



CS 566: Software Management and Economics

Instructor's Name:	Ali Afzal Malik	Year:	2007-08
Class Hours:	1750 – 1905 (MTWR)	Quarter:	Summer
Office Hours:	1600 – 1715 (TR)	Category:	BSc/MS/PhD
Office No. & Email:	419, aliafzal@lums.edu.pk	Extension:	4419
Website:	http://suraj.lums.edu.pk/~cs566m07	TA:	None

Course Code CS 566: Software Management and Economics
(Units) (3 Units)

Course Description This course combines knowledge from two important disciplines – software engineering and economics. It is based on a course with the same name taught at University of Southern California (USC) by Dr. Barry Boehm. It covers the application and utility of economics concepts such as production functions, marginal analysis, and future value in the domain of software engineering. Important techniques such as software business case analysis, risk management, software development process selection, and software cost estimation are introduced. A chunk of the course is also devoted to highlighting the importance of human factors (e.g. success critical stakeholders' value propositions) in software engineering.

Core/Elective Elective

Pre-requisites CS 462 (Software Engineering) or equivalent

Goals

- Familiarize students with concepts and techniques necessary for management positions in the software development industry
- Allow students to gain hands-on experience in using software tools (e.g. COCOMO II) for making key software project management decisions

Course Material Textbooks:

1. Barry W. Boehm, Software Engineering Economics, Prentice-Hall, 1981.
2. Barry W. Boehm et al., Software Cost Estimation with COCOMO II, Prentice Hall PTR, 2000.
3. Richard W. Selby (Editor), Software Engineering – Barry W. Boehm's Lifetime Contributions to Software Development, Management, and Research, Wiley-Interscience, 2007.
4. Donald J. Reifer, Making the Software Business Case – Improvement by the Numbers, Addison-Wesley, 2002.
5. Barry Boehm and Richard Turner, Balancing Agility and Discipline – A Guide for the Perplexed, Addison-Wesley, 2004.

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Lectures & Attendance Policy

There will be 20 sessions of 75 minutes each including one session for the in-class midterm exam. Attendance is not mandatory but students who fail to show up for lectures may find it difficult to catch-up on their own.

Grading

30%	Assignments
30%	Midterm Exam
40%	Final Exam (Comprehensive)

Additional Information

- Required Freeware: USC-COCOMO II.2000.3
- Students are expected to visit the course website regularly. Announcements, supplementary reading material, and assignments will be posted on the website.

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* Course schedule is subject to minor adjustments.

** Numbers in square brackets correspond to books numbered in the "Course Material" section.

Topics*	Sessions	Readings**
1. Course overview; Software Engineering: Past, Present, & Future	1	[3] Chapters 8, 10
2. Value-based software engineering (VBSE)	2-3	[3] Chapter 9
3. Software Cost Estimation overview; COCOMO II	4-5	[2] Chapters 1, 2
4. Using COCOMO II for software management decisions	6	[2] Chapter 2
5. Software business case analysis	7-8	[4] Chapters 1 – 9
6. Software development process selection (Agile vs. Plan-driven)	9-10	[5] Chapters 1 – 6
MIDTERM EXAM	11	
7. Economic Analysis		
• Cost-effectiveness analysis	12-13	[1] Chapters 10 – 12
• Multiple-goal decision analysis	14-16	[1] Chapters 13 – 18
• Dealing with risk	17-18	[1] Chapters 19 – 20
8. Economics of software quality	19	Lecture slides
9. Software engineering ethics	20	Handouts
FINAL EXAM		