Technical Report

CMU/SEI-89-TR-10
ESD-TR-89-18

Software Engineering Education Directory

Edited by
Bill McSteen and Mark Schmick

February 1989

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Edited by

Bill McSteen

Information Management

Mark Schmick

Education Program

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, Pennsylvania 15213

Foreword

Each spring, the SEI Education Program publishes the *SEI Software Engineering Education Directory*, which summarizes undergraduate and graduate courses in software engineering taught at United States and Canadian colleges and universities. This annual survey, the only one of its kind, serves as a directory for potential students seeking information about where they might study software engineering. The survey is useful to industry and government recruiters in evaluating the background of job candidates.

The teamwork and energy of Allison Brunvand, Albert Johnson, Bill McSteen, Jack Poller, Mark Schmick, and Barbara Zayas were, in large part, responsible for the successful completion of this edition. Gary Ford, Senior Computer Scientist, spent much time editing entries into final form. The Information Management staff of the SEI were helpful in developing its attractive layout. We extend our thanks to them and all others who aided this effort.

Norman E. Gibbs
Director of Education
Software Engineering Institute

Software Engineering Education Directory

Abstract: This directory provides information about software engineering courses and software engineering degree programs that are available in the United States and Canada.

Introduction

The Software Engineering Institute (SEI) is a federally funded research and development center, sponsored by the Department of Defense and operated by Carnegie Mellon University. The mission of the SEI is to serve the public interest by establishing the standard of excellence for the art and practice of software engineering and by accelerating the transition of software technology.

This directory has been compiled to provide information that will help students and their advisors make appropriate educational choices. It contains a detailed listing of available software engineering courses and software engineering degree programs.

In future editions of this directory, we plan to provide indices and cross tabulations showing a profile of ongoing software engineering education efforts. To discuss any issues related to this report, please contact:

Mark Schmick
Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213
ARPANET: mes@sei.cmu.edu

Directory Guide

Compilation of Entries

Compilation of entries for this directory began in the summer of 1986 with a questionnaire mailed to schools selected from Peterson's *Graduate Programs in Engineering and Applied Sciences 1986*. We contacted schools offering graduate degrees in computer engineering, computer science, information science, software engineering, and systems engineering because they seemed most likely to offer courses involving software engineering concepts.

Of the 456 original questionnaires mailed, more than 33% were returned. A random telephone survey of people who did not return questionnaires for their universities revealed that none offered courses related to software engineering. We also included information from other reliable sources. Thus we feel that the directory is reasonably complete, although not exhaustive.

This year, we updated course entries by contacting all who gave us information last year. We sent each a revised questionnaire, including guidelines for responses. Most people responded to our update request.

We have edited the directory entries for accuracy, completeness, and relevance to software engineering. We are limited in our ability to edit responses, however, and might have included courses in the listings that do not seem to be closely related to software engineering study. However, all such courses were cited as part of a software engineering sequence in the responses that we received. In addition, please be aware that some "Textbook" entries actually contain articles, reports, or other published papers. In such cases, the papers shown are consistently used and considered to be required course reading.

Some of the entries in this edition of the directory have not been updated since the first edition. We plan to drop them from the next edition.

Changes in the Directory

Changes we adopted this year include:

- **More stringent standards for courses to be included in the directory.** Courses in data structures, computer science fundamentals, programming, database management, hardware, simulation, and similar topics are included only if they are directly related (say, as co-requisites) to a sequence of software engineering courses.
- **More information in each entry.** We added an "Additional Information" field for remarks explaining information in directory entries.
- **Better overall organization.** We added a table of contents, and organized the directory by state and country.

How to Use this Directory

The directory is organized by state and province. Within each section, the directory entries are alphabetized by institution name. Each entry lists the following:

- **Degrees.** These are the degree programs that have software engineering courses as electives or requirements.
- **Contact.** This is the person you may contact for more information about the software engineering courses offered at the institution.
- **Update.** The month and year that a directory entry was last updated appear here.

- **Courses.** Software engineering and related (co-requisite, laboratory, or advanced elective) courses are listed under this title. Each **Course** has four self-explanatory subtitles, **Textbooks, Compilers, Computers,** and **Languages.**

Notation in abbreviations

Each degree entry has one or two parts. The first part is the degree and the second part, if present, is the subject. For example, BSC, BS EE, MSE, MA CE means Bachelor of Computer Science, Bachelor of Science in Electrical Engineering, Master of Software Engineering, and Master of Arts in Computer Engineering. The abbreviations used appear on the following page.

Degrees

AAS	Associate of Applied Science
AS	Associate of Science
B	Bachelor Degree
BA	Bachelor of Arts
BBA	Bachelor of Business Administration
BC	Bachelor of Commerce
BCS	Bachelor of Computer Science
BE	Bachelor of Engineering
BED	Bachelor of Education
BEECS	Bachelor of Elec. Eng. and Comp. Sci.
BM	Bachelor of Mathematics
BS	Bachelor of Science
BSE	Bachelor in Science and Engineering
BSSE	Bachelor of Systems Science and Eng.
BO	Bachelor Degree (Other)
M	Master Degree
MA	Master of Arts
MCS	Master of Computer Science
ME	Master of Engineering
MED	Master of Education
MEM	Master of Engineering Management
MM	Master of Mathematics
MS	Master of Science
MSAT	Master of Applied Science and Tech.
MSDD	Master of Software Design and Dev.
MSE	Master of Software Engineering
MSSM	Master of Systems Science and Math.
MO	Master Degree (Other)
DENG	Doctor of Engineering
PHD	Doctor of Philosophy
PHDAT	Doctor of Applied Science and Tech.
SCD	Doctor of Science
O	Other

Subjects

AI	Artificial Intelligence
AT	Advanced Technology
BA	Business Administration
CAD	Computer Aided Design Tech.
CE	Computer Engineering
CET	Computer Electronics Tech.
CIS	Computer and Information Sci.
	Computer Information Systems
CM	Computer Management
CP	Computer Programming
CS	Computer Science
	Computing Science
CSE	Computer Science Engineering
	Computer and Systems Eng.
	Computer Systems Engineering
CSED	Computer Science Education
CT	Computer Technologies
E	Engineering
EE	Electrical Engineering
IE	Industrial Engineering
	Information Engineering
IS	Information Science
	Information Systems
ISE	Industrial and Systems Eng.
M	Mathematics
	Mathematical Sciences
MIS	Management Information Sys.
SE	Software Engineering
SSM	Systems Science and Eng.
SYSE	Systems Engineering
SYSS	Systems Science
TCS	Teaching of Computer Science
O	Other

A complete **Courses** entry has six fields on the first line, arranged in order of course name, course number, level, prerequisite, status, and frequency. The codes as used in the corresponding fields are:

Level:

- U Undergraduate
- G Graduate
- B Both
- O Other
- X No information supplied

Prerequisite:

- P The course has at least one prerequisite
- N None
- X No information supplied

Status:

- R Required
- E Elective
- B Both
- O Other
- X No information supplied

Frequency:

- B Biennial
- Y Once a year
- T Once a term
- A Alternate terms
- D On demand
- O Other
- X No information supplied

Most **Courses** entries also have fields describing the textbooks, compilers, computers, and languages used. Here are examples:

Introduction to Software Engineering with Ada MATH 555 G N R T 5
Textbooks: *Ada Primer*
by SofTech, Inc.
Reference Manual for the Ada Programming Language
ANSI/MIL-STD-1815A
Software Components with Ada: Structures, Tools, and Subsystems
by Booch, Grady
Software Engineering with Ada
by Booch, Grady
Compilers: Verdix Ada
Computers: VAX 11/785 UNIX
Languages: Ada

Software Project Management and Development I CSC 460 U P E T 8
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

1. United States

1.1. Alabama

Auburn University College of Engineering
Department of Computer Science and Engineering
Auburn University, AL, 36849, United States

Degrees: BS, MS, PHD

Contact: Dr. Cross, James H.
Assistant Professor
(205) 826-4330

Update: September 1988

Courses: **Introduction to Software Engineering** CSE 422 U P R A 4
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Computers: IBM PC
TI Pro
Languages: Excelerator (InTech)

Software Engineering I CSE 522 B P E Y 4
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Computers: VAX
Languages: Pascal

Software Engineering II CSE 622 G P E Y 4
Textbooks: *Input Output Requirements Language (IORL) Reference Manual* by Teledyne Brown Engineering
Compilers: IORL
Computers: Apollo
Languages: IORL

University of Alabama at Birmingham School of Natural Sciences and Mathematics
Department of Computer and Information Sciences
Birmingham, AL, 35294, United States

Degrees: BS, MS, PHD

Contact: Dr. Jones, Warren T.
Chairman
(205) 934-2213

Update: February 1988

Courses: **Formal Specifications and Software Development** CS 520 G N R Y 9
Textbooks: *Software Engineering Concepts* by Fairley, Richard E.

Computers: Sequent Balance 21000
VAX 11/750
Languages: Ada
Modula-2

Additional Information:

Some software engineering content or purpose in other courses, especially:
CS 522 Formal Semantics of Programming Languages (Pagan, F., *Formal Specifications of Programming Languages*, Prentice-Hall, 1981)
CS 526 Program Verification (Manna, Z., *Mathematical Theory of Computation*)
CS 531 Computer Design (Hwang, K. and Briggs, F.A., *Computer Architecture and Parallel Processing*)
CS 535 Computer Communications Network (Schwartz, M., *Computer Communication Network Design and Analysis*)
CS 538 Performance Evaluation (Kobayashi, H., *Modeling and Analysis*)
All of these courses are electives.

University of Alabama at Huntsville School of Mathematics and Natural Sciences
Computer Science Department
Huntsville, AL, 35899, United States

Degrees: MS, PHD

Contact: Dr. Shiva, S. G.
Chairman
(215) 895-6088

Update: None

Courses: **Software Engineering** CS 650 G N E Y 1
Textbooks: *Software Engineering*
by Jensen, Randall W. and Tonies, Charles C.

Advanced Software Engineering CS 750 G P E D 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.

1.2. Alaska

University of Alaska-Fairbanks College of Liberal Arts
Department of Mathematical Sciences
Program in Computer Science
Fairbanks, AK, 99775-1110, United States

Degrees: BS CS

Contact: Prof. Gatterdam, R. W.
Professor of Computer Science
(907) 474-6174

Update: September 1988

Courses: **Software Engineering** CS 401 U N E Y 6
Textbooks: *Software Engineering : the Production of Quality Software* by Pfleeger, Shari Lawrence
Compilers: varies
Computers: varies
Languages: varies

1.3. Arizona

Arizona State University College of Engineering and Applied Science
Department of Computer Science
Tempe, AZ, 85287, United States

Degrees: BS, MS, PHD

Contact: Dr. Collofello, James S.
Associate Professor
(602) 965-3733

Update: November 1987

Courses: **Software Project Management and Development I** CSC 460 U P E T 9
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Software Project Management and Development II CSC 560 G P E T 6
Textbooks: Selected readings by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Software Requirements CSC 563 G P E Y 6
Textbooks: Selected readings by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Software Design CSC 564 G P E Y 6
Textbooks: Selected readings by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Software Testing CSC 565 G P E Y 6
Textbooks: Selected readings by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Software Maintenance CSC 566 G P E Y 6
Textbooks: Selected readings by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Special Topics in Software Engineering CSC 590 G P E D 6
Textbooks: Selected readings

by various authors
Compilers: Pascal
Computers: VAX (VMS or UNIX)
Languages: Pascal

Additional Information:
Textbooks for Special Topics in Software Engineering depend on topic. Topics used before are "Software Metrics" and "Software Environments."

University of Arizona College of Arts and Sciences
Department of Computer Science
Tucson, AZ, 85721, United States

Degrees: MS CS, PHD CS

Contact: Prof. Andrews, Gregory R.
Acting Department Head
(602) 621-6613

Update: September 1988

Courses: **Software Tools** Computer Science 430 G P R T 13
Textbooks: *The C Programming Language, 2nd ed.*
by Kernighan, Brian and Ritchie, Dennis
The Elements of Programming Style
by Kernighan, Brian and Plauger, P.J.
The UNIX Programming Environment
by Kernighan, Brian and Pike, Rob
Compilers: C
Computers: VAX running Berkeley UNIX
Languages: C

Advanced Topics in Software Systems Computer Science 630 G P E D 13
Compilers: C
Computers: VAX running Berkeley UNIX
Languages: C

1.4. Arkansas

University of Arkansas Fulbright College of Arts and Sciences
Department of Computer Science
Program in Computer Science
Fayetteville, AR, 72701, United States

Degrees: BS, MS

Contact: Prof. Starling, Greg
Chairman
(501) 575-6427

Update: August 1987

Courses: **Software Design and Development** CSAS 4833 U N E Y 3

Textbooks:	*Software Design Strategies* by Bergland, Glenn D. and Gordon, Ronald D.
Compilers:	FORTRAN PL/I Pascal
Computers:	IBM VM/CMS PC MS DOS
Languages:	FORTRAN PL/I Pascal

Software Development CSAS 4003 U P E D 3

Compilers:	PL/I Pascal
Computers:	IBM 4381
Languages:	PL/I Pascal

Structured Programming II CSAS 1003 U P R Y 3

Compilers:	Pascal
Computers:	IBM 4381
Languages:	Pascal

1.5. California

California Institute of Technology Division of Engineering and Applied Science
Department of Computer Science
Pasadena, CA, 91125, United States

Degrees: MS CS, PHD CS

Contact: Prof. Seitz, Charles L.
Professor of Computer Science
(818) 356-6569

Update: November 1987

Courses: **Systematic Programming** CS 137 B P E Y 11
Textbooks: *The Science of Programming* by Gries, David

Concurrency in Computation CS 139 ab B P E O 11
Computers: Message-passing concurrent computers
UNIX systems
Languages: C

Additional Information:
Concurrency in Computation is offered in the Winter and Spring quarters annually.
Numerous related courses on: Functional Programming, Computer Algorithms, Computer Modeling and Data Analysis, Computer Graphics, Design and Implementation of Programming Languages, Simulation, Computer-Aided Design

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California Polytechnic State University School of Engineering
Department of Computer Science
San Luis Obispo, CA, 93407, United States

Degrees: BS CS, MS CS

Contact: Prof. Beug, Jim
Professor
(805) 546-2824

Update: May 1987

Courses: **Software Engineering I** CSC 440 U P R O 9
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.

Software Engineering II CSC 441 U P R O 1
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Computers: Mac II
Xerox 8010
Languages: Mesa
Modula-2

Software Tools CSC 340 U P E O 5
Computers: Pyramid UNIX

Languages: C
Mesa

Additional Information:
Software Engineering I, Software Engineering II, and Software Tools are offered quarterly.

California State Polytechnic University, Pomona School of Science
Department of Computer Science
Pomona, CA, 91768-4034, United States

Degrees: B CS, M CS

Contact: Dr. Hillam, Bruce P.
Chairman
(714) 869-3440

Update: October 1988

Courses: **Advanced Programming** CS 340 U P R T 2
Textbooks: *Software Development in Pascal*
by Sahni, Sartaj
Compilers: Pascal
Computers: IBM PC/XT
Languages: Pascal

Software Engineering CS 360 U P E O 2
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: Irvine Compiler Corporation, Ada
Computers: Integrated Solution workstation
Languages: Ada

Additional Information:
Software Engineering is offered twice a year. Local industry has expressed interest in course being offered in closed circuit television.

California State University, Chico College of Engineering, Computer Science and Technology
Department of Computer Science
Chico, CA, 95929, United States

Degrees: BS, MS

Contact: Dr. Madrigal, Orlando S.
Professor and Chairman
(916) 895-6442

Update: November 1987

Courses: **Software Engineering** CSCI 210 U P E T 3
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips

Systems Design CSCI 270 U P R T 11
Textbooks: *Systems Analysis and Design: Traditional and Advanced Concepts and Techniques*

by Wetherbe, James C.

System Design Theory CSCI 370 G P E Y 11
Textbooks: *Controlling Software Projects: Management Measurement and Estimation*
by DeMarco, Tom
IEEE Tutorial: Software Management
by Reifer, Donald

Advanced Software Practices CSCI 251 U N E T 11
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Compilers: Ada
Computers: IBM AT
Prime 9600
Languages: Ada

Software Metrics and Control CSCI 310 G P E O 3

Software Design CSCI 311 G P E O 3
Textbooks: *A Technique for Software Module Specification with Examples*
by Parnas, D.L.
Chief Programmer Team Management of Production Programming
by Baker, F.T.
Concise Notes on Software Engineering
by DeMarco, Tom
Data Design in Structured Systems Analysis
by Gane, C.P.
Fundamentals of Design
by Freeman, Peter
Go To Statement Considered Harmful
by Dijkstra, E.
Programming Considered as a Human Activity
by Dijkstra, E.
The Humble Programmer
by Dijkstra, E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips

Software Analysis and Testing CSCI 312 G P E O 11

Additional Information:
Software Metrics and Control, Software Design, and Software Analysis and Testing are offered Fall and Spring semesters.

California State University, Northridge School of Engineering and Computer Science
Department of Computer Science
Northridge, CA, 91330, United States

Degrees: BS, MS

Contact: Gamon, Sally
Secretary
(818) 885-3398

Update: May 1987

Courses: **Program Design Techniques** CS 380 U P R T 9
Textbooks: *Software Design and Development*
by Gilbert, Philip

Structured Analysis and System Specification
by DeMarco, Tom
Compilers: Pascal (Turbo, PR1ME)
Computers: AT&T 3B5
CDC Cyber 170/750
DEC PDP 11/44
IBM XT
Prime
Languages: Pascal

Software System Development and Laboratory CS 480 U P E T 11
Textbooks: *Software Design and Development*
by Gilbert, Philip
Compilers: Pascal (Turbo)
Computers: AT&T 3B5
CDC Cyber 170/750
DEC PDP 11/44
IBM XT
Prime
Languages: Pascal

Software Engineering CS 580 G N R Y 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Compilers: Pascal
Computers: AT&T 3B5
CDC Cyber 170/750
DEC PDP 11/44
IBM XT
Prime
Languages: Analyst Toolkit (Yourdon)
Design Aid (Nastec)
Excelerator (Intech)
Pro Mod

Software Engineering Economics CS 494 SEE B P E Y 4
Textbooks: *Software Engineering Economics*
by Boehm, Barry W.

Software Engineering with Ada CS 496 ADA B P E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: Meridian
NYU-Ada/Ed-C
VAX Ada
Verdix Ada
Languages: Ada

Additional Information:
Four Computer-Aided Software Engineering (CASE) tools are used in the School Computer Lab.

California State University, Sacramento School of Engineering and Computer Science
Department of Computer Science
Concentration in Software Engineering
Sacramento, CA, 95819, United States

Degrees: BS CS, MS CS

Contact: Dr. Thayer, Richard H.
Professor in Computer Science
(916) 278-6834

Update: September 1988

Courses: **Computer Software Engineering** CSC 131 U P R T 5
Textbooks: *Software Engineering with Systems Analysis and Design*
by Steward, Donald V.
Computers: IBM PCs
Languages: CASE tools

Computer System Analysis CSC 170 U P E T 13
Textbooks: *Introduction to System Analysis and Design: A Structured Design*
by Kendall, Penny A.
Computers: IBM PCs
Languages: CASE tools

Software Engineering Project Management CSC 171 U P E Y 11
Textbooks: *Project Management: A Managerial Approach*
by Merdith, Jack R. and Mantel, Samuel J., Jr.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips

Documentation Design CSC 178 U N E Y 4
Textbooks: *Writing Handbook for Computer Professionals*
by Skees, William D.
Computers: IBM PCs
Languages: Word processors

Senior Project: Part I CSC 190 U P R T 17
Textbooks: *Guide for Senior Project Documents*
by Thayer, Richard H.

Senior Project: Part II CSC 191 U P R T 7
Textbooks: *Guide for Senior Project Documents*
by Thayer, Richard H.

Software Testing and Quality Assurance CSC 196D U P E Y 2
Textbooks: *Software Testing and Quality Assurance*
by Beizer, Boris

Foundation of Software Engineering CSC 203 G N R Y 5
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.

Software Requirement Analysis and Design CSC 210 G P E Y 11
Textbooks: *An Integrated Approach to Software Development*
by Abbott, J.R.
Computers: IBM PCs
Languages: CASE tools

Software Engineering Economics CSC 231 G P E Y 15
Textbooks: *Software Engineering Economics*
by Boehm, Barry W.
Computers: IBM PCs
Languages: WICOMO or other PC based, cost analysis tool

Advanced Computer System Analysis CSC 240 G P E Y 11
Textbooks: *Structured Development for Real-Time Systems*
by Ward, P.T. and Mellor, S.J.

Introduction to System Engineering Engr 130 U P E Y 3

Textbooks: *Systems Engineering: Methodology and Applications*
by Sage, Andrew P. (ed.)

Additional Information:

Software Engineering Project Management is offered once every one or one and one-half years. Software Requirement Analysis and Design, Software Engineering Economics, and Advanced Computer System Analysis are offered once every three semesters. Foundation of Software Engineering is required for a MS in Computer Science if student does not have undergraduate foundation in software engineering.

National University School of Engineering and Computer Sciences
Master of Science in Software Engineering
San Diego, CA, 92108, United States

Degrees: MS SE

Contact: Prof. Sibley, Peter H. R.
Dean, School of Eng. and Comp. Sciences
(619) 563-7123

Update: June 1987

Courses: **Principles of Software Engineering** CS 620 G N R T 3
Textbooks: *CMS Primer Release 3*
by IBM
Information System Specification and Design Road Map
by Connor, D.
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Advanced Software Engineering CS 622 G P R T 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Verification and Validation Techniques CS 626 G P R T 3
Textbooks: *Software Verification and Validation: Realistic Project Approaches*
by Deutsch, M.S.
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Software Engineering Project I CS 627a G P R T 3
Textbooks: *Information System Specification and Design Road Map*
by Connor, D.
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Software Engineering Project II CS 627b G P R T 3
Textbooks: *Information System Specification and Design Road Map*

by Connor, D.
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Software Engineering Project III CS 627c G P R T 3
Textbooks: *Information System Specification and Design Road Map*
by Connor, D.
Compilers: TeleSoft Ada
Computers: IBM 4381 with VM/CMS
Languages: Ada
CMS

Additional Information:

This program is offered at all of the National University campuses. Dial-up facilities are offered on all campuses so that a student with a computer and a modem can work on the IBM mainframe at home. All classes are offered in a one class per month format, meeting for a total of forty-eight contact hours in a four week period. The last three classes (CS 627a, CS 627b, and CS 627c) are a capstone senior project class where a major software package is designed and implemented using all of the software engineering techniques taught in the curriculum. Software engineering techniques are stressed throughout the Bachelor of Science in Computer Science degree program.

Northrop University
Department of Computer and Information Science
Program - BS with specialization in SE
Los Angeles, CA, 90069, United States

Degrees: BS CS, MS CS, MS IS

Contact: Dr. Assad,
Head of Department, Chairman
(213) 641-3470

Update: September 1988

Courses: **Software Engineering I** CS-471 U P E O 3
Textbooks: *Software Engineering : the Production of Quality Software*
by Pfleeger, Shari Lawrence

Software Engineering II CS-476 U P E Y 1

Advanced Software Design CS-475 U P E Y 3
Textbooks: *Structured Systems Analysis: Tools and Techniques*
by Gane, Chris and Sarson, Trish
Compilers: Turbo C
Turbo Pascal
XDB Excelerator CASE tools
Computers: IBM PC
Languages: C
FORTRAN
Gane/Sarson PDLs
Pascal
SQL

San Jose State University School of Science
Department of Mathematics and Computer Science
Programs in Computer Science and Mathematics
San Jose, CA, 95192, United States

Degrees: BA, BS, MA, MS
Contact: Prof. Phillips, Veril L.
Chairman
(408) 924-5100

Update: October 1988

Courses: **Graduate Seminar in Computer Science** Math 295 G P R T 8
Computers: Various
Languages: Assembly (various)
C
Pascal
possibly others (individual projects)

Additional Information:
Graduate Seminar in Computer Science is essentially a software project requirement, usually emphasizing software engineering principles.

Stanford University School of Engineering
Department of Computer Science
Stanford, CA, 94305, United States

Degrees: BS CS, BS CSE, MS, MS AI, PHD

Contact: Jones, Roy
(415) 723-6092

Update: January 1989

Courses: **Object-Oriented Design with Ada** CS149 B P E Y 1
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Computers: VAX 8650

Software Engineering Laboratory CS247 B P E Y 1
Computers: Microcomputer (varies)

The Claremont Graduate School
Department of Information Science
Claremont, CA, 91711, United States

Degrees: MS CIS, MS MIS, PHD

Contact: Prof. Gray, Paul
Chair
(714) 621-8209

Update: September 1988

Courses: **Information Systems-Analysis and Design** IS 305 G N R Y 5
Textbooks: *Structured Analysis Methods for Computer Information Systems*
by Teague, Lavette C. and Pidgeon, Christopher

Using Excelerator for Systems Analysis
by Whitten, Jeffrey L. and Bentley, Lonnie D.
Computers: IBM PC/AT
Languages: Design/1
Excelerator

Systems Planning IS 328 G P R Y 5
Textbooks: *Readings in Systems Planning (IS 328)*
by Olfman, Lorne
The Practical Guide to Structured Systems Design
by Page-Jones, Meilir
Computers: IBM PC/AT
Languages: Action Diagrammer
Design/1
Excelerator
Rbase for DOS

Large Scale Software Development IS 362 G N R Y 4
Textbooks: *Concise Notes on Software Engineering*
by DeMarco, Tom
Computers: IBM PC/AT
IBM System 38
MacIntosh
Languages: Rbase for DOS

Additional Information:
We follow the *Communications of the ACM*, November 1982 program for MS degrees in information systems.

University of California, Berkeley College of Engineering
Department of Electrical Engineering and Computer Science
Program in Computer Science
Berkeley, CA, 94720, United States

Degrees: BEECS, MS, ME, PHD, DENG

Contact: Mrs. Webster, Betty
CS Scheduling Assistant
(415) 643-6130

Update: None

Additional Information:
Introduction to Computer Science is offered in the Fall and Spring. Data Structures and Advanced Programming is offered in the Fall, Spring, and Summer.

University of California, Irvine
Department of Information and Computer Science
Program in Computer Science
Irvine, CA, 92717, United States

Degrees: BS, MS, PHD

Contact: Prof. Leveson, Nancy
Associate Professor
(714) 856-7403

Update: July 1987

Courses: **Project in System Design** ICS 195 U N O T 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Computers: Sun UNIX
VAX UNIX

Software Engineering A 245A G N X Y 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Computers: Sun UNIX
VAX UNIX

Software Engineering B 245B G N X Y 1
Textbooks: *IEEE Tutorial: Software Testing and Validation Techniques*
by Miller, Edward and Howden, William E.

Additional Information:
Project in System Design is an option to fulfill project requirement for B.S.

University of Southern California (Entry 1) School of Engineering
Department of Industrial and Systems Engineering
Program in Human Factors
Los Angeles, CA, 90089, United States

Degrees: MS ISE, PHD ISE

Contact: Dr. Chignell, Mark H.
Assistant Professor
(213) 743-2705

Update: October 1988

Courses: **Intelligent Interfaces** ISE 578 G P E Y 4
Textbooks: *Expert Systems for Experts*
by Parsaye, K. and M. Chignell
Computers: IBM AT
Macintosh II
Languages: HyperCard / Hypertalk
Intelligence / Compiler

Additional Information:
Intelligent Interfaces focuses on the use of machine reasoning and graphics to improve the human interface. It also covers issues relating to the modularity and maintainability of complex software. It stresses a logic programming approach.

University of Southern California (Entry 2) School of Engineering
Computer Science Department
Los Angeles, CA, 90089, United States

Degrees: MS CS, PHD CS

Contact: Dr. Chignell, Mark H.
Assistant Professor
(213) 743-2705

Update: November 1988

Courses: **Introduction to Software Engineering** CS 201L U P R T 1

Textbooks: *C Programming in the Berkeley UNIX Environment*
by Horspool, R.
The Practical Guide to Structured Systems Design
by Page-Jones, Meilir

Computers: SUN 3 Workstations

Design and Construction of Large Software Systems CS 477L U P E Y 1

Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The C Programming Language
by Kernighan, Brian and Richie, Dennis
Writing Efficient Programs
by Bentley, Jon Louis

Computers: SUN 3 Workstations

Management of Computing: Theory and Practice CS 510 G N E Y 1

Computers: SUN 3 and IBM RT Workstations

Design and Construction of Large Software Systems CS 577a G N E Y 1

Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.
Software Specification Techniques
by Gehani, N. and McGettrich, A.
The UNIX Programming Environment
by Kernighan, Brian and Pike, Rob

Computers: SUN 3 Workstations

Design and Construction of Large Software Systems CS 577b G P E Y 1

Textbooks: *Advanced UNIX Programming*
by Rochkind, Mark J.
C, a Reference Manual
by Harbison, Samuel P. and Steele, Guy L.
C Programming in the Berkeley UNIX Environment
by Horspool, R.
The X Windows System
by Gettys, J. et al.

Computers: SUN 3 Workstations

1.6. Colorado

United States Air Force Academy
Department of Computer Science
Program in Computer Science
Colorado Springs, CO, 80840, United States

Degrees: BS CS

Contact: LtCol Richardson, William E.
Professor and Head
(719) 472-3592

Update: September 1988

Courses: **Systems Analysis and Design I** Comp Sci 453 U P R Y 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Structured Systems Analysis: Tools and Techniques
by Gane, Chris and Sarson, Trish

Systems Analysis and Design II Comp Sci 454 U P R Y 7
Textbooks: *The Practical Guide to Structured Systems Design*
by Page-Jones, Meilir

Fundamentals of Computer Science Comp Sci 225 U P R T 3
Textbooks: *Advanced Programming and Problem Solving with Pascal*
by Schneider, G. Michael and Bruell, Steven C.
Compilers: DG Pascal
Computers: DG MV10000
Languages: Pascal

Additional Information:
Approximately 1/4 of Fundamentals of Computer Science deals with software engineering.

University of Colorado at Colorado Springs School of Engineering and Applied Science
Department of Computer Science
Colorado Springs, CO, 80933, United States

Degrees: BS, MS

Contact: Dr. Sebesta, Robert W.
Chair
(303) 593-3325

Update: None

Courses: **Introduction to Software Engineering** CS 330 U N R T 1
Textbooks: *Software Engineering with Ada and Modula-2*
by Wiener, Richard, and Sincovec, Richard
Computers: MicroVAX

Systems Engineering Management CS 435/535 B N E A 1

Software Engineering Laboratory CS 436/536 B P E A 1

Software Specification and Requirements Analysis CS 531 G N E A 1

Software Design CS 532 G N E A 1

Software Testing CS 533 G N E A 1

Software Maintenance CS 534 G N E A 1

Topics and Readings in Software Engineering CS 630 G N E D 1

Additional Information:

Software Engineering Laboratory with 7 MicroVAX computers, 2 VAX stations, 1 Sun and a Gould System.

University of Denver Faculty of Mathematical and Computer Sciences
Department of Mathematics and Computer Science
Program in Computer Science
Denver, CO, 80208, United States

Degrees: MS, PHD

Contact: Prof. Martin, Michael S.
Assistant Chairperson
(303) 871-3291

Update: September 1988

Courses: **Software Engineering I, II, III** COMP 4380, COMP 4381, COMP 4382 G P E Y 5

Compilers:	C
	Pascal
Computers:	VAX 11/750
Languages:	C
	Pascal

Additional Information:

Software Engineering I is offered twice a year.

1.7. Connecticut

Central Connecticut State University School of Arts and Science
Department of Mathematics and Computer Science
Program in Computer Science
New Britain, CT, 06050, United States

Degrees: BS

Contact: Prof. Miller, George B.
Chairman, Math and Computer Science
(203) 827-7334

Update: November 1987

Courses: **Introduction to Software Engineering** CS 410 U P E Y 5
Textbooks: *Software Engineering with MODULA-2 and Ada*
by Wiener, Richard S. and Sincovec, Richard F.
Computers: VAX 8600
Languages: Pascal

Software Engineering II CS 514 G P R Y 2
Languages: Pascal

Computer System Software and Architecture I CS 516 G P R Y 2
Languages: Pascal

Computer System Software and Architecture II CS 517 G P R Y 2
Languages: Pascal

On Line, Real Time, and Time Sharing Systems CS 257 G P E Y 2
Languages: Pascal

The Hartford Graduate Center School of Engineering and Science
Department of Computer and Information Science
Program in Computer and Information Science
Hartford, CT, 06120, United States

Degrees: MCS

Contact: Dr. Danchak, Michael
Dean, School of Engineering and Science
(203) 548-2450

Update: None

Courses: **Software Engineering I** 35677 G P B T 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Computers: AT&T PC6300s
Apollo DOMAIN IX workstations (12)
Sun3 workstations (33)
UNIX VAX 11/750 BSD 4.3 with NFS

Software Engineering II 35678 G P E Y 1
Textbooks: *A Practical Handbook For Software Development*

by Birrell, N.D. and Ould, Martyn A.
Computers: AT&T PC6300s
Apollo DOMAIN IX workstations (12)
Sun3 workstations (33)
UNIX VAX 11/750 BSD 4.3 with NFS

Software Project Management 66696 G P E B 1
Textbooks: *IEEE Tutorial: Software Management*
by Reifer, Donald
Software Engineering Economics
by Boehm, Barry W.
The Software Development Project: Planning and Management
by Bruce, Phillip and Pederson, Sam M.

1.8. District of Columbia

The George Washington University School of Engineering and Applied Science
Department of Electrical Engineering and Computer Science
Washington, DC, 20052, United States

Degrees: BS CS, MS CS, SCD

Contact: Foley, James
Chairman
(202) 994-6083

Update: None

Courses: **System Software and Software Engineering** C.Sci. 151 U P R O 1
Computers: ATT B03
IBM 4341

Additional Information:
System Software and Software Engineering is offered day and evening in the Fall.

1.9. Florida

Florida Atlantic University Division of Computer Science
Department of Computer Science
Boca Raton, FL, 33431-0991, United States

Degrees: BS, MS, MCS

Contact: Dr. Coulter, Neal S.
Chairman
(407) 393-3855

Update: September 1988

Courses: **Software Engineering** CIS 6610 G N R T 9
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: Ada
C
Pascal
Computers: Harris 800
PCs
VAX 8800
Languages: Ada

Principles of Software Design CIS 4610 U P R O 2
Textbooks: *Programming in Ada*
by Barnes, J. G. P.
Software Engineering: A Programming Approach
by Bell, D., Morrey, I. and Pugh, J.
Compilers: DEC Ada
Computers: VAX 8800
Languages: Ada

Additional Information:
Software Engineering is offered 1-2 times per calendar year. Principles of Software Design is offered 4-5 times per academic year.

Nova University Center for Computer Science
Graduate Department of Computer Science
Program in Computer Science
Ft. Lauderdale, FL, 33314, United States

Degrees: BS CS, MS CS, SCD CS

Contact: Dr. Simco, Edward R.
Director
(305) 475-7563

Update: September 1988

Courses: **Software Engineering** CIS 680 G N R Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: Ada
C
Concurrent C

Pascal
Computers: 3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)
Languages: Ada
C
Concurrent C
Pascal

Software Engineering Implementation CIS 682 G P E Y 4
Textbooks: *Software Engineering Metrics and Models*
by Conte, Samuel Daniel, Dunsmore, H.E., and Shen, V.Y.
Compilers: Ada
C
Concurrent C
Pascal
Computers: 3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)
Languages: Ada
C
Concurrent C
Pascal

Software Engineering CIS 770 G P R Y 2
Textbooks: *Software Reliability, Prediction, Application*
by Musa, J.
Compilers: Ada
C
Concurrent C
Pascal
Computers: 3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)
Languages: Ada
C
Concurrent C
Pascal

Software Engineering Project CIS 870 G P R Y 2
Textbooks: *Designing the User Interface*
by Shneiderman, Ben
Compilers: Ada
C
Concurrent C
Pascal
Computers: 3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)
Languages: Ada
C
Concurrent C
Pascal

Additional Information:
Software Engineering is offered twice a year.

University of Central Florida (Entry 1)
Department of Computer Engineering (CEBA 207)
Program in Computer Engineering

Orlando, FL, 32816, United States

Degrees: BS E, MS, MS E, PHD
Contact: Dr. Linton, Darrell G.
Associate Professor of Engineering
(407) 275-2236

Update: September 1988

Courses: **Software Engineering I** ECM 5806 B P B Y 1
Textbooks: *Ada: An Introduction*
by Saib, S.
Ada Language Reference Manual
by ANSI/MIL-STD-1815A
Software Engineering Concepts
by Fairley, Richard E.
Computers: Gould 32/6780 (ISCS Ada translator)
IBM 4381 (Telesoft Ada compiler)
VAX 11/750 (Ada compiler)

Software Engineering II ECM 6807 G P E Y 1
Textbooks: *Ada: An Introduction*
by Saib, S.
Ada Language Reference Manual
by ANSI/MIL-STD-1815A
Software Engineering Concepts
by Fairley, Richard E.
Computers: Gould 32/6780 (ISCS Ada translator)
IBM 4381 (Telesoft Ada compiler)
VAX 11/750 (Ada compiler)

University of Central Florida (Entry 2) College of Arts and Sciences
Department of Computer Science
Orlando, FL, 32816, United States

Degrees: MS CS, PHD CS

Contact: Dr. Linton, Darrell G.
Associate Professor of Engineering
(407) 275-2236

Update: None

Courses: **Software Engineering** COP 5632 G N E X 1

Software Tools COP 5682 G P E X 1

Additional Information:
A student's plan of study can be designated to emphasize any number of areas within Computer Science. Some sample plans of study are Architecture Emphasis, Operating Systems Emphasis, Artificial Intelligence Emphasis, Data Base Management Emphasis, and Software Tools Emphasis. These do not include all areas of emphasis, but show the flexibility of the Master of Science Program.

University of South Florida College of Engineering
Department of Computer Science and Engineering
Tampa, FL, 33620, United States

Degrees: MS, PHD
Contact: Dr. Varanasi, M. R.
Graduate Program Coordinator
(813) 974-3033

Update: None

Courses: **Software Engineering I - Basic Principles and Formal Methods** COP 6630 G N E B 1

Software Engineering II - Tools and Applied Techniques COP 6634 G P E B 1

1.10. Idaho

University of Idaho College of Engineering
Department of Computer Science
Programs in Scientific Computing and Data Processing
Moscow, ID, 83843, United States

Degrees: BS CS, MS CS

Contact: Dr. Dickinson, John
Chairman
(208) 885-6589

Update: October 1987

Courses: **CS Design I** CS 480 U N R T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: HP 9000
HP 9836
IBM 4381
IBM PC
VAX 11/780
Languages: COBOL
FORTRAN
Lisp
Pascal
dBase
rBaseE

CS Design II CS 481 U N R T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: HP 9000
HP 9836
IBM 4381
IBM PC
VAX 11/780
Languages: COBOL
FORTRAN
Lisp
Pascal
dBase
rBase

Software Engineering CS 410/510 B N E Y 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Model for Software Project Management (Software Metrics) CS 511 G P E Y 4
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Software Quality Assurance and Testing CS 404/504 B P E Y 2
Textbooks: *Software System Testing and Quality Assurance*
by Beizer, Boris
Compilers: Turbo Pascal
Computers: IBM PC
Languages: Pascal

Additional Information:

CS Design I is an individual project with full documentation. CS Design II is a team project with full documentation.

Software Engineering and Model for Software Project Management are available on videotape.

1.11. Illinois

Bradley University College of Liberal Arts and Sciences
Department of Computer Science
Program in Comp. Sci., Comp. Info. Sys. (undergraduate), Comp. Sci. (graduate)
Peoria, IL, 61625, United States

Degrees: BS, MS

Contact: Prof. Fendrich, John
Chairman
(309) 677-2460

Update: July 1987

Courses: **Systems Analysis and Design (System Specification and Development)** CS 403 U P E O 8
Textbooks: *Structured Analysis and System Specification*
by DeMarco, Tom
Computers: Personal computers
Languages: Text processing system
Word processing system

Systems Analysis and Design (System Specification and Development) CS 608 G P E O 8
Textbooks: *Structured Analysis and System Specification*
by DeMarco, Tom
Computers: Personal computers
Languages: Text processing system
Word processing system

Programming Methodology CS 503 B P E O 6
Textbooks: *Discipline of Programming*
by Dijkstra, Edsger Wybe
The Science of Programming
by Gries, David

Introduction to Software Engineering CS 406 U P E Y 2

Structured Programming Using C CS 221 U P E O 5
Textbooks: *Efficient C*
by Plum, Thomas and Brodie, Jim
Learning to Program in C
by Plum, Thomas
Reliable Data Structures in C
by Plum, Thomas
Compilers: C
Computers: AT&T 3B series
VAX
Languages: C

Software Engineering I CS 615 G P E Y 5
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Compilers: SPSS
Computers: Cyber
Languages: SPSS

Software Engineering II CS 616 G P E Y 5
Textbooks: *Handbook of Walkthroughs, Inspections, and Technical Reviews*

by Freedman, Daniel P. and Weinberg, Gerald M.
Software Testing Techniques
by Beizer, Boris

Additional Information:

Systems Analysis and Design (System Specification and Development), CS 403 and CS 608, is offered at least twice a year. Programming Methodology and Structured Programming Using C are offered twice a year. Plans call for a course in Ada-based system design as well as a course in Ada-based software engineering. A course is planned in parallel processing and software engineering.

DePaul University School of Liberal Arts and Sciences
Department of Computer Science and Information Systems
Chicago, IL, 60604, United States

Degrees: BS, MS

Contact: Dr. Epp, Helmut P.
Department Chairman
(312) 341-8366

Update: May 1987

Courses: **Software Projects** 394 U P R O 6
Compilers: DEC
Computers: VAX 11/780
Languages: C

Software Engineering 365 U P R O 3
Textbooks: *Software Engineering*
by Sommerville, Ian
Compilers: TeleSoft
Computers: VAX 11/780
Languages: Ada

Software Measurement and Quality 366 U P E Y 2
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Software Measurement and Quality 466 G P E Y 2
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Programming in Ada 230 U N E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: TeleSoft
Computers: VAX 11/780
Languages: Ada

Additional Information:

Software Engineering is offered twice a year, and Software Projects is offered three times a year.

Sangamon State University School of Liberal Arts and Sciences
Department of Mathematical Systems
Springfield, IL, 62708, United States

Degrees: BA CS, MS M

Contact: Prof. Lasby, Gary
Convener
(217) 786-6770

Update: None

Courses: **Introduction to Software Engineering** MSY 478 U P E Y 1

Software Engineering MSY 578 G P E Y 1

Additional Information:
Concepts of software engineering as embodied in good programming styles are stressed in all our courses.

Southern Illinois University at Edwardsville School of Sciences
Department of Computer Science
Edwardsville, IL, 62026, United States

Degrees: BA, BS CS

Contact: Dr. Hattemer, J. R.
Chair
(618) 692-2386

Update: September 1988

Courses: **Software Design and Development** CS 424 B P E Y 5
Textbooks: *Software Engineering: Planning for Change* by Lamb, David

Topics in Software Engineering CS 524 G N E O 2
Compilers: Ada
Computers: MicroVAX 2
Languages: Ada

Additional Information:
Topics in Software Engineering is offered occasionally.

University of Illinois at Chicago College of Engineering
Department of Electrical Engineering and Computer Science
Program in Software Engineering
Chicago, IL, 60680, United States

Degrees: BS EE, BS CSE, MS EE, MS CS, PHD EE, PHD CS

Contact: Dr. Chang, Carl K.
Assistant Professor
(312) 996-4860

Update: February 1989

Courses: **Introduction to Software Engineering** EECS 274 U P R O 8
Textbooks: *Software Engineering* by Sommerville, Ian
Compilers: UNIX BSD 4.2 C
Computers: VAX 11/750

Advanced Topics in Software Engineering EECS 481 G P E Y 4
Textbooks: *Software Engineering: Analysis and Verification*
by Lewis, T. G.
Compilers: UNIX BSD 4.2 C
Computers: VAX 11/750

Software Engineering Environments EECS 482 G P E Y 5
Textbooks: *IEEE Tutorial on Software Engineering Environments*
by unknown
Software Engineering Environments
by Hunke, H.
Compilers: UNIX BSD 4.2 C
Computers: VAX 11/750

Additional Information:
Introduction to Software Engineering is offered twice a year.
Dr. Carl Chang is currently in charge of the Software Engineering Laboratory for this department.

University of Illinois at Urbana-Champaign
Department of Computer Science
Urbana, IL, 61801, United States

Degrees: MS, MS TCS, MCS, PHD

Contact: Dr. Kamin, Samuel N.
Associate Professor
(217) 333-6769

Update: January 1989

Courses: **Operating Systems** CS 323 B P E O 16
Textbooks: *An Introduction to Operating Systems*
by Deitel, H.M.
Compilers: Path Pascal
Computers: IBM 9000
Languages: Path Pascal

Software Engineering CS 327 B P E Y 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: C
Lisp
Pascal
Computers: IBM PC/RT

Additional Information:
Operating Systems is offered twice a year.

1.12. Indiana

Ball State University College of Sciences and Humanities
Department of Computer Science
Program in Computer Science
Muncie, IN, 47306, United States

Degrees: BS, MA, MS

Contact: Prof. Brown, W. F.
Professor
(317) 285-8644

Update: May 1987

Courses: **Software Engineering I (Systems Analysis)** 497 U P R O 11
Textbooks: *Standards Manual for Software Engineering I*
by Brown, W.F. (ed.)
Structured Analysis and System Specification
by DeMarco, Tom
Systems Analysis - Definition, Process, and Design
by Semprevivo, Philip
Compilers: C
COBOL
FORTRAN
Pascal
Computers: Dept VAX 785 (UNIX)
VAX cluster (three 785, one 86500)
Languages: C
COBOL
FORTRAN
Pascal

Software Engineering II (Design and Development) 498 U P R O 5
Textbooks: *Standards Manual for Software Engineering II*
by Brown, W.F. (ed.)
Structured Analysis and System Specification
by DeMarco, Tom
Structured Design
by Yourdon, Edward and Constantine, Larry L.
Compilers: C
COBOL
FORTRAN
Pascal
Computers: Dept VAX 785 (UNIX)
VAX cluster (three 785, one 86500)
Languages: C
COBOL
FORTRAN
Pascal
Principles of Software Engineering 580 G N R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: Ada
C
Computers: Dept VAX 785 (UNIX)
VAX cluster
Languages: Ada
C

Additional Information:

Software Engineering I (Systems Analysis) and Software Engineering II (Design and Development) are offered twice a year. We also offer a seminar about once a year or so on Ada. The book used is *Software Engineering with Ada* by Grady Booch. The software projects done in CS 497-498 are actual projects selected by the students and approved by the professor. We are presently developing two courses that will be offered in parallel with CS 497-498. One will be in technical writing to be taught by the Department of English. The other will be in team building to be given by the Department of Psychological Science.

Indiana University College of Arts and Sciences
Computer Science Department
Bloomington, IN, 47405, United States

Degrees: BA, BS, MS, PHD

Contact: Prof. Robertson, Edward L.
Professor
(812) 335-4954

Update: September 1988

Courses: **Information Systems I** C445 B P O Y 7

Textbooks: *An Introduction to Database Systems*
by Date, Chris J.
Database System Concepts
by Korth, Henry F. and Silberschatz, Abraham
Software Engineering
by Sommerville, Ian
Tools and Techniques for Structured Systems Analysis and Design
by Davis, William S.

Computers: VAX (Ultrix)
Xerox Workstations

Languages: C
FORTRAN
Ingres
Modula-2
dBase III plus
rBase 5000

Information Systems II C446 B P O Y 7

Textbooks: *An Introduction to Database Systems*
by Date, Chris J.
Database System Concepts
by Korth, Henry F. and Silberschatz, Abraham
Software Engineering
by Sommerville, Ian
Tools and Techniques for Structured Systems Analysis and Design
by Davis, William S.

Computers: VAX (Ultrix)
Xerox Workstations

Languages: C
FORTRAN
Ingres
Modula-2
dBase III plus
rBase 5000

Software Engineering Management C607 G P E Y 5

Textbooks: *Advanced Course on Software Engineering*
by Bauer, Friedrich Ludwig
Concise Notes on Software Engineering
by DeMarco, Tom
Current Practices in Software Development: A Guide to Successful Systems
by King, David
In Search of Excellence: Lessons From America's Best-Run Companies
by Peters, Thomas and Waterman, Robert
Managing a Programming Project
by Metzger, Philip W.
Software Configuration Management
by Babich, Wayne A.
Software Engineering
by Sommerville, Ian
Software Engineering: Design, Reliability, and Management
by Shooman, Martin L.
Software Engineering Concepts
by Fairley, Richard E.
Software Engineering Economics
by Boehm, Barry W.
Software Psychology: Human Factors in Computer and Information Systems
by Shneiderman, Ben
Software Reliability
by Kopetz, H.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
The Psychology of Computer Programming
by Weinberg, G.M.
Tools and Techniques for Structured Systems Analysis and Design
by Davis, William S.

Software Engineering Management C608 G P E Y 5
Textbooks: *Advanced Course on Software Engineering*
by Bauer, Friedrich Ludwig
Concise Notes on Software Engineering
by DeMarco, Tom
Current Practices in Software Development: A Guide to Successful Systems
by King, David
In Search of Excellence: Lessons From America's Best-Run Companies
by Peters, Thomas and Waterman, Robert
Managing a Programming Project
by Metzger, Philip W.
Software Configuration Management
by Babich, Wayne A.
Software Engineering
by Sommerville, Ian
Software Engineering: Design, Reliability, and Management
by Shooman, Martin L.
Software Engineering Concepts
by Fairley, Richard E.
Software Engineering Economics
by Boehm, Barry W.
Software Psychology: Human Factors in Computer and Information Systems
by Shneiderman, Ben
Software Reliability
by Kopetz, H.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
The Psychology of Computer Programming
by Weinberg, G.M.
Tools and Techniques for Structured Systems Analysis and Design
by Davis, William S.

Additional Information:

Information Systems I and II are one of several choices for BA/BS.
A "Professional Practice" course may satisfy BA/BS requirement with suitable individual project and paper.

Purdue University (Entry 1) School of Science
Department of Computer Science
West Lafayette, IN, 47907, United States

Degrees: BS, MS, PHD

Contact: Dr. Dunsmore, H. E.
Associate Professor
(317) 494-1996

Update: None

Courses: **Software Engineering** CS 404 U P E T 1
Textbooks: *Software Engineering*
by Sommerville, Ian
Computers: DEC VAX 11/780 (UNIX OS)

Software Metrics CS 510 G P E Y 1
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Computers: DEC VAX 11/780 (UNIX OS)

Information Systems CS 442 U P E T 1
Textbooks: *Management Info. Systems: Conceptual Foundations, Structure, and Development*
by Davis, Gordon Bitter and Olson, Margrethe H.
Computers: DEC VAX 11/780 (UNIX OS)

Purdue University (Entry 2) School of Industrial Engineering
West Lafayette, IN, 47907, United States

Degrees: BS, MS, PHD

Contact: Prof. Leimkuhler, F. F.
Head
(317) 494-5444

Update: June 1987

Courses: **Cognitive Engineering of Interactive Software** IE 559 G P E Y 4
Textbooks: *Human-Computer Dialogue Design*
by Ehrich, Roger W. and Williges, Robert C.
Computers: IBM PC/AT
Languages: FORTRAN

University of Evansville School of Engineering and Computer Science
Department of Computing Science
Evansville, IN, 47714, United States

Degrees: BA, BS, MS CSED, MS MIS

Contact: Dr. Mitchell, William
Chairman
(812) 479-2650

Update: None

Courses: **Software Engineering** CS 325 U P R O 1

Software Engineering Project CS 494/495/497 U P R T 1

Software Engineering CS 521 G N B O 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.

Additional Information:
Software Engineering (Undergraduate) and Software Engineering (Graduate) are offered twice a year.

1.13. Iowa

Iowa State University School of Sciences and Humanities
Department of Computer Science
Program in Computer Science
Ames, IA, 50011, United States

Degrees: BS, MS, PHD

Contact: Prof. Oldehoeft, Arthur E.
Chair
(515) 254-4377

Update: October 1988

Courses: **Software Engineering** CS 411 U N E O 6
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Computers: HP 9000 Model 350
Languages: Ada
Software Engineering CS 512 G N E Y 3

Additional Information:
Software Engineering is offered twice a year.

University of Iowa College of Liberal Arts
Department of Computer Science
Iowa City, IA, 52242, United States

Degrees: BA, BS, MS, PHD

Contact: Prof. Reddy, S.M.
Professor and Chairman
(319) 353-7379

Update: November 1988

Courses: **Software Engineering** 22c:115 G P E T 6
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Compilers: Students' choice
Computers: Encore Multimax
IBM PC
Macintosh
Languages: Students' choice

1.14. Kansas

The Wichita State University College of Liberal Arts and Sciences
Department of Computer Science
Wichita, KS, 67208, United States

Degrees: BA, BS, MS, MCS

Contact: Dr. Tomayko, James E.
Director, Software Engineering
(316) 689-3156

Update: October 1988

Courses: **Introduction to Software Engineering** CS 580 B P E T 8
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
Compilers: Ada
Pascal
Computers: IBM 3031D
VAX 750
Languages: Ada
Pascal

Ada and Software Engineering CS 611 G P E Y 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: ALSYS
Computers: IBM at CLONE
Languages: Ada

Applications Systems Analysis CS 684 G P E B 7

Software Testing and Reliability CS 882 G P R Y 7
Compilers: Ada
Pascal
Computers: VAX
Languages: Ada
Pascal

Requirements Specification and Design CS 881 G P R B 1
Textbooks: Collection of papers
Computers: VAX 8300

Topics in Software Engineering CS 885 G P E Y 2
Textbooks: Varies by topic
Compilers: Varies by topic
Computers: Varies by topic
Languages: Varies by topic

Additional Information:
Software Engineering Program established in 1987. Requirements: CS 580, 8xx, 882, internship and practicum. Electives: 6 hours such as CS 611, 684, and special topics. Special topics offered in 1987-88: Software Configuration Management and Software Project Management.

1.15. Louisiana

Louisiana Tech University
Department of Computer Science
Ruston, LA, 71272, United States

Degrees: BS, MS

Contact: Prof. Schaar, Margaret
Assistant Professor
(318) 257-2298

Update: September 1988

Courses: **Structured Design** CS 203 U P R O 2
Textbooks: *Software Engineering : The Production of Quality Software* by Pfleeger, Shari Lawrence
Computers: IBM 4341
IBM PC network
Languages: PL/I

Software Methodology CS 460 U P E Y 5
Textbooks: *Software Engineering* by Sommerville, Ian
Computers: IBM 4341
IBM PC network
Languages: Ada

System Design CS 540 G P E Y 4
Compilers: Ada
Computers: IBM PC network
Languages: Ada

Additional Information:
Structured Design is offered twice a year.

1.16. Maryland

University of Maryland Division of Computer, Mathematical,
and Physical Sciences
Department of Computer Science
College Park, MD, 20742, United States

Degrees: BS, MS, PHD

Contact: Dr. Rombach, H. Dieter
Assistant Professor
(301) 454-2002

Update: September 1988

Courses: **Software Design and Development** CMSC 435 U N E T 6

Textbooks:	*Software Engineering Concepts*
	by Fairley, Richard E.
Compilers:	Ada Verdix
Computers:	IBM mainframe
	VAX
Languages:	Ada
	C
	Pascal

Software Design and Development in Ada CMSC 838 G P E D 3

Textbooks:	*Programming in Ada*
	by Barnes, John Gilbert Presslie
	Software Engineering with Ada
	by Booch, Grady
Compilers:	Verdix Ada
Computers:	VAX 8600
Languages:	Ada

A Quantitative Approach to Software Management and Engineering CMSC 735 G P E Y 2

Textbooks:	*IEEE Tutorial on Models and Metrics for Software Management and Engineering*
	by Basili, Victor R.
	Software Engineering Metrics and Models
	by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Additional Information:
The department offers other software engineering related courses: Theory of Language Translation (CMSC 430), Theory of Programming Languages (CMSC 630), and a variety of software engineering related seminars.

1.17. Massachusetts

Boston University College of Engineering
Department of Electrical, Computer, and Systems Engineering
Programs in Systems Engineering, Computer Engineering, Electrical Engineering
Boston, MA, 02215, United States
Degrees: MS EE, MS CE, MS SYSE, PHD E

Contact: Dr. Brackett, John W.
Coordinator, Soft. Eng. Graduate Program
(617) 353-5898

Update: October 1988

Courses: **Advanced Data Structures** SC 504 B N B Y 1
Textbooks: To be selected
Compilers: DEC VAX Ada
Computers: Encore
VAX 785
Languages: Ada

Software System Design SC 511 U P R Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: DEC VAX Ada
Computers: Encore
VAX 785
Workstations and PC using analysis and design support tools
Languages: Ada

Applications of Formal Methods SC 517 G N R Y 1
Textbooks: *Software Specification Techniques*
by Gehani, Narain and McGettrick, Andrew D.
The Science of Programming
by Gries, David

Software Project Management SC 518 G P R Y 2
Textbooks: *IEEE Tutorial on Software Project Management, 3rd ed.*
by Parikh, Girish and Zvegintzov, Nicholas
Software Engineering Economics
by Boehm, Barry W.

The Computer as a System Component SC 714 G P R Y 1
Textbooks: To be determined
Compilers: DEC VAX Ada
Computers: Encore
VAX 785
Languages: Ada

Software Engineering Project SC 912 G P R Y 4
Compilers: DEC VAX Ada
Computers: Encore
IBM PC
VAX 785
Workstations
Languages: Ada predominately, but depends on project

Additional Information:
We also teach two courses, SC 465 and EK 215 that use the Ada programming

language to teach software engineering concepts.
All new courses (SC 504, SC 517, SC 518) were effective as of January 1988.
The master's program in software engineering is MS SYSE with a Software Engineering Option. It will be renamed Software Systems Engineering effective 1989.
The PHD with research specialization in Software Engineering is offered, but the degree is officially called "PHD in Engineering."
In Software Project Management (SC 518), we use Super project on IBM PC, VAX Project Manager on VAX, and WICOMO (a cost estimation tool on IBM PC).

Massachusetts Institute of Technology School of Engineering
Department of Electrical Engineering and Computer Science
Program in Computer Science
Cambridge, MA, 02139, United States

Degrees: BS, MS, PHD

Contact: Prof. Corbato, F. J.
Associate Head for Comp. Sci. and Eng.
(617) 253-6001

Update: September 1988

Courses: **Laboratory in Software Engineering** 6.170 U P R T 1
Textbooks: *Abstraction and Specification in Program Development* by Liskov, Barbara and Guttag, John
Compilers: CLU
Computers: DEC 20
Languages: CLU

Computer Language Engineering 6.035 U P O Y 6
Textbooks: *Compilers, Principles, Techniques, and Tools* by Aho, Alfred V., Sethi, Ravi, and Ullman, Jeffrey D.
Compilers: CLU
Computers: DEC 20
Languages: CLU

Additional Information:
Students must take either Computer Language Engineering or an operating systems course.

Northeastern University College of Computer Science
Boston, MA, 02115, United States

Degrees: BS, MS, PHD

Contact: Prof. Rasala, Richard
Director of Undergraduate Studies
(617) 437-2462

Update: September 1988

Courses: **Software Design and Development** COM1205 U P R A 6
Textbooks: *Software Engineering Concepts* by Fairley, Richard E.
Compilers: Turbo Pascal or Microsoft Quick C
Computers: IBM AT compatibles
Languages: Pascal or C

Software Design and Development COM3205 G N E Y 4
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and John Guttag
Compilers: C
LISP
Pascal
Computers: IBM AT compatibles
Macintosh SEs
SUN workstations
UNIX on VAX or on Pyramid
VAX-VMS
Languages: C
LISP
Pascal

Additional Information:
Software Design and Development (Undergraduate) and Software Design and (Graduate) are offered twice a year.
For Software Design and Development, the choice of machines and languages depends on the interests of each particular instructor and on the type of projects they wish the class to pursue. In addition, some students travel a great distance to come to class, and they prefer to work on machines they can access at home or on the job. In these cases, special arrangements are usually made with the instructor.

University of Massachusetts (Entry 1) School of Engineering
Department of Electrical and Computer Engineering
Program in Electrical Engineering
Amherst, MA, 01003, United States

Degrees: BS CSE, BS EE, MS, PHD

Contact: Cuny, Jan
(413) 548-9120

Update: October 1988

Courses: **Design and Analysis of Computer Algorithms** ECE 672 G P E D 1
Textbooks: *The Design and Analysis of Computer Algorithms*
by Aho, Alfred V., Hopcroft, John E. and Ullman, Jeffrey D.
Computers: Data General Eagle

Performance Evaluations ECE 673 G P E Y 1

University of Massachusetts (Entry 2)
Department of Computer and Information Sciences (COINS)
Amherst, MA, 01003, United States

Contact: Cuny, Jan
(413) 548-9120

Update: November 1988

Courses: **Software Engineering** COINS 520 B P X Y 5
Textbooks: *Course Notes (a collection of "classic" software engineering papers)*
by various authors
Software Engineering with Modula-2 and Ada

by Wiener, Richard and Sincovec, Richard
Compilers: Students' choice: Ada, Lisp, C, Pascal
Computers: Students' choice
Languages: Students' choice: Ada, Lisp, C, Pascal

Software Engineering Practicum COINS 620 G P X B 3

Programming Methodology COINS 320 U P X O 10
Textbooks: *Software Engineering with Modula-2 and Ada*
by Wiener, Richard and Sincovec, Richard
Compilers: DEC Ada
Computers: VAXStation 2000
Languages: Ada
PIC/ADL

University of Massachusetts at Boston
Department of Mathematics and Computer Science
M.S. in Computer Science
Boston, MA, 02125, United States

Degrees: BS, MS

Contact: Dr. Simovici, Dan
Director of the Graduate Program
(617) 929-7966

Update: None

Courses: **Software Engineering I** 650 G P R Y 1
Computers: UNIX on VAX 750

Software Engineering II 660 G P R Y 1
Computers: UNIX on VAX 750

Software Engineering Laboratory I 651 G P R Y 1
Computers: UNIX on VAX 750

Software Engineering Laboratory II 661 G P R Y 1
Computers: UNIX on VAX 750

1.18. Michigan

Michigan State University College of Engineering
Computer Science Department
Program in Computer Science
East Lansing, MI, 48824-1027, United States

Degrees: BS, MS, PHD

Contact: Prof. Forsyth, John J.
Assoc. Professor and Assoc. Chairperson
(317) 355-1646

Update: October 1987

Courses: **Design of Language Processors I** CPS 451 U P R O 6
Textbooks: *Compiler Construction: Theory and Practice*
by Barrett, William A. and Couch, John D.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: C
Computers: Sun 4 file server with workstations on Ethernet (C and UNIX environment)
Languages: C

Design of Language Processors II CPS 452 U P R O 6
Textbooks: *Compiler Construction: Theory and Practice*
by Barrett, William A. and Couch, John D.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: C
Computers: Sun 4 file server with workstations on Ethernet (C and UNIX environment)
Languages: C

Design of Language Processors III CPS 453 U P R O 6
Textbooks: *Compiler Construction: Theory and Practice*
by Barrett, William A. and Couch, John D.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: C
Computers: Sun 4 file server with workstations on Ethernet (C and UNIX environment)
Languages: C

Additional Information:
Full academic year sequence offered every year for Design of Language Processors I, II, and III.

Michigan Technological University College of Sciences and Arts
Department of Computer Science
Houghton, MI, 49931, United States

Degrees: BS CS, MS CS

Contact: Dr. Ott, Linda M.
Associate Professor
(906) 487-2187

Update: October 1988

Courses: **Software Engineering** CS550 G P R Y 8
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.
Computers: Sequent Balance 8000 running Dynix

Software Engineering CS465 U P E Y 3
Textbooks: *Software Engineering, 2nd ed.*
by Summerville, I.
Compilers: CC
Computers: Sequent Balance 8000 running Dynix
Languages: C

Systems Software Project CS341 U P R T 1
Textbooks: *Software Engineering: A Beginner's Guide*
by Pressman, Roger S.
Compilers: Pascal
Computers: Sequent Balance 8000 running Dynix
Languages: Pascal

University of Michigan-Dearborn School of Engineering
Department of Industrial and Systems Engineering
Dearborn, MI, 48128, United States

Degrees: BSE ISE, MSE ISE

Contact: Dr. Kachhal, S. K.
Chairman
(313) 593-5272

Update: None

Courses: **Software Engineering** I&SE 553 G P E Y 1
Textbooks: *Controlling Software Projects: Management Measurement and Estimation*
by DeMarco, Tom
Software Design and Development
by Gilbert, Philip
Computers: Michigan Terminal System (Amdahl)

Wayne State University College of Engineering
Department of Electrical and Computer Engineering
Detroit, MI, 48202, United States

Degrees: BS, MS, PHD

Contact: Prof. Meisel, Jerome
Acting Chair
(313) 577-3920

Update: None

Courses: **Engineering Software Design** ECE 660 G P X Y 1
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: Amdhal 470 V8
IBM 3081
IBM 4381
MTS (Michigan Terminal System)

Additional Information:

The course ECE 660 has been taught both at campus and at the Ford premises under Ford/WSU Master's program in Electronics and Computer Control System. The students have been using PSL/PSA from ISDOS.

Western Michigan University College of Arts and Sciences
Department of Computer Science
Kalamazoo, MI, 49008-5021, United States

Degrees: BS CS, MS CS

Contact: Dr. Kerstetter, Mark
Associate Professor
(616) 387-5658

Update: October 1988

Courses: **Software Systems Development** 544 B P B O 8

Textbooks:	*Software Engineering: A Practitioner's Approach, 2nd ed.* by Pressman, Roger S.
	The Mythical Man-Month: Essays on Software Engineering by Brooks, Frederick Phillips
Compilers:	C
	COBOL
	FORTRAN
	Pascal
Computers:	IBM-PC/XT/AT
	IBM PS/2
	Macintosh
	VAX/UNIX
	VAX/VMS
Languages:	C
	COBOL
	FORTRAN
	Pascal
	dBase

Additional Information:

Software Systems Development is offered 3 times a year.
Software Systems Development uses real projects. Therefore, student teams work on a variety of machines and with a variety of languages and compilers. Each team of 4 to 5 students typically works on a different project.
Documentation is required including: abstract, planning document, requirements document, preliminary design document, user's manual, and maintenance manual. Each team must make a one-hour presentation to the instructor, client, classmates, and invited guests during a "presentation day" at the end of the semester.

1.19. Minnesota

University of Minnesota Institute of Technology
Department of Computer Science
Program in Computer Science
Minneapolis, MN, 55455, United States

Degrees: BS, MS, PHD

Contact: Dr. Fox, David
Head, Computer Science
(612) 625-0726

Update: June 1987

Courses: **Software Engineering (I)** Csci 5180 B P E Y 6
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
Compilers: Ada
Computers: Sun
Languages: Ada
MSG

Software Engineering (II) Csci 5181 B P E Y 6
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: Ada
Computers: Sun
Languages: Ada
MSG

Software Engineering (III) Csci 5199 B P E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Software Testing and Evaluation
by DeMillo, R.A. et al.
Software Validation: Inspection - Testing - Verification - Alternatives
by Hausen, H.L.
The Art of Software Testing
by Myers, Glenford J.
Compilers: Ada
Computers: Sun
Languages: Ada
MSG

Software Requirement, Design and Maintenance Csci 5199/8199 B P E B 3
Textbooks: *Handbook of Software Engineering*
by Vick, Charles R. and Ramamoorthy, C.V.
Software Design Strategies
by Bergland, Glenn D. and Gordon, Ronald D.

Software Verification and Validation, Metrics Csci 5199/8199 B P E B 3
Textbooks: *IEEE Tutorial: Software Testing and Validation Techniques*
by Miller, Edward and Howden, William E.
Software Engineering Metrics and Models
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Software Testing and Evaluation
by DeMillo, R.A. et al.
Software Validation: Inspection - Testing - Verification - Alternatives

by Hausen, H.L.
The Art of Software Testing
by Myers, Glenford J.

Software Engineering with Ada Csci 5199/8199 B P E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: Ada
Computers: Sun
Languages: Ada

Software Specification Csci 5199/8199 B P E Y 3
Textbooks: *Software Specification Techniques*
by Gehani, Narain and McGettrick, Andrew D.

Additional Information:
We also have weekly seminars on various aspects of software engineering.

1.20. Missouri

Washington University Sever Institute of Technology
Department of Computer Science
St. Louis, MO, 63130, United States

Degrees: BS, MS, DSC (Doctor of Science)

Contact: Dr. Roman, Gruia Catalin
Associate Professor
(314) 889-6190

Update: January 1989

Courses: **Programming Systems and Language** CS 455 B P R O 11
Textbooks: *Formal Specification of Programming Languages*
by Pagan, Frank G.
Programming Languages: Design and Implementation
by Pratt, Terrence W.
Compilers: DEC Ada
Franz Lisp
Prolog
Computers: MicroVAX II
Languages: Ada
Lisp
Prolog

Software Engineering Workshop CS 456 B P R O 11
Textbooks: *Software Engineering with Modula-2 and Ada*
by Wiener, Richard and Sincovec, Richard

Distributed System Design CS 576S G P E B 2
Textbooks: *Coordinated Computing: Tools and Techniques for Distributed Software*
by Filman, Robert E. and Friedman, Daniel P.

Modular Programming CS 545S G P E B 5
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Programming in Modula-2
by Wirth, Niklaus
Compilers: DEC Ada
DECSRC Modula-2+
Computers: VAX 11/750
Languages: Ada
Modula-2
Smalltalk

Research Seminar on Distributed System Design CS 673.1 - CS 673.6 G N E T 2

Additional Information:
Programming Systems and Languages and Software Engineering Workshop are offered twice yearly.

1.21. New Hampshire

Dartmouth College
Department of Mathematics and Computer Science
Hanover, NH, 03755, United States

Degrees: BA, MS, PHD

Contact: Bent, Samuel W.
Associate Professor
(603) 646-2760

Update: October 1988

Courses: **Software Design and Implementation** CS 23 U P R O 2

Textbooks:	*Programming Pearls*
	by Bentley, Jon Louis
	Software Engineering Concepts
	by Fairley, Richard E.
Compilers:	C
	Lightspeed Pascal
Computers:	CONVEX
	Macintosh
	VAX 11/785
Languages:	AWK
	C
	LEX
	Pascal

Additional Information:
Software Design and Implementation is offered two terms a year. We previously had one course with data structures and a large programming project. We have subdivided it. Software Design and Implementation will emphasize software tools.

1.22. New Jersey

Monmouth College
Department of Mathematics/Computer Science
West Long Branch, NJ, 07764, United States

Degrees: MS SE

Contact: Dr. Canavan, Bob
Professor of Math. and Computer Science
(201) 571-3441

Update: None

Courses: **Network Design and Protocols I** SE 510 G X R X 1

Network Design and Protocols II SE 511 G X R X 1

Operating System Implementation SE 515 G X R X 1

Software Engineering I SE 516 G X R X 1

Software Engineering II SE 517 G X R X 1

System Project Implementation SE 525 G X R X 1

Montclair State College School of Mathematics and Computer Science
Department of Mathematics and Computer Science
Upper Montclair, NJ, 07043, United States

Degrees: BS, MA CS

Contact: Prof. Wolff, K.
Chairperson
(201) 893-5132

Update: None

Courses: **Software Engineering and Reliability** Y0701 594 G P E B 1
Textbooks: *Ethnotechnical Review Handbook*
by Freedman, Daniel P.
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Software Engineering : Design, Reliablity and Management
by Shooman, Martin L.
Software Reliability: Principles and Practices
by Myers, Glenford J.

1.23. New Mexico

New Mexico Institute of Mining and Technology
Department of Computer Science
Program in Computer Science
Socorro, NM, 87801, United States

Degrees: BS, MS, PHD

Contact: Prof. Sung, Andrew H.
Chairman
(505) 835-5949

Update: January 1989

Courses: **Software Construction** CS328 U P E O 6
Textbooks: *The Mythical Man-Month: Essays on Software Engineering* by Brooks, Frederick Phillips
Compilers: C
Computers: VAX 750 under UNIX
Languages: C

Design and Analysis of Software Systems CS528 G P E D 3
Compilers: C
Computers: VAX 750 under UNIX
Languages: C

Additional Information:
Software Construction is offered every 1 or 1 1/2 years.

University of New Mexico - Los Alamos
Department of Computer Science
Los Alamos, NM, 87544, United States

Degrees: AAS CS

Contact: Ms. Coop, Angela
Associate Director for Instruction
(505) 662-5919

Update: July 1987

Courses: **Introduction to Software Engineering** CS 260 U P R Y 2
Textbooks: *Software Engineering* by Sommerville, Ian
Compilers: C
UNIX BSD Pascal
Computers: VAX 11/750
Languages: Ada
C
Pascal

Additional Information:
Introduction to Software Engineering is required with Fundamentals of Data Structures (CS 363) as an alternative.

1.24. New York

City University of New York The Graduate School and University Center
Ph.D. Program in Computer Science
New York, NY, 10036-8099, United States

Degrees: PHD

Contact: Prof. Beckman, Frank S.
Executive Officer
(212) 790-4594

Update: June 1988

Courses: **Topics in Software Systems and Software Engineering** C.Sc. U813 X X X X 1

Clarkson University School of Science
Department of Mathematics and Computer Science
Potsdam, NY, 13676, United States

Degrees: BS, MS, PHD (not in Software Eng)

Contact: Dr. Fokas, A. S.
Chairman
(315) 268-2395

Update: September 1988

Courses: **Software Design and Development** MA 450 U N E Y 6
Textbooks: *Software Engineering Concepts* by Fairley, Richard E.
Computers: Gould
Z-100 MS DOS
Zenith 200

Software Tools MA 250 U P R Y 2
Compilers: Turbo C
Computers: Zenith 200
Languages: C

Columbia University School of Engineering and Applied Sciences
Department of Computer Science
New York, NY, 10027, United States

Degrees: BA, BS, MS, PHD

Contact: Dr. Kaiser, Gail E.
Assistant Professor
(212) 280-3856

Update: None

Courses: **Software Design Laboratory** W3152 U P R Y 1
Computers: UNIX

Software Engineering W4156 B P B Y 1

Programming Environments and Software Tools E6123 G P E X 1

Special Projects in Computer Science W3998, W4995, others B N E D 1
Computers: Tops 20
UNIX

Additional Information:
Programming Environments and Software Tools began in Spring 87.
Various projects in software engineering and other areas can be negotiated between one or more students and a faculty member. Often the projects involve a small piece of a faculty member's research and may be supervised by a Ph.D. student.

Iona College School of Arts and Science
Department of Computer and Information Sciences
Program in Computer Science
New Rochelle, NY, 10801, United States

Degrees: BA, BS, MS

Contact: Dr. Mallozzi, J.
Chair of Department
(914) 633-2578

Update: September 1988

Courses: **Software Engineering** CIS 390 U P E Y 4
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Compilers: PL/I Optimizing
Turbo Pascal
VS Pascal
Computers: PC & IBM mainframe
Languages: PL/I
Pascal
others

Introduction to Software Engineering CIS 640 G P E Y 1
Computers: IBM mainframe

Polytechnic University, Brooklyn Campus School of Engineering
Department of Electrical Engineering and Computer Science
Computer Science Division
Brooklyn, NY, 11201, United States

Degrees: BS CS, BS EE, MS CS, MS IS, PHD CS

Contact: Prof. Shooman, Martin L.
Professor

Update: None

Courses: **Software Engineering I** CS606 G P B O 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Computers: Software Engineering Laboratory

Software Engineering II CS607 G P E B 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Computers: Software Engineering Laboratory

Additional Information:
Formerly Polytechnic Institute of New York, Brooklyn Campus.
The B.S. in E.E. is offered with Computer Engineering Option.
Software Engineering I is offered twice a year.

Polytechnic University, Farmingdale Campus School of Engineering
Department of Electrical Engineering and Computer Science
Computer Science Division
Farmingdale, NY, 11735, United States

Degrees: BS CS, BS EE, MS CS, MS IS, PHD CS

Contact: Prof. Shooman, Martin L.
Professor

Update: None

Courses: **Software Engineering I** CS606 G P B O 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Computers: Software Engineering Laboratory

Software Engineering II CS607 G P E B 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Computers: Software Engineering Laboratory

Additional Information:
Formerly Polytechnic Institute of New York, Farmingdale Campus.
The B.S. in E.E. is offered with Computer Engineering Option.
Software Engineering I is offered twice a year.

Polytechnic University, Westchester Campus School of Engineering
Department of Electrical Engineering and Computer Science
Computer Science Division
White Plains, NY, 10605, United States

Degrees: BS CS, BS EE, MS CS, MS IS, PHD CS

Contact: Prof. Shooman, Martin L.
Professor

Update: None

Courses: **Software Engineering I** CS606 G P B Y 1
Textbooks: *Software Engineering: Design, Reliability, and Management*

by Shooman, Martin L.
Computers: Software Engineering Laboratory

Additional Information:
Formerly Polytechnic Institute of New York, Westchester Campus.
The B.S. in E.E. is offered with Computer Engineering Option.

Rensselaer Polytechnic Institute (Entry 1) School of Science
Department of Computer Science
Troy, NY, 12180, United States

Degrees: BS, MS, PHD

Contact: Prof. Flaherty, Joseph E.
Chairman
(518) 276-6348

Update: September 1988

Courses: **Design and Documentation** 66.496 U P R Y 2
Computers: Modula-2
UNIX WWB & PWB

Master's Project 66.698 G N R O 16

Software Design and Development 66.444 U P O Y 2
Textbooks: *Software Engineering: Planning for Change*
by Lamb, David Alex
Software Engineering Guidelines
by Priest et al.
Writing Better Computer Documentation
by Brockmann, R. John

Additional Information:
Design and Documentation and Software Leadership are proposed as part of a revised curriculum.
Master's Project is a substantial software design and implementation project done under close faculty supervision. It has a schedule which is individually arranged.

Rensselaer Polytechnic Institute (Entry 2) School of Engineering
Department of Electrical, Computer and Systems Engineering
Troy, NY, 12180, United States

Degrees: BS, ME, MS, PHD EE, PHD CSE, DENG

Contact: Prof. Flaherty, Joseph E.
Chairman
(518) 276-6348

Update: None

Courses: **Software Engineering I** 35.677 G P E Y 1
Textbooks: *Classics in Software Engineering*
by Yourdon, Edward N.
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.

Software Engineering II 35.678 G P E Y 1
Textbooks: *Classics in Software Engineering*
by Yourdon, Edward N.
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.

Rochester Institute of Technology School of Computer Science
Graduate Department of Computer Science
Rochester, NY, 14623, United States

Degrees: BS CS, MS CS

Contact: Dr. Anderson, Peter
Chairperson
(716) 475-2529

Update: None

Courses: **Software Engineering I** ICSS-801 G N E T 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.

Software Engineering Laboratory ICSS-802 G P E Y 1
Textbooks: *Reference Manuals for Software Systems*
Computers: Pyramid UNIX
VAX VMS

Additional Information:
An M.S. in Software Development and Management was first offered in Fall, 1987.

State University of New York at Binghamton The Thomas J. Watson School of Engineering, Applied Science and Technology
Department of Computer Science
Binghamton, NY, 13901, United States

Degrees: BS CS, MS CS, PHD AT/CS (PHD in Adv Tech with a specialization in CS)

Contact: Dr. Piatkowski, Thomas F.
Chairman
(607) 777-4803

Update: October 1988

Courses: **Software Engineering I** CS-545 G P E Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Software Engineering with Ada
by Booch, Grady
Compilers: ALSYS Ada
DEC Ada
Computers: IBM PC/AT
VAX 780
Languages: Ada

Software Engineering Analysis CS-546 G P E D 2
Textbooks: *Software Engineering: Design, Reliability, and Management*

by Shooman, Martin L.
Compilers: ALSYS Ada
DEC Ada
Computers: IBM PC/AT
VAX 780
Languages: Ada

Software Engineering I (cross listed with CS-545) CS-345 U P E B 5
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Software Engineering with Ada
by Booch, Grady
Compilers: ALSYS Ada
DEC Ada
Computers: IBM PC/AT
VAX 780
Languages: Ada

Additional Information:
Miscellaneous software engineering projects have been undertaken. For example, a group study produced a lengthy report on how to implement a Masters degree in "Software and Computer Systems Engineering." Future projects will involve major studies of software methodologies, software metrics, software design as well as the design and implementation of large software projects.

State University of New York at Stony Brook College of Engineering and Applied Science
Department of Computer Science
Stony Brook, NY, 11794, United States

Degrees: BS, MS, PHD

Contact: Prof. Henderson, Peter B.
Graduate Program Director
(516) 632-8470

Update: May 1987

Courses: **Techniques of Software Design** MSC-520 G N R Y 11
Textbooks: *IEEE Tutorial on Software Engineering*
by Wasserman, Anthony I. and Freeman, Peter
Software Engineering Concepts
by Fairley, Richard E.
Compilers: Berkeley UNIX Pascal
Computers: VAXes and Sun workstations under UNIX 4.3 BSD
Languages: CLU
Modula-2
Pascal

Union College School of Computer Science
Department of Electrical Engineering and Computer Science
Schenectady, NY, 12308, United States

Degrees: BS, MS

Contact: Prof. Hannay, David
Co-Chair EE/CS Department

(518) 370-6270

Update: None

Courses: **Software Engineering** CSC-260 U P X Y 1
Textbooks: *C Primer*
by Hancock, L. and Krieger, M.
Classics in Software Engineering
by Yourdon, Edward N.
Computers: VAX

1.25. North Carolina

North Carolina State University
Department of Computer Science (Undergraduate)
Program in Computer Studies (Graduate)
Raleigh, NC, 27695, United States

Degrees: BS, MS, MCS

Contact: Prof. Tai, K. C.
Professor
(919) 737-7862

Update: May 1987

Courses: **Software Engineering** CSE 510 G P E Y 10
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Software Engineering Concepts by Fairley, Richard E.
Compilers: Pascal/VS
UCSD Pascal
Computers: IBM 4381 (VM/CMS)
MicroVAX (Ultrix)
SAGE (UCSD p system)
Languages: Pascal

Software Engineering Project CSC 472 U P E Y 4
Compilers: Verdix C
Computers: MicroVAX (Ultrix)
Languages: C and UNIX Shell

Intro to Programming Environments CSC 471 U P E Y 4
Compilers: Verdix C
Computers: MicroVAX (Ultrix)
Languages: C and UNIX Shell

Software Engineering with Ada CSC 481 U P E Y 4
Textbooks: *Software Engineering with Ada* by Booch, Grady
Compilers: Verdix Ada
Computers: MicroVAX (Ultrix)
Languages: Ada

University of North Carolina at Chapel Hill College of Arts and Sciences
Department of Computer Science
Chapel Hill, NC, 27599-3175, United States

Degrees: MS, PHD

Contact: Ms. Coble, Katrina
Admissions
(919) 962-1931

Update: January 1989

Courses: **Software Engineering Laboratory** Comp 145 B P R Y 23

Textbooks: *IEEE Tutorial on Software Design Techniques*
by Freeman, Peter and Wasserman, Anthony I.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips

Computers: Macintoshes
Masscomps
Special graphics computers
Suns
VAXes

Languages: C
C++
Smalltalk

1.26. North Dakota

North Dakota State University College of Science and Mathematics
Department of Computer Science
Fargo, ND, 58105, United States

Degrees: BS, MS, PHD

Contact: Prof. Magel, Kenneth
Chair, Comp. Sci. and Operation Research
(701) 237-8189

Update: October 1988

Courses: **Software Development** CS 513 G P X Y 1
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Computers: VAX 11/780 running Berkeley UNIX 4.3
Zenith PCs running MS DOS 3.1

Systems Analysis CS 213 U P X Y 1
Computers: IBM 3081 using CMS

System Testing and Maintenace CS 313 U P R Y 1
Textbooks: *The Art of Software Testing* by Myers, Glenford
Compilers: Macintosh Pascal
Computers: Macintosh II
Languages: Pascal

Additional Information:
Every undergraduate takes at least four courses that require substantial projects. Every graduate student takes at least two courses that require substantial projects. Several courses at all levels devote 2-3 weeks each to software engineering methodologies, concepts, or practices.

1.27. Ohio

Air Force Institute of Technology School of Engineering
Department of Computer Engineering
Wright-Patterson AFB, OH, 45433-6583, United States

Degrees: MS, MS CE, MS EE, PHD

Contact: Dr. Howatt, James W.
Assistant Professor of Computer Systems
(513) 255-6913

Update: September 1988

Courses: **Software Project Management** AMGT553 G N O A 3
Textbooks: Locally produced lecture notes and articles from open literature

Software Engineering EENG593 G P R T 8
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: VAX 11/785 UNIX

Software Systems Programming Laboratory EENG690 G P R A 6
Compilers: JANUS/Ada
Computers: Zenith Z-248 (MS-DOS)
Languages: Ada

Advanced Software Engineering EENG793 G P E Y 6

Introduction to Software Engineering with Ada MATH 555 G N R T 6
Textbooks: *Ada Primer*
by SofTech, Inc.
Reference Manual for the Ada Programming Language
by ANSI/MIL-STD-1815A
Software Components with Ada: Structures, Tools, and Subsystems
by Booch, Grady
Software Engineering with Ada
by Booch, Grady
Compilers: Verdix Ada
Computers: VAX 11/785 UNIX
Languages: Ada

Advanced Software Environments MATH755 G P E Y 4
Textbooks: *Programming with APSE Software Tools*
by Freedman, Roy S.
Research Directions in Software Technology
by Wegner, Peter
Computers: VAX 11/785 UNIX

Additional Information:
In Software Project Management, students run assorted cost estimation programs and project scheduling software.

Bowling Green State University School of Arts and Sciences
Department of Computer Science
Bowling Green, OH, 43402, United States

Degrees: BS CS, MS CS

Contact: Dr. Mynatt, Barbee
Associate Professor
(419) 372-2339

Update: November 1987

Courses: **Software Development** 464 U P E Y 8
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: IBM PC
Macintosh
Languages: Pascal

Software Engineering 564 G P E Y 5
Languages: SAS (Statistical Analysis System)

Cleveland State University James J. Nance College of Business Administration
Department of Computer and Information Science
Cleveland, OH, 44115, United States

Degrees: BS CIS, MS CIS

Contact: Prof. Heines, Thomas S.
Chairman
(216) 687-4760

Update: November 1987

Courses: **Structured Systems Analysis** CIS 433 U P E O 6
Textbooks: *Structured Analysis Methods for Computer Information Systems*
by Teague, Lavette C. and Pidgeon, Christopher

Structured Systems Design CIS 434 U P E O 6
Textbooks: *The Practical Guide to Structured Systems Design*
by Page-Jones, Meilir
Computers: IBM 3081
IBM PC
Languages: COBOL
PSL/PSA
Structured Architect
dBase III

Software Engineering CIS 620 G P R O 6
Textbooks: *System-370 Job-Control Language*
by Brown, Gary D.
The C Programming Language
by Kernighan, Brian and Ritchie, Dennis
Computers: IBM 3081
VAX 11/750

Systems Analysis and Design CIS 634 G P E O 6
Textbooks: *The Practical Guide to Structured Systems Design*
by Page-Jones, Meilir
Computers: IBM 3081
IBM PC
Languages: COBOL
PSL/PSA

Structured Architect
dBase III

Additional Information:
Structured Systems Analysis and Structured Systems Design are offered 2-3 times per year. Software Engineering is offered 3 times per year. Systems Analysis and Design is offered 2 times per year.

Kent State University School of Arts and Sciences
Department of Mathematical Sciences
Program in Mathematics/Computer Science
Kent, OH, 44242, United States

Degrees: BS, MS, PHD

Contact: Prof. Rothstein, Michael
Assistant Professor
(216) 672-2430

Update: May 1987

Courses: **Software Engineering** 63251 G P E Y 6
Textbooks: *Software Engineering*
by Sommerville, Ian
Compilers: C
Pascal
Computers: VAX 750 (UNIX)

Software Engineering Projects 43107 U P E D 3
Textbooks: *Software Engineering*
by Sommerville, Ian
Computers: UNIX

Wright State University College of Engineering and Computer Science
Department of Computer Science and Engineering
Programs in Computer Science, Computer Eng., Computer Science and Eng. (Ph.D.)
Dayton, OH, 45435, United States

Degrees: BA, BS, BS CE, MS, MS CE, PHD

Contact: Prof. Carson, Howard V.
Assistant to the Chair
(513) 873-2491

Update: October 1988

Courses: **Software Engineering I** Software Engineering 760 G P E Y 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: compiler suitable to project
Computers: computer suitable to project
Languages: language suitable to project

Software Engineering II Software Engineering 761 G P E Y 1
Textbooks: *Approaches to Prototyping*
by Budde, Reinhard

Tutorial: Software Reusability
by Freeman, Peter
Compilers: compiler suitable to project
Computers: computer suitable to project
Languages: language suitable to project

Introduction to Software Engineering Computer Engineering 460/660 B P R T 1
Textbooks: *Software Engineering Concepts*
by Fairley, R. E.
Software Engineering with Ada 2nd ed.
by Booch, Grady
Compilers: VAX Ada compiler
Computers: DEC VAX 11/785 running VMS
Languages: Ada

Concurrent Software Design Computer Engineering 434/634 B P R T 1
Textbooks: *Advanced Programmers Guide to UNIX SYSTEM V*
by Thomas, Rebecca and Yates, Jean
Operating Systems Concepts
by Peterson, James L. and Silberschatz, Abraham
The C Programming Language
by Kernighan, Brian W. and Ritchie, Dennis M.
Compilers: C
Computers: NCR Tower 32/600 running UNIX System V
Languages: C

Additional Information:

Data Structures and Software Design (unlisted) involves some software engineering. A local area network of eight SUN-3 UNIX workstations with high resolution terminals, including one color display, were available in 1987 to provide a powerful software development environment.

1.28. Oklahoma

Rogers State College
Computer Science Division
Claremore, OK, 74017, United States

Degrees: AAS CAD, AAS CET, AAS CP, AS CS

Contact: Prof. Layton, Clifford D.
Director, Computer Science Division
(918) 341-7510 x286

Update: None

Courses: **Software Engineering (Systems Analysis and Design)** CS 2133 X X R X 1

1.29. Oregon

Oregon State University School of Science
Department of Computer Science
Program in Computer Systems
Corvallis, OR, 97331, United States

Degrees: BS, MS, PHD

Contact: Prof. Lewis, Ted
Professor
(503) 754-3273

Update: None

Courses: **Software Design** CS 319 U P R T 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Computers: IBM PC
Macintosh
UNIX (HP)

Software Systems: Methodology CS 561 G P R Y 1
Computers: Macintosh
Languages: C
Modula-2
Pascal

Software Systems: Design CS 562 G P R Y 1
Computers: Macintosh
Languages: C
Modula-2
Pascal

University of Oregon School of Arts and Sciences
Department of Computer and Information Science
Eugene, OR, 97403, United States

Degrees: BA, BS, MA, MS, PHD

Contact: Prof. Eliason, Alan
Associate Professor
(503) 686-4408

Update: October 1988

Courses: **Software Methodology I** CIS 422 U P R T 11
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Practical Guide to Structured Systems Design
by Page-Jones, Meilir
Writing Efficient Programs
by Bentley, Jon Louis
Computers: Apollo workstations
Tektronic 4404 Pegasus
VAX 11/750

Languages: C
RAPID
Smalltalk

Software Methodology II CIS 423 U P E O 11
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Practical Guide to Structured Systems Design
by Page-Jones, Meilir
Writing Efficient Programs
by Bentley, Jon Louis
Computers: Apollo workstations
Microcomputers
Tektronic 4404 Pegasus
VAX 11/750
Languages: C
RAPID
Smalltalk

Software Engineering CIS 510 G N R Y 11
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Proceedings
by ACCA
Software Specification Techniques
by Gehani, Narain and McGettrick, Andrew D.
Computers: VAX 11/750
Languages: C
RAPID
Smalltalk

Additional Information:

Software Methodology II is offered two or three times a year.
Other courses are offered in Expert Systems and Database Management Systems at graduate level.

1.30. Pennsylvania

Carnegie Mellon University
School of Computer Science
Pittsburgh, PA, 15213, United States

Degrees: PHD CS

Contact: Dr. Habermann, A. Nico
Professor and Dean
(412) 268-2592

Update: February 1989

Courses: **Software Engineering** 15-413 U P E Y 15
Textbooks: *Software Engineering: A Practitioner's Guide*
by Pressman, Roger S.
Compilers: Ada
C
Lisp
Computers: Andrew workstations
UNIX on Vax
Languages: Ada
C
Lisp

Drexel University College of Science
Department of Mathematics and Computer Science
Philadelphia, PA, 19104, United States

Degrees: BS CS, MS CS, PHD CS

Contact: Dr. Popyack, Jeffrey L.
Program Coordinator for Computer Science
(215) 895-2668

Update: October 1988

Courses: **Software Engineering I** N677 U P R Y 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Specification of Complex Systems
by Cohen, B., Harwood, W.T., and Jackson, M.I.
Compilers: Lightspeed Pascal
Prime C
Sheffield Pascal
Computers: Apple Macintosh
IBM PC/AT
Prime 9955
Languages: C
Pascal

Software Engineering II N678 U P E Y 6
Textbooks: *Software Engineering: A Practitioner's Approach (required)*
by Pressman, Roger S.

Specification of Complex Systems (recommended)
by Cohen, B., Harwood, W.T., and Jackson, M.I.
Compilers: Lightspeed Pascal
Prime C
Sheffield Pascal
Computers: Apple Macintosh
IBM PC/AT
Prime 9955
Languages: C
Pascal

Software Engineering I M745 G P E B 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: Prime C
Sheffield Pascal
Computers: Prime 9955
Languages: C
Pascal

Software Engineering II M746 G P E B 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: Prime C
Sheffield Pascal
Computers: Prime 9955
Languages: C
Pascal

Topics in Software Engineering M748 G P E D 6

Lehigh University College of Engineering and Physical Sciences
Department of Electrical Engineering
Bethlehem, PA, 18015, United States

Degrees: BS CS, BS CE, BS EE, MS CS, MS CE, MS EE, PHD CS, PHD CE, PHD EE

Contact: Dr. Varnerin, Larry
Chairman
(215) 758-4823

Update: May 1987

Courses: **Software Engineering** ECE 116 U P R Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Computers: CYBER 180 Model 850
DEC 20 Model 2065
Zenith Z-100 PC series

Temple University College of Engineering, Computer Sciences and Architecture
Department of Computer and Information Sciences
Programs in Computer Science and Information Science
Philadelphia, PA, 19122, United States

Degrees: BA, BS, BBA, MA, MS BA, PHD, PHD BA

Contact: Ms. Shteir, Laurie
(215) 787-1681

Update: September 1988

Courses: **Theorem Proving and Program Verification** 675 G P E X 1
Textbooks: *An Introduction to the General Theory of Algorithms*
by Machtey, M. and Young, P.
The Design of Well-Structured and Correct Programs
by Alagic, Saud and Arbib, Michael A.

Software Engineering 690 G N E X 3
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Computers: OPS5
Pascal
VMS

Information Systems Analysis and Design 201 U P R T 1
Textbooks: *Elements of Systems Analysis*
by Gore, Marvin and Stubbe, John

Project in Information Science 301 U P R T 1
Computers: AT&T 3B2
PCs

Software Design 338 U P E Y 1
Textbooks: *Reliable Software Through Composite Design*
by Myers, Glenford J.
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Structured Design
by Yourdon, Edward N. and Constantine, Larry
Computers: IBM 4381 PCs

Additional Information:
Business Administration programs with concentration in Computer and Information Science.

The Pennsylvania State University College of Science
Computer Science Department
Program in Computer Science
University Park, PA, 19802, United States

Degrees: BS, MS, PHD

Contact: Dr. Lambert, Joseph M.
Department Head
(814) 865-9505

Update: June 1987

Courses: **Software Design Methods** 498 U P E Y 2
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Compilers: IBM Ada
Computers: IBM 3090
Languages: Ada

University of Pennsylvania School of Engineering and Applied Science
Department of Computer and Information Science
Program in Computer Science and Engineering
Philadelphia, PA, 19104, United States

Degrees: BSE

Contact: Dr. Badler, Norman I.
Undergraduate Chair
(215) 898-5862

Update: January 1989

Courses: **Interactive System Design** CSE 280 U P E B 1
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Computers: Color Graphics
IBM PC/XT/AT
VAX 8650

University of Pittsburgh School of Library and Information Science
Interdisciplinary Department of Information Science
Pittsburgh, PA, 15260, United States

Degrees: BS, MS, PHD

Contact: Dr. Korfhage, Robert R.
Chairman
(412) 624-9420

Update: June 1987

Courses: **Information Systems Analysis, Design, and Evaluation** INF SC 272 G P E O 6

Textbooks:	*Software Engineering: A Practitioner's Approach, 2nd ed.* by Pressman, Roger S.
	Software Psychology by Shneiderman, Ben
Compilers:	C
	COBOL
	FORTRAN
	Pascal
Computers:	IBM PC
	Mac
	VAX 780
	VAX 8650
Languages:	C
	Pascal

Software Engineering and Software Tools INF SC 276 G P E O 5

Textbooks:	*Fundamentals of Systems Analysis, 3rd ed.* by FitzGerald, Jerry and FitzGerald, Ardra
Compilers:	C
	COBOL
	FORTRAN
	Pascal
Computers:	IBM PC
	Mac
	VAX 780
	VAX 8650
Languages:	C
	Pascal

Additional Information:
Here are the projected schedules for the courses:
- Information Systems Analysis, Design, and Evaluation
  - 1988-89 : Winter Term
  - 1989-90 : Fall Term
  - 1990-91 : Fall Term
- Software Engineering and Software Tools
  - 1988-89 : Fall and Spring Terms
  - 1989-90 : Winter Term
  - 1990-91 : Spring Term

Villanova University College of Liberal Arts and Sciences
Mathematical Sciences Department

Villanova, PA, 19085, United States

Degrees: BS CS, BS M, MS CS, MA M

Contact: Dr. Joyce, Daniel
(215) 645-7344

Update: January 1989

Courses: **Software Engineering** CSC 4700 U P R Y 2
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
Compilers: Logitech Modula-2/86
Pascal
Computers: PCs
Languages: Modula-2

Software Engineering CSC 8540 G N E T 2
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.

Additional Information:
One of the requirements for the Master's degree in Computer Science is writing an independent study. This often assumes the form of a major project, sometimes a group project, embodying principles of software engineering.

1.31. South Carolina

Clemson University College of Sciences
Department of Computer Science
Clemson, SC, 29634-1906, United States

Degrees: BS, BS CIS, MS, PHD CS

Contact: Dr. Turner, A. Joseph
Professor and Chairman
(803) 656-3444

Update: October 1987

Courses: **Software Development Methodology** CpSc 472/672 B P B O 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: Ultrix C
Computers: DEC VAX 11/780 running Ultrix
Languages: C

Design and Programming Methodology CpSc 872 G P E Y 3
Textbooks: *Software Specification Techniques*
by Gehani, Narain and McGettrick, Andrew D.
Languages: Various specification languages

Software Verification, Validation, and Measurement CpSc 873 G P E O 1
Textbooks: *IEEE Tutorial: Software Testing and Validation Techniques*
by Miller, Edward and Howden, William E.

Additional Information:
Software Development Methodology is offered once or twice per year. Software Verification, Validation, and Measurement is offered every two years when demand warrants.

1.32. Tennessee

East Tennessee State University School of Applied Science and Technology
Department of Computer and Information Sciences
Programs in Computer Science and Information Science
Johnson City, TN, 37614, United States

Degrees: BS, MS

Contact: Dr. Bailes, Gordon L.
Chairman
(615) 929-5332

Update: September 1988

Courses: **Software Engineering** 222-3250 U P R T 8
Textbooks: *Systems Analysis and Design Methods* by Whitten, Bentley, and Ho
Compilers: Meridian AdaVantage
TeleSoft Ada
Computers: IBM 4341 under CMS
IBM PC
TI PC
Languages: Ada
COBOL
PL/I

Information Analysis 222-5200 G P B Y 2
Textbooks: *Advanced Structured Analysis and Design* by Peters, Laurence
Software Engineering: A Practitioner's Approach by Pressman, Roger S.
Computers: TI Business Pro
Languages: Teamwork/PCSA by Cadre

Systems Design 222-5300 G P B Y 2
Textbooks: *Advanced Structured Analysis and Design* by Peters, Laurence
Software Engineering: A Practitioner's Approach by Pressman, Roger S.
Software Engineering with Ada by Booch, Grady
Compilers: Janus Ada under MS-DOS
Meridian AdaVantage
TeleSoft Ada under VM/CMS
Computers: IBM 4341
TI PC
VAX
Languages: Ada
Teamwork/PCSA by Cadre

Advanced Techniques in Ada 222-3310 U P E Y 11
Compilers: TeleSoft Ada
Computers: IBM 4341
Languages: Ada

University of Tennessee at Chattanooga School of Engineering
Department of Computer Science
Chattanooga, TN, 37403, United States

Degrees: BS CS, MS CS

Contact: Dr. Thompson, Jack
Head, Computer Science
(615) 755-4329

Update: July 1987

Courses: **Software Engineering I** 350 U P R O 9
Textbooks: *Systems Analysis and Design Methods* by Whitten, Bentley, and Ho
Compilers: PL/I
Computers: IBM 4381
Languages: PL/I

Software Engineering II 450 B P E Y 2
Textbooks: *Software Engineering Concepts* by Fairley, Richard E.
Compilers: PL/I
Computers: IBM 4381
Languages: PL/I

Additional Information:
Software Engineering I is offered twice per year.

Vanderbilt University School of Engineering
Department of Computer Science
Nashville, TN, 37235, United States

Degrees: BA, BS, MS, ME, PHD

Contact: Dr. Schach, Stephen R.
Director of Graduate Studies
(615) 322-2924

Update: May 1987

Courses: **Software Engineering** CS352 G P E Y 3
Textbooks: *Ada, an Advanced Introduction* by Gehani, Narain
Compilers: VAX Ada
Computers: VAX 11/785
Languages: Ada

1.33. Texas

Rice University
Department of Computer Science
Program in Computer Science
Houston, TX, 77251-1892, United States

Degrees: BA CS

Contact: Prof. Kennedy, Ken
Chairman
(713) 527-4834

Update: September 1988

Courses: **Programming Studio** COMP 310 X P X Y 3
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, B. and Guttag, John
Compilers: Powell's Modula-2 compiler on VAX
moving to C++ compiler on SUN/UNIX
Computers: VAX - 11/750
moving to SUN - 3/50
Languages: Modula-2
moving to C++

Southwest Texas State University School of Science
Department of Computer Science
San Marcos, TX, 78666, United States

Degrees: BA, BS, MA, MS

Contact: Dr. Hwang, C. J.
Chairman
(512) 245-3409

Update: June 1987

Courses: **Software Engineering** CS 3398 U P E Y 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Compilers: C
FORTRAN
Pascal
Computers: VAX 8600 with VMS

Advanced Software Engineering CS 5398 G P E Y 3
Textbooks: *Principles of Information System Analysis and Design*
by Mills, Linger, and Hevner
Software Engineering with Ada
by Booch, Grady
Compilers: VAX Ada
VAX C
Computers: VAX 8600 with VMS
Languages: Ada

C

Stephen F. Austin State University School of Business Administration
Department of Computer Science
Nacogdoches, TX, 75962, United States

Degrees: BBA, BS, MS, MS CS

Contact: Dr. Grout, Jarrell C.
Professor
(409) 568-1876

Update: October 1988

Courses: **Software Development Principles** 513 G N E B 2
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.

Texas Christian University AddRan College
Computer Science Department
Ft. Worth, TX, 76129, United States

Degrees: MSDD

Contact: Dr. Comer, James R.
Chairman
(817) 921-7166

Update: October 1987

Courses: **Introduction to Software Design and Development** SODE 5143 G N R Y 9
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.

Ada Design and Development SODE 6013 G P E D 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: DEC Ada
Computers: DEC VAX 11/780
Languages: Ada

Software Quality Assurance and Metrics SODE 6043 G P E D 4
Textbooks: *Software Metrics*
by Gilb, Tom

Security and Privacy SODE 6053 G P E D 4
Textbooks: *Foiling the System Breakers: Computer Security and Access Control*
by Lobel, Jerome

Modern Software Requirements and Design Techniques SODE 6113 G P R Y 8
Textbooks: *Software Design: Methods and Techniques*
by Peters, Lawrence J.
Structured Requirements Definition
by Orr, Kenneth T.

Applied Design, Programming and Testing Techniques SODE 6123 G P R Y 8
Textbooks: *IEEE Tutorial on Software Maintenance*
by Parikh, Girish and Zvegintzov, Nicholas
The Art of Software Testing
by Myers, Glenford J.

Management of Software Development SODE 6153 G P R Y 8
Textbooks: *Controlling Software Projects*
by DeMarco, Tom
Management Methodology for Software Product Engineering
by Gunther, Richard C.

Economics of Software Development SODE 6163 G P R Y 8
Textbooks: *Software Engineering Economics*
by Boehm, Barry W.

Effective Communications in Small Groups SODE 6193 G P E D 3
Textbooks: *Task Design: An Integrative Approach*
by Griffin, Ricky W.

Software Implementation Project I SODE 7113 G P R Y 7

Software Implementation Project II SODE 7123 G P R Y 7

The University of Texas at Arlington The College of Engineering
Department of Computer Science Engineering
Arlington, TX, 76019, United States

Degrees: BS, MS CS, MS CSE, ME CSE, PHD CS, PHD CSE

Contact: Dr. Grabow, Paul C.
Assistant Professor
(817) 273-2348

Update: September 1988

Courses: **Methods in Software Engineering** CSE 4310 U P E Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
Compilers: Pascal
Computers: VAX 11/780
Languages: Pascal

Software Engineering CS 5324 G P R O 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
Compilers: Ada
Pascal
Computers: VAX 11/780
Languages: Ada
Gypsy
ISML
Prolog

Advanced Software Engineering CS 6324 G P E Y 6
Textbooks: *Applying Software Engineering Principles with FORTRAN*

by Marca, David
Compilers: Ada
Pascal
Computers: VAX 11/780
Languages: Ada
Pascal

Software Engineering in Ada CSE 5321 G P E O 2
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Compilers: DEC Ada
Computers: VAX 11/780
Languages: Ada

Managing System Development CSE 5346 G P E Y 1
Textbooks: *Cost Estimation for Software Development*
by Londeix, B.
Principles of Software Engineering Management
by Gilb, T.
Compilers: DEC Pascal
Computers: VAX 8700
Languages: Pascal

Additional Information:
Software Engineering is offered twice per year (spring and summer).
Software Engineering in Ada is offered intermittently.

The University of Texas at Austin College of Natural Science
Department of Computer Science
Austin, TX, 78712, United States

Degrees: BA, BS, MS, PHD

Contact: Dr. Werth, Laurie
Professor
(512) 471-7316

Update: January 1989

Courses: **Software Engineering** CS373 U P E T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Compilers: C
Excelerator
IDE
Smalltalk (Parc Place)
Teamwork
Toolgenerators
Computers: HP9000 workstations
Macintosh
Languages: Ada
C
Pascal
Smalltalk

Large Scale Software Development CS 395T G N E B 3
Textbooks: *Managing a Programming Project*
by Metzger, Philip W.

Software Engineering Economics EE 382M G N E Y 4
Textbooks: *Software Engineering Economics*
by Boehm, Barry W.
Software Engineering Metrics and Models
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Additional Information:
We integrate Software Engineering in the CS 1, CS 2 (Pascal), and Data Structures sequence at the undergraduate level.

The University of Texas at Dallas School of Natural Sciences and Mathematics
Program in Computer Science
Richardson, TX, 75083, United States

Degrees: BS, MS, PHD

Contact: Dr. Ntafos, Simeon
Associate Professor and Program Head
(214) 690-2181

Update: None

Courses: **Software Engineering** CS 6354 G N E Y 1
Textbooks: *Software Engineering*
by Sommerville, Ian

Software Validation, Verification, and Performance Measurement CS 6367 G P E O 1

Additional Information:
Software Validation, Verification, and Performance Measurement is offered twice every three years.

The University of Texas at San Antonio College of Science and Engineering
Division of Mathematics, Computer Science and Systems Design
Program in Computer Science
San Antonio, TX, 78285, United States

Degrees: BS, MS

Contact: Dr. Hanavan, E. Patrick

Update: None

Courses: **Programming Methodology** CS 3773 U P R O 1
Textbooks: *Automated Data Systems Documentation Standards*
by unknown
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
The Elements of Programming Style
by Kernighan, Brian and Plauger, P.J.
Computers: IBM 4381 with CMS
VAX 11/780 with VMS

Software Design CS 5103 G P E O 1
Textbooks: *The Program Development Process: Part II: The Programming Team*
by Aron, Joel D.

Computers: IBM 4381 with CMS

Software Configuration Management CS 5143 G P E O 1
Textbooks: *Software Configuration Management: An Investment in Product Integrity* by Bersoff, Edward et al.

Software Testing CS 5133 G P E O 1
Textbooks: *The Art of Software Testing* by Myers, Glenford J.
Computers: VAX 11/780 with VMS

Additional Information:
Programming Methodology is offered in Fall and Spring semesters. Software Design, Software Configuration Management, and Software Testing are offered together in regular semester rotation.
The graduate courses (5103, 5133, 5143) comprise a depth area of study for graduate students, who must develop at least three such areas in their course of study.

University of Houston - Clear Lake School of Natural and Applied Sciences
Department of Computer Science and Information Systems
Program in Computer Science
Houston, TX, 77058, United States

Degrees: BA CIS, BS CS, MA CIS, MS CS

Contact: Dr. Collins, George C.
Asst. Dean & Director of Student Affairs
(713) 488-9386

Update: September 1988

Courses: **Ada Programming Language** CSCI 3432 U P R T 1
Textbooks: *Ada as a Second Language* by Cohen, Norman H.
Reference Manual for the Ada Programming Language by ANSI/MIL-STD-1815A
Computers: VAX 11/785

Software Design Methodologies CSCI 4432 U P E Y 3
Textbooks: *A Unified Methodology for Developing Systems* by Wallace, Stockenberg and Charette
Compilers: Ada (DEC)
Computers: VAX 11/785
Languages: Ada

Sotware Design Tools CSCI 5435 G P E Y 1
Textbooks: *Software Engineering* by Sommerville, Ian
Compilers: Ada (DEC)
Computers: VAX 11/785
Languages: Ada

Additional Information:
UH-CL has a strong emphasis on the engineering of computer automated systems, which includes the integration and trade-off studies of issues involving software, hardware, and people. Therefore, several research projects and these have a strong component of software engineering. In addition, two system-level courses offered annually that contain such a component are Computer Automated Systems (CTEC 4532) and Synthesis of Computer Networks (CTEC 6532).

1.34. Utah

Brigham Young University College of Math and Applied Sciences
Department of Computer Science
Provo, UT, 84602, United States
Degrees: BS CS, MS CS, PHD CS

Contact: Prof. Woodfield, Scott N.
Associate Professor
(801) 378-2915

Update: November 1987

Courses: **Introduction to Software Design** CS 327 U P R O 10
Textbooks: *Composite Structure Design*
by Myers, Glenford J.
Software Engineering
by Sommerville, Ian
Computers: UNIX (VAX, Sun Microsystems, 3B2)
Languages: Ada
Eiffel

Software Testing CS 429 U P E O 10
Textbooks: *Software Testing Techniques*
by Beizer, Boris

Systems Analysis CS 425 U P E O 10
Textbooks: *Structured Analysis and System Specification*
by DeMarco, Tom
Structured Systems Analysis: Tools and Techniques
by Gane, Chris and Sarson, Trish

Software Development and Maintenance CS 525 G P E O 4
Textbooks: *IEEE Tutorial on Software Design Techniques*
by Freeman, Peter and Wasserman, Anthony I.

Software Management and Quality Assurance CS 527 G P E O 4
Textbooks: *IEEE Tutorial: Software Configuration Management*
by Bryan, William, Chadbourne, Christoper, and Siegel, Stan
Software Cost Estimation and Life-Cycle Control
by Putnam, Lawrence H.
Software Quality Assurance: A Practical Approach
by Chow, Tsun S.

Theory of Software Engineering CS 627 G P E O 4

Additional Information:
Introduction to Software Design is offered 3 times/year. Software Testing and Systems Analysis are offered once or twice per year. Software Development and Maintenance, Software Management and Quality Assurance, and Theory of Software Engineering are offered once every 3 semesters.

University of Utah
Department of Computer Science
Salt Lake City, UT, 84112, United States

Degrees: MS, PhD

Contact: Jenson, Susan
Administrative Officer
(801) 581-8224

Update: February 1989

Courses: **Software Engineering Laboratory** CS 451,CS 452,CS 453 U P X X

Software Engineering CS 631 B P X X
Textbooks: *Abstraction and Specification in Program Development* by Liskov, B.
Compilers: Clue Compiler
Computers: DEC VAX 11/780
SUN 3/280
Languages: Clue

Software Engineering CS 632 B P X X
Textbooks: Various published papers
Compilers: Student's choice
Computers: DEC VAX 11/780
Various others
Languages: Student's choice

Utah State University College of Science
Department of Computer Science
Logan, UT, 84322-4205, United States

Degrees: BS, MS

Contact: Prof. Jones, Greg
Associate Professor
(801) 750-3267

Update: October 1988

Courses: **Software Development/Implementation** CS 655-6 G P E O 9
Textbooks: *Software Engineering Concepts* by Fairley, Richard E.
Compilers: TeleSoft Ada
Computers: HP 9000
Macintosh
PC clones
VAX 8500
Languages: Ada

Software Systems CS 456 U P R O 8
Textbooks: *Software Engineering Methodology* by Turner, Ray
Compilers: VMS
Computers: VAX 8500
Languages: Pascal

Additional Information:
Software Development/Implementation is offered twice a year, and Software Systems is offered 3 times/year.

1.35. Virginia

College of William and Mary School of Arts and Sciences
Department of Computer Science
Williamsburg, VA, 23185, United States

Degrees: BS CS, MS CS, PHD CS

Contact: Dr. Noonan, Robert E.
Professor
(804) 253-4748

Update: September 1988

Courses: **Software Tools and Environments** CS 435, 535 B P E Y 5
Textbooks: *Software Tools in Pascal*
by Kernighan, Brian and Plauger, P.J.
Compilers: Sheffield Pascal
Computers: Primes
Languages: Pascal

Software Engineering CS 555 G P E O 11
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Compilers: Sheffield Pascal
Computers: Primes
Languages: Pascal

Human Factors CS 575 G P E B 5
Textbooks: *Software Psychology: Human Factors in Computer and Information Systems*
by Shneiderman, Ben
Compilers: Sheffield Pascal
Computers: Primes
Languages: Pascal

Theory of Program Correctness CS 552 G P B O 5
Textbooks: *The Science of Programming*
by Gries, David
Compilers: Sheffield Pascal
Computers: Primes
Languages: Pascal

Program Testing CS 605 G P E B 5
Compilers: Sheffield Pascal
Computers: Primes
Languages: Pascal

Additional Information:
Software Engineering and Theory of Program Correctness are offered once every 3 semesters.

University of Virginia School of Engineering and Applied Science
Department of Computer Science
Charlottesville, VA, 22903, United States

Degrees: MS CS, MCS, PHD

Contact: Prof. Cook, Robert P.
Chairman
(804) 924-7605

Update: June 1987

Courses: **Software Engineering Laboratory** CS 485 U P R Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: Sheffield Pascal
Computers: Prime
Languages: Pascal

Software Engineering CS 685 G P E Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: AT&T C
Sheffield Pascal
Computers: AT&T 3B5s
Prime
Languages: Ada
C
Pascal

Software Engineering CS 885 G N E D 1

Virginia Commonwealth University School of Arts and Sciences
Department of Mathematical Sciences
Program in Computer Science
Richmond, VA, 23284, United States

Degrees: BA, BS, MA, MS

Contact: Dr. Haver, William E.
Department Chairman
(804) 257-1301

Update: None

Courses: **Software Engineering** 591 B P E D 1
Textbooks: *Software Engineering*
by Sommerville, Ian
Computers: IBM 3170
IBM PC
IBM PC/AT
Pyramid mini-computer network

1.36. Washington

Seattle University School of Science and Engineering
Department of Software Engineering/Computer Science
Program in Software Engineering
Seattle, WA, 98122, United States

Degrees: MSE

Contact: Dr. Mills, Everald E.
Director of Soft. Eng. and Comp. Sci.
(206) 626-5464

Update: September 1988

Courses: **Technical Communication** SE 508 G N R Y 9
Textbooks: *Software Communication Skills*
by Glass, Robert
Computers: Encore
Macintosh
PCs
Languages: C
Pascal

Software Systems Analysis SE 510 G P R Y 9
Textbooks: *Structured Analysis and System Specification*
by DeMarco, Tom
Computers: Encore
Macintosh
PC
Languages: Various languages

System Design Methodology SE 512 G P R Y 9
Textbooks: *The Practical Guide to Structured Systems Design*
by Page-Jones, Meilir
Computers: Encore
Macintosh
PC
Languages: Various Languages

Programming Methodology SE 514 G P R Y 9
Textbooks: *Writing Efficient Programs*
by Bentley, Jon Louis
Computers: Encore
Macintosh
PC
Languages: Various languages

Software Quality Assurance SE 516 G P R Y 9
Textbooks: *Software Reliability Guidebook*
by Glass, R.
Computers: Encore
Macintosh
PC
Languages: Various languages

Software Metrics SE 518 G P R Y 9
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.

Computers: Encore
Macintosh
PC
Languages: Various languages

Software Project Management SE 531 G P R Y 9
Textbooks: *Managing a Programming Project, 2nd ed.*
by Metzger, Phillip
Computers: Encore
Macintosh
PC
Languages: Various languages

System Procurement and Contract Acquisition SE 533 G P E Y 9
Textbooks: *Data Processing Contracts: Structure, Contents, and Negotiations*
by Brandon, Dick H. and Segelstein, S.
Computers: Encore
Macintosh
PC
Languages: Various languages

Human Factors in Computing SE 560 G P E Y 9
Textbooks: *Human Performance Engineering : A Guide for Systems Designers*
by Bailey, R.W.
Computers: Encore
Macintosh
PC
Languages: Various languages

Software Engineering Project 1, 2, 3 SE 585, SE 586, SE 587 G P R Y 9
Compilers: Varies by project
Computers: Varies by project
Languages: Varies by project

Special Topics SE 591, SE 592, SE 593 G P E D 9
Textbooks: *Varies by topic*
Compilers: Varies by topic
Computers: Varies by topic
Languages: Varies by topic

Independent Study SE 596, SE 597, SE 598 G P E D 9
Textbooks: *Varies by topic*
Compilers: Varies by topic
Computers: Varies by topic
Languages: Varies by topic

Additional Information:

At Seattle University, Software Engineering is viewed as an academic/ professional discipline, which has its principal academic basis in computer science. Thus, the following graduate courses in computer science are also offered as technical electives in the MSE program:
ESW 500 Information Structures and Algorithms
ESW 501 Computer Systems Principles
ESW 541 Database Systems
ESW 551 Distributed Computing
ESW 553 Artificial Intelligence
ESW 564 Computer Graphics
ESW 566 Real Time Systems

University of Washington College of Arts and Sciences
Department of Computer Science
Seattle, WA, 98195, United States

Degrees: BS CS, MS CS, PHD CS

Contact: Prof. Pattis, Richard E.
Assistant Professor
(206) 545-3798

Update: October 1988

Courses: **Software Engineering** CSci 503 G P E Y 3
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
Compilers: Turbo Pascal
UNIX C
Xerox XDE
Computers: IBM PC/AT
MicroVAX II
VAX 8550
Xerox Dandelion
Languages: C
Mesa
Pascal

Washington State University College of Sciences and Arts
Department of Computer Science
Pullman, WA, 99164, United States

Degrees: BS, MS, PHD

Contact: Dr. Benson, David B.
Professor
(509) 335-2706

Update: None

Courses: **Software Development** CptS 422 U P E Y 1
Textbooks: *C: An Advanced Introduction*
by Gehani, Narain
Introducing the UNIX System
by McGilton, Henry and Morgan, Rachel
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick Phillips
The UNIX C Shell Field Guide
by Anderson, Gail and Anderson, Paul
Computers: UNIX systems

Software Development Lab CptS 423 U P E Y 1
Textbooks: *C By Dissection: The Essentials of C Programming*
by Kelley, Al and Pohl, Ira

Introducing the UNIX System
by McGilton, Henry and Morgan, Rachel
Computers: UNIX systems

Verification CptS 522 G P E Y 1
Textbooks: *The Science of Programming*
by Gries, David

Additional Information:

Research opportunities in system software engineering, software test concepts, distributed computing concepts, especially theory.

1.37. West Virginia

West Virginia College of Graduate Studies (WVCOGS) Engineering and Science Division
Information Systems
Institute, WV, 25112, United States

Degrees: MS

Contact: Prof. Hutton, Robert N.
Associate Professor

Update: May 1987

Courses: **Systems Analysis Techniques** IS 605 G N R Y 5
Textbooks: *Structured Analysis Methods for Computer Information Systems*
by Teague, Lavette C. and Pidgeon, Christopher

System Design IS 610 G P R Y 6
Textbooks: *Business Computer Systems Design*
by Dolan, Kathleen A.
Computers: VM/CMS

Software Engineering Principles IS 625 G P E Y 2
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: VAX Ada
Computers: VAX
Languages: Ada

West Virginia University College of Arts and Sciences
Department of Statistics and Computer Science
Program in Computer Science
Morgantown, WV, 26506, United States

Degrees: BS, MS

Contact: Dr. Butcher, Donald F.
Chairman
(304) 293-3607

Update: June 1987

Courses: **Software Engineering** CS 275 U P E Y 2
Textbooks: *Software Engineering*
by Sommerville, Ian
Languages: Ada

Ada with Software Engineering CS 291/391 B P E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Compilers: Digital Ada
Computers: VAX 11/780 under VMS
Languages: Ada

Principles of Software Development CS 170 U P E Y 5
Compilers: PL/I optimizing compiler on VAX PL/I

Computers: IBM 3081
VAX 11/780
Languages: PL/I and System Utilities

Software Engineering in Data Communications CS 350 G P E Y 4
Compilers: ALSYS Ada
IBM PC Assembler
Lattice C
RT-11 Assembler
VAX UNIX C
Computers: IBM PC/AT
IBM PC/XT
IBM PCs
PDP 11/23s
VAX 11/750
Languages: Ada
Assembly
C

Additional Information:

Courses numbered 0-99 are Freshman and Sophomore level courses. Courses numbered 100-299 are Junior and Senior level courses. Graduate students can count (3 or 4) 200 level courses for credit towards MS degree. Courses numbered 300-399 are MS level courses, and courses numbered 400-499 are Ph.D. level courses. All 200 level courses have CS 1, 2, 50 and 51, a year of calculus, and a course in discrete mathematics as prerequisites.

1.38. Wisconsin

Marquette University College of Engineering
Department of Electrical, Computer and Biomedical Engineering
Program in Electrical Engineering
Milwaukee, WI, 53233, United States

Degrees: BS EE, MS EE, PHD EE

Contact: Dr. Niedejohn, Russell J.
Professor and Chairman
(414) 224-6820

Update: September 1988

Courses: **Software Engineering** EECE-211 G N E T 11
Compilers: Pascal
Computers: VAX
Languages: Pascal

Additional Information:
Other courses on compilers, advanced software, database, operating systems, and architecture.

University of Wisconsin-Madison College of Engineering
Department of Industrial Engineering
Madison, WI, 53706, United States

Degrees: MS, PHD

Contact: Prof. Gustafson, David H.
Department Chairman
(608) 262-3768

Update: October 1987

Courses: **Computer Methods in Industrial Engineering** 490-612-9 G N B Y 9
Textbooks: *Software Engineering*
by Sommerville, Ian
Compilers: Turbo Pascal
Computers: IBM PC
Languages: Pascal

University of Wisconsin-Milwaukee School of Engineering and Applied Science
Department of Electrical Engineering and Computer Science
Milwaukee, WI, 53201, United States

Degrees: BS, MS, PHD

Contact: Dr. Vairavan, K.
Chair, Computer Science
(414) 963-5357

Update: June 1988

Courses: **Introduction to Software Engineering** 262-536 B P R T 7

Textbooks:	*Software Engineering* by Sommerville, Ian *The C Programming Language* by Kernighan, Brian and Ritchie, Dennis
Compilers:	UNIX C compiler
Computers:	ISI 68K's VAX 11/750
Languages:	C

1.39. Wyoming

University of Wyoming College of Arts and Sciences
Computer Science Department
Program in Computer Science
Laramie, WY, 82071, United States

Degrees: BS CS, BA CS, BS MIS, MS CS, PHD CS

Contact: Prof. Rowland, John
(307) 766-6475

Update: September 1988

Courses: **Software Engineering** COSC 684 B P O B 1
Textbooks: *Software Engineering*
by Sommerville, Ian
Compilers: Ada on VAX 8800
Computers: PC
VAX 11/785
VAX 8800
Languages: Ada

Software Engineering Management COCS 884 G P O B 1

Software Engineering Laboratory COCS 685 B P O B 1

Additional Information:
COSC 885 Software Management Laboratory is pending. It would be run jointly with the Software Engineering Laboratory with members of this class acting as team leaders.

2. Canada

2.1. Alberta

The University of Alberta School of Science
Department of Computing Science
Edmonton, AB, T6G 2H1, Canada

Degrees: BS, MS, PHD

Contact: Prof. White, Lee J.
Chairman
(403) 432-4589

Update: October 1987

Courses: **Software Engineering** CMPUT 401 U P R T 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Compilers: Modula-2
Pascal
Computers: Macintosh
Sun workstations (UNIX OS)

Languages: Modula-2
Pascal

Interactive Programming Environments CMPUT 652 G P E B 3
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Compilers: Cornell program synthesizer generator
Smalltalk
Computers: VAX systems (UNIX OS)
Languages: Smalltalk

Software Testing CMPUT 501 G P E B 3
Textbooks: *Computer Program Testing*
by Chandrasekaran, B. and Radicchi, Sergio
Software Testing Techniques
by Beizer, Boris
Computers: VAX systems (UNIX OS)

Specification and Verification CMPUT 508 G P E Y 3
Textbooks: *Communicating Sequential Processes*
by Hoare, C.A.R.
The Logic of Programming
by Hehner, E.C.
The Science of Programming
by Gries, David
Computers: VAX computer systems (UNIX OS)
Languages: Various specification languages

2.2. British Columbia

University of Victoria School of Arts and Sciences
Department of Computer Science
Victoria, BC, V8W 2Y2, Canada

Degrees: BS, MS

Contact: Dr. Hoffman, Daniel
Assistant Professor
(604) 721-7222

Update: June 1987

Courses: **Software Engineering** CSC 365 U P R T 6

Textbooks:	*The Mythical Man-Month: Essays on Software Engineering* by Brooks, Frederick Phillips
Compilers:	C
	Pascal on UNIX 4.2
Computers:	Pyramid
	VAX 11/780
Languages:	C
	Pascal

Implementation of Software Engineering Methods CSC B P E Y 3

Compilers:	C
Computers:	Pyramid
	Sun
	VAX
Languages:	C

Additional Information:
Software Engineering/Education Cooperative Project - a joint project with IBM Canada to advance the state of the art in educational software.

2.3. Nova Scotia

Acadia University Jodrey School of Computer Science
Department of Computer Science
Wolfville, NS, B0P 1X0, Canada

Degrees: BCS, MS

Contact: Dr. Oliver, Leslie H.
Professor and Director
(902) 542-2201 x331

Update: October 1988

Courses: **Software Engineering** Comp 3653 U P B Y 4

Textbooks:	*Software Engineering Concepts* by Fairley, Richard E.
Compilers:	Turbo Pascal
	UNIX C
Computers:	PC-Compatible
	SUN
Languages:	C
	Pascal

Additional Information:
Also offers degrees in BCSH, BCSS Hardware, BCSS Software, and BCSS Business Data Processing.

2.4. Ontario

Carleton University Faculty of Engineering
Department of Systems and Computer Engineering
Programs in Computer Systems Engineering and Electrical Engineering
Ottawa, ON, K1S 5B6, Canada

Degrees: BE, ME, MCS, MS, PHD

Contact: Prof. Bowen, B. A.
Chairman
(613) 564-2793

Update: None

Courses: **Software Engineering** 94.480 U N X Y 1
Textbooks: *Software Tools in Pascal*
by Kernighan, Brian and Plauger, P.J.
System Design with Ada
by Buhr, R.J.A.

Digital Systems Engineering 94.533 G N X T 1

System Design with Ada 94.531 G N X T 1

Queen's University Faculty of Arts and Science
Department of Computing and Information Science
Kingston, ON, K7L 3N6, Canada

Degrees: BS, MS

Contact: Dr. Lamb, David A.
Assistant Professor
(613) 545-6067

Update: June 1987

Courses: **Modules and Specifications** CISC 322 U P E Y 2

Software Engineering CISC 422/CISC 838 B P E Y 4
Textbooks: *Software Engineering : Planning for Chage*
by Lamb, David
Compilers: IBM Pascal/VS
Computers: IBM 3081 under VM/CMS
Languages: Pascal/VS

Additional Information:
As a senior thesis, Computing majors take CISC-499, a course where (working by themselves, supervised by a faculty member) they complete a substantial programming project.

University of Ottawa Faculty of Science
Department of Computer Science
Program in Computer Science

Ottawa, ON, K1N 9B4, Canada

Degrees: BS, MCS

Contact: Dr. Raymond, Jacques
Professor
(613) 564-5423

Update: October 1988

Courses: **Software Engineering I** CSI 3111 U P R Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Languages: Ada
Pascal
Prolog

Software Engineering II CSI 4112 U P R Y 6
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Computers: VAX 750
Languages: Ada
C

Software Testing: Theory and Practice CSI 5111 G N E Y 7
Textbooks: Selected papers

Software Engineering CSI 5112 G N E Y 5
Textbooks: Selected papers
Computers: VAX 750
Languages: Ada
Modula II

Additional Information:
B.Sc. Major and Honours with General Computer Science option.
B.Sc. Major and Honours with Information and Management System option.
Software Engineering is offered in the Winter and Summer terms.
Software Engineering I is offered twice a year.
We also have courses in Ada (Ada Language Concepts, CSI 2161) and Modula II (Modula II Language Concepts, CSI 2169).

University of Waterloo Faculty of Mathematics
Department of Computer Science
Waterloo, ON, N2L 3G1, Canada

Degrees: BM, MM, PHD

Contact: Dr. Taylor, David
(519) 888-4432

Update: October 1988

Courses: **Applications Software Engineering** CS 430 U P E Y 1
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.

Business System Analysis CS 432 U P E O 1
Textbooks: *Information Systems Analysis: with an Intro to 4th Generation Technologies* by Hall, V.J. and J.W. Mosevich
Computers: IBM PC

Software System Design and Implementation CS 446 and CS 646 B P E T 1
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.* by Pressman, Roger S.

Techniques in Systems Analysis CS 482 U P E T 1
Textbooks: *Information Systems Analysis: with an Intro to 4th Generation Technologies* by Hall, V.J. and J.W. Mosevich

Additional Information:

Applications Software Engineering and Techniques in Systems Analysis are offered in the Fall and Spring terms.

2.5. Quebec

McGill University School of Computer Science
Montreal, PQ, H3A 2K6, Canada

Degrees: MS, PHD

Contact: Prof. Madhavji, Nazim H.
Professor
(514) 398-7073

Update: None

Courses: **Advanced Topics (Software Engineering)** 308-762A G P E Y 5

Textbooks:	*Software Development: A Rigorous Approach* by Jones, C.B.
	Software Engineering by Sommerville, Ian
	Software Engineering Environments by Hunke, H.
	Software Engineering with Modula-2 and Ada by Wiener, Richard and Sincovec, Richard
Compilers:	Cambridge Modula-2
	Modula-2/68
	Powell Modula-2
Computers:	Sun 3
	VAX 11/780
Languages:	Modula-2

Advanced Topics (Programming Environments) 308-767B G P E Y 3

Textbooks:	*Interactive Programming Environments* by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Compilers:	Cambridge Modula-2
	Modula-2/68
	Powell Modula-2
Computers:	Sun 3
	VAX 11/780
Languages:	Modula-2

Additional Information:

1) The School offers research study (M.Sc. and Ph.D.) in software engineering.
2) The School offers software engineering projects for Masters students.

2.6. Saskatchewan

University of Regina Faculty of Science
Department of Computer Science
Regina, SK, S4S 0A2, Canada

Degrees: BA, BS, MS

Contact: Dr. Maguire, R. B.
Department Head
(306) 584-4632

Update: October 1988

Courses: **Business Information Systems** CS270 U P R T 11
Textbooks: *Elements of Systems Analysis, 4th ed.*
by Gore, Marvin and Stubbe, John W.
Computers: IBM PC AT
Languages: Excelerator InTech

Advanced Systems Analysis and Design CS372 U P E Y 4
Textbooks: *Introduction to Systems Analysis and Design: A Structured Approach*
by Kendale, Penny A.
Compilers: UNIX C
Computers: Berkeley 4.2 UNIX on VAX 750
Languages: C programming language

Project Management for Data Processing Applications CS373 U P E B 2
Textbooks: *Information Resource Management*
by Hussain, Donna and Hussain, K.M.

University of Saskatchewan College of Engineering
Department of Computational Science
Program in Computer Science
Saskatoon, SK, S7N 0W0, Canada

Degrees: BS CS, BC CS, MS CS, PHD CS

Contact: Dr. Sorenson, Paul
Professor
(306) 966-4886

Update: October 1988

Courses: **Computer Systems** CMPT 230.6 U P R Y 1
Computers: VAX 8600

Information Systems Analysis and Design CMPT 477.6 U P E Y 1
Textbooks: *Advanced Structured Analysis and Design*
by Peters, L.
Software Design and Development
by Gilbert, P.
Compilers: DEFT analysis and design (CASE tools)
Computers: Macintosh

Information Systems CMPT 876.3 G P E Y 1

Computers: Sun workstations
VAX 8600

Additional Information:

Other degree offered: combined B.Sc. (Computer Science) and B.Eng. (Electrical Engineering).

Table of Contents