!

David B. Root
Senior Lecturer
Associate Teaching Professor
Associate Director of Distance Education
Director of Studio Projects
Masters of Software Engineering
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-----Original Message-----
From: Ellen Saxon [mailto:ens@cs.cmu.edu]
Sent: Friday, August 31, 2007 2:24 PM
To: David Garlan; Jim Herbsleb; David Root; Mel Rosso-Llopard; Anthony J. Lattanze; Linda Pesante; Tom Keating; Chris Kemerer
Cc: Jane Miller; Margaret Weigand; Corina Bardasuc
Subject: Need Fall syllabus

Faculty,

May I please have the syllabus for your fall course?
Thanks
Ellen

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Ellen Saxon
Programs Administrator
School of Computer Science
Institute of Software Engineering
Carnegie Mellon University