Software Engineering Electives

February 2013

SOFTWARE ENGINEERING ELECTIVES (6 credits)

The semester courses are offered may change				**PREREQUISITES**
COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
SE 409	Software Requirements Engineering	F	3	ComS 309
SE 412	Format Aspects of Specification and Verification	S	3	SE 319, ComS 309
SE 416	Software Evolution and Maintenance	F	3	ComS 309
SE 417	Software Testing	S	3	SE 319, ComS 309
SE 419x	Software Tools for Large Scale Data Analysis	S	4	ComS 352 or CprE 308; ComS 309
SE 342	Principles of Programming Languages	F/S	3	ComS 321 or CprE 381; ComS 330 or CPR E 310; either ComS 309, ComS 362 or ComS 363

TECHNICAL ELECTIVE (3 credits)

The semester courses are offered may change				**PREREQUISITES**
COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
CprE 426	Intro to Parallel Algorithms & Prog.	F	4	ComS 311; CprE 308 or ComS 321
ComS 430	Advanced Programming Tools	F	3	ComS 311, 362 or 363, Engl 250, SpCm 212
CprE 450	Distributed Systems and Middleware	S	3	CprE 308 or ComS 352
CprE 458/558	Real-Time Systems	F	3	CprE 308 or ComS 352
ComS 454/554	Distributed & Network Operating Systems	Alt. S	3	ComS 311; ComS 352, Engl 250; SpCm 212
ComS 461	Database System Concepts & Internals	F	3	ComS 311; ComS 363, Engl 250; SpCm 212
ComS 486	Fundamental Concepts in Computer Networking	S	3	ComS 352
ComS 437X	Computer Game and Media Programming	S	3	ComS 362, or permission of the instructor, co-requisite ComS 336
SE 419X	Software Tools for Large Scale Data Analysis	S	4	ComS 352 or CprE 308; ComS 309

ECON ELECTIVE (3 credits)

The semester courses are offered may change				**PREREQUISITES**
COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
Econ 101	Principles of Microeconomics	F/S/SS	3	
Econ 102	Principles of Macroeconomics	F/S/SS	3	Econ 101 (Recommended)
IE 305	Engineering Economic Analysis	F/S/SS	3	Math 166 or 166H

MATH ELECTIVE (3 credits)

The semester courses are offered may change				**PREREQUISITES**
COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
Math 304	Introductory Combinatorics	F	3	Math 166 or 166H; 201 or experience with proofs
Math 307	Matrices and Linear Algebra	F/S/SS	3	2 semesters of calculus
Math 314	Graphs and Networks	S	3	Math 166 or 166H; 201 or experience with proofs
Math 317	Theory of Linear Algebra	F/S	4	Math 166 Cr/E 201

Supplementary Electives (9 credits)

Nine (9) semester credit hours of Supplementary Electives are required for Software Engineering. Courses not on the Supplementary Elective list may be counted as Supplementary Electives only if approved by the SE Program Petition Committee. A written request must be submitted and approved **before** the course is taken. For 500-level Supplementay Elective courses, see your academic advisor. 500-level courses are open to "qualified undergraduate students" (students in the upper half of their class).

SUPPLEMENTARY ELECTIVES (9 credits)

• 9 credits of Supplementary Elective courses are required for the Software Engineering program.

• Students who have taken 4 credit lab courses CPRE 288, CPRE 308 and CPRE 381 are required to take 6 credits of Supplementary Elective courses. Excess credits from CprE 288, CprE 381, and/or CprE 308 may be applied to meet Supplementary Elective credit requirement.

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COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
SE 409	Software Requirements Engineering	F	3	ComS 309
SE 412	Format Aspects of Specification and Verification	S	3	SE 319, ComS 309
SE 416	Software Evolution and Maintenance	F	3	ComS 309
SE 417	Software Testing	S	3	ComS 309
SE 419x	Software Tools for Large Scale Data Analysis	S	4	ComS 352 or CprE 308; ComS 309
* ComS 229	Advanced Programming Techniques	F/S	3	ComS 228 (with C- or better); Cr/E Math 166
ComS 331	Theory of Computing	F/S	3	ComS 228 (C- or better); C- or better in ComS 330 or CprE 310; Math 166(C- or better) & Engl 250
ComS 342	Principles of Programming Languages	F/S	3	ComS 321; ComS 330 or CprE 310; either ComS 309, 362 or 363; Engl 250
ComS 336X	Introduction to Computer Graphics	F/S	3	ComS 229, CoReq Math 307 or Math 317 or Math 265
ComS 362	Object Oriented Analysis & Design	F/S	3	ComS 228 (with C- or better); Engl 250
ComS 425	High Perform Computing for S & E	S	3	ComS 311; 330; Engl 250; SpCm 212
ComS/CprE 426	Intro to Parallel Algorithms & Prog.	F	4	ComS 311; CprE 308 or ComS 321
ComS 430	Advanced Programming Tools	S	3	ComS 311; ComS 362 or 363, Engl 250; SpCm 212
* CprE 288	Embedded Systems I: Introduction	F/S	4	CprE 281; ComS 207 or ComS 227
CprE 388	Embedded Systems II: Mobile Platforms	F	4	CprE 288/288X
CprE 431	Basics of Information Systems Security	S	3	Cr/E CprE 489 or ComS 454
ComS 433	Computational Models of Nanoscale Self-Assembly	S	3	C- or higher in ComS 331 or consent of the instructor
Com S 437X	Computer Game and Media Programming	S	3	Com S 362, or permission of the instructor, co-requisite Com S 336
ComS 440	Principles & Practices of Compiling	S	3	ComS 331; ComS 342; Engl 250; SpCm 212
CprE 450	Distributed Systems & Middleware	S	3	CprE 308 or ComS 352
ComS/CprE 454	Distributed & Network Operating Systems	Alt S	3	ComS 311; ComS 352, Engl 250; SpCm 212

* This course can be counted as part of required curriculum or as a supplementary elective but not for both

The semester courses are offered may change				PREREQUISITES
COURSES	**DESCRIPTION**	**SEM**	**CR**	**Check latest catalog for complete lists**
ComS 455	Simulation: Algorithms & Implementation	F	3	ComS 311; ComS 330; Stat 330; Engl 150; SpCm 212
ComS 461	Database System Concepts & Internals	F	3	ComS 311; ComS 363, Engl 250; SpCm 212
ComS 472	Principles of Artificial Intelligence	F	3	CprE 310 or ComS 330; ComS 342, ComS 311, Stat 330; Engl 250; SpCm 212
ComS 477	Prob. Solving Tech. for Applied ComS	F	3	ComS 228 (with C- or better); CprE 310 or ComS 330; Math 166; Math 307 or 317 or consent of instructor
ComS 481	Numerical Soln. of Diff. Eqns. & Interpltn.	S/SS	3	Math 265; either Math 266 or 267; knowledge of a programming language
CprE 483	Hardware Software Integration	S	4	CprE 381
ComS 486	Fundamental Concepts in Computer Networking	S	3	ComS 352
CprE 488	Embedded Systems Design	F	4	CprE 381, ComS 321
CprE 489	Computer Networking & Data Comm	F/S	4	CprE 381 or EE 324
CprE/ComS 490	Independent Study	F/S/SS	1	Only 2 credits of 490 may be used as tech elective - Senior Classification
CprE 418	Meas. & Test. for High Speed Sys. Engr.	F	3	EE 230, CprE 311
CE/EE 388	Sustainable Engineering and International Development	F	3	Junior classification in Engr
ME 484	Technology, Globalization, and Culture	S	3	Senior classification
CprE 530	Advanced Protocols & Network Security	F	3	CprE 381 or Com S 321