DTIC FILE COPY

Technical Report

CMU/SEI-90-TR-4
ESD-TR-90-206

Carnegie-Mellon University
Software Engineering Institute

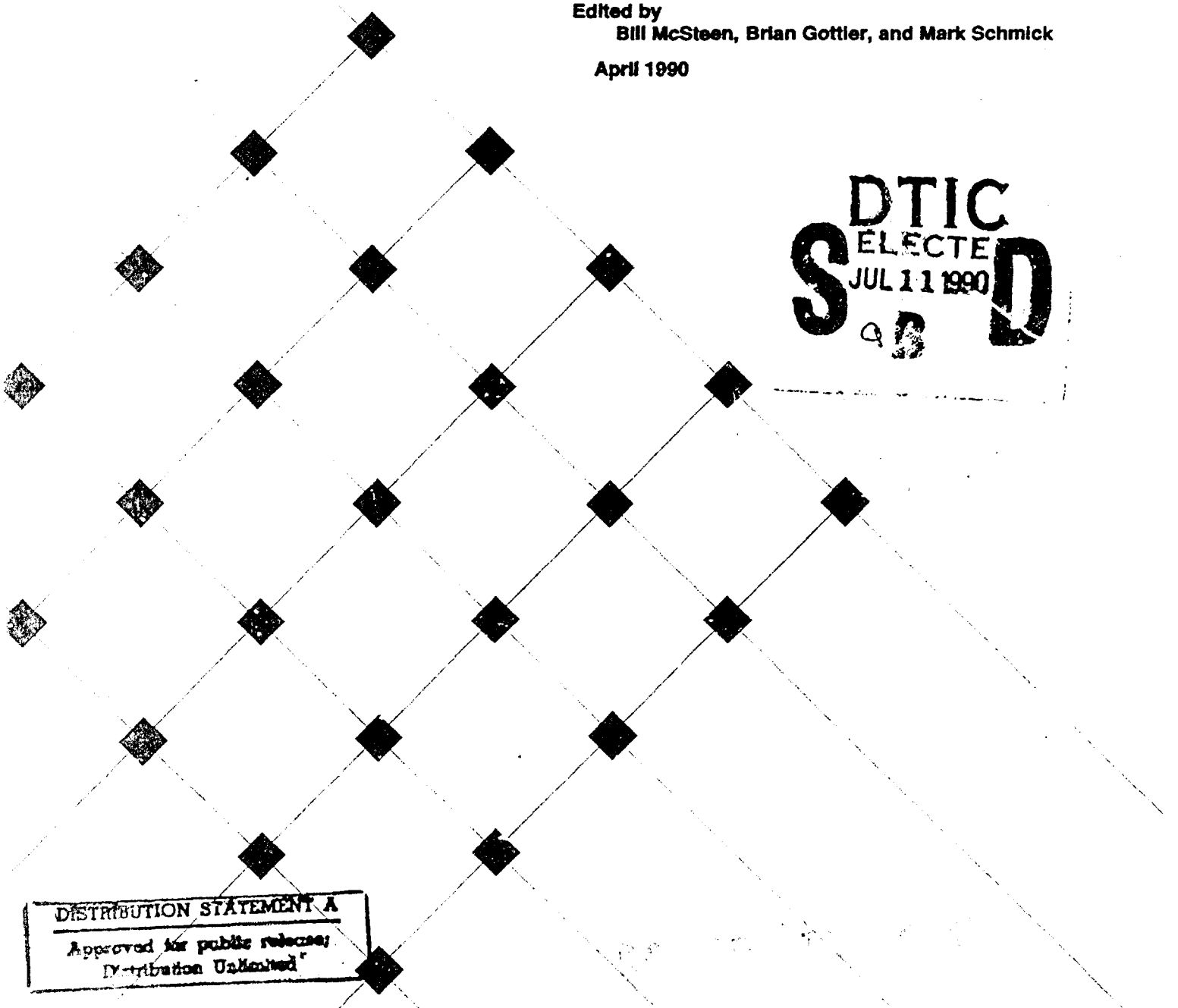
AD-A223 740

Software Engineering Education Directory

Edited by
Bill McSteen, Brian Gottler, and Mark Schmick

April 1990

DTIC
ELECTE
JUL 11 1990
S D



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

Technical Report
CMU/SEI-90-TR-4
ESD-TR-90-206
April 1990

SEI Software Engineering Education Directory

Edited by

Bill McSteen

Information Management

Brian Gottier

Education Program

Mark Schmick

Education Program

Approved for public release.
Distribution unlimited.

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, Pennsylvania 15213

This technical report was prepared for the

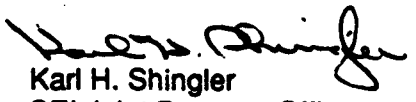
SEI Joint Program Office
ESD/AVS
Hanscom AFB, MA 01731

The ideas and findings in this report should not be construed as an official DoD position. It is published in the interest of scientific and technical information exchange.

Review and Approval

This report has been reviewed and is approved for publication.

FOR THE COMMANDER



Karl H. Shingler
SEI Joint Program Office

This work is sponsored by the U.S. Department of Defense.

Copyright © 1990 by Carnegie Mellon University.

This document is available through the Defense Technical Information Center. DTIC provides access to and transfer of scientific and technical information for DoD personnel, DoD contractors and potential contractors, and other U.S. Government agency personnel and their contractors. To obtain a copy, please contact DTIC directly: Defense Technical Information Center, Attn: FDRA, Cameron Station, Alexandria, VA 22304-6145.

Copies of this document are also available through the National Technical Information Service. For information on ordering, please contact NTIS directly: National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Use of any trademarks in this report is not intended in any way to infringe on the rights of the trademark holder.

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 colleges and universities, primarily in the United States. 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 Brian Gottier, Bill McSteen, and Mark Schmick, along with Allison Brunvand, Linda Levine, Mary Rose Serafini, and Barbara Zayas, were responsible for the successful completion of this edition. Gary Ford, Senior Computer Scientist, helped design this year's edition and spent much time editing entries into final form.

Norman E. Gibbs
Director of Software Engineering Education
Software Engineering Institute
Carnegie Mellon University

DTIC COPY INSPECTED 8

Accession For	
NTIS GRA&I	☑
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

Table of Contents

Software Engineering Education Directory

Abstract: This directory provides information about software engineering courses and software engineering degree programs offered by universities, primarily in the United States.

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.

Introduction

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. The first *Software Engineering Education Directory* was then published outlining these courses from the information provided on the questionnaires.

Since 1986 the directory has been published annually. Coverage has been expanded to include software engineering courses at the undergraduate level as these courses have become more common. Each year we have attempted to collect updated information from institutions previously represented in the directory. We have also attempted to contact institutions not previously included in the directory to make the publication more complete.

This year we have again included a listing of those institutions offering software engineering courses at both the graduate and undergraduate levels. This is the second section of the directory entitled **Schools and Courses**. In addition, we have added a new section profiling institutions that are currently offering master's degrees in software engineering. This is the first section of the directory entitled **Graduate Degree Programs in Software Engineering**.

To discuss any issues related to this report, please contact:

Education Program
Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213
Internet: education@sei.cmu.edu

Graduate Degree Programs in Software Engineering

Graduate degree programs first appeared in the late 1970s at Texas Christian University, Seattle University, and the Wang Institute of Graduate Studies. All three programs responded to significant needs from local industry in the Dallas/Fort Worth, Seattle, and Boston areas, respectively. In 1985, three additional programs were started: at the College of St. Thomas in St. Paul, Minnesota, at Imperial College of Science and Technology in London, and at the University of Stirling in Scotland. The last four years have seen a significant increase in the development of and interest in such programs. We know of at least a dozen programs that either have been initiated or are under development.

In this section, we survey the programs in the United States for which we were able to obtain information. Readers will note substantial variation among the programs. This can be attributed to a number of factors:

- Most of the programs were developed in the absence of any recognized model curriculum.
- Each school had a number of existing courses, mostly in computer science, that were incorporated into the new programs, and these courses differed greatly among schools.
- Software engineering is a new discipline, and the developers of these programs had differing perceptions of the scope of the discipline, and its principles and practices.
- Each school was responding to perceived needs that varied greatly from one community to another.

Another notable point of variation among these programs is the program title. Many of the programs were unable to use the word *engineering* in their titles because of legal or administrative restrictions. In one way, it is unfortunate that the term *software engineering* is so nearly universally accepted as an informal name for the discipline, because it has generated an inordinate amount of argument on the semantic issues of whether (or not) software engineering is really engineering.

The following requirements for each program originally appeared in *1989 SEI Report on Graduate Software Engineering Education* by Mark Ardis and Gary Ford, Technical Report CMU/SEI-89-TR-21, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, Pa., June 1989.

Andrews University

Location	Berrien Springs, Michigan
Program title	Master of Science in Software Engineering
Degree requirements	48 quarter credits (typically 4 credits per course): 8 credits of projects, 16 credits core courses, 0-20 credits foundation courses, 4-24 credits electives
Foundation courses	Data Structures Data Base Systems Systems Analysis I Systems Analysis II Operating Systems
Core courses	Computer Architecture Software Engineering I Software Engineering II Programming Project Management
Program initiation	(unknown)
Source	This information was reported to the SEI by Andrews University in April 1989.

Boston University

Location	Boston, Massachusetts
Program title	Master of Science in Software Systems Engineering
Degree requirements	Nine courses of four credits each: seven required courses including a project course, and two electives. Two of the required courses differ depending on whether the student's background is in hardware or software.
Required courses	Applications of Formal Methods Software Project Management Software System Design Computer as System Component Software Engineering Project Advanced Data Structures (hardware background) Operating Systems (hardware background) Switching Theory and Logic Design (software background) Computer Architecture (software background)
Program initiation	Fall 1989 (The program has existed as a software engineering option in the Master of Science in Systems Engineering since spring 1980; the current curriculum was adopted in January 1988.)
Source	This information was taken from "The Software Engineering Graduate Program at the Boston University College of Engineering," Brackett, J., Kincaid, T., and Vidale, R. *Software Engineering Education; SEI Conferences 1988*, Gary A. Ford, ed. New York: Springer-Verlag, 1988, 56-63.

Boston University absorbed the Wang Institute's facilities in 1987 and was the beneficiary of some of the experience of the Wang Institute. This program incorporates the best features of the MSE curriculum of Wang and the MS in Systems Engineering from Boston University. The program emphasizes the understanding of both hardware and software issues in the design and implementation of software systems. Special emphasis is placed on the software engineering of two important classes of computer systems: embedded systems and networked systems.

Both full-time and part-time programs are available, and most of the program is available through the Boston University Corporate Classroom interactive television system. The program can be completed in twelve months by full-time students.

The university also has a doctoral program leading to the PhD in Engineering, with research specialization in software engineering.

Carnegie Mellon University

Location	Pittsburgh, Pennsylvania
Program title	Master of Software Engineering
Degree requirements	Sixteen courses: six required courses and two Category I electives in the first year; a theory course, a business course, two Category II electives, two software engineering seminars, and a two-semester master's project in the second year.
Required courses	Software Systems Engineering Formal Methods in Software Engineering Advanced System Design Principles Software Creation and Maintenance Analysis of Software Software Project Management
Elective courses	Category I: Computer science courses at the senior undergraduate level Category II: Advanced graduate courses in computer science
Prerequisite note	Prospective students must have at least two years of experience working in a sizable software project.
Program initiation	September 1989
Source	This information was reported to the SEI by CMU in June 1989.

The objective of Carnegie Mellon University's MSE program is to produce a small number of highly skilled experts in software system development. It is designed to elevate the expertise of practicing professional software designers. The emphasis is on practical application of technical results from computer science; the nature of these technical results dictates a rigorous, often formal, orientation. The engineering setting requires responsiveness to the needs of end users in a variety of application settings, so the program covers resolution of conflicting requirements, careful analysis of tradeoffs, and evaluation of the resulting products. Since most software is now produced by teams in a competitive setting, the program also covers project organization, scheduling and estimation, and the legal and economic issues of software products.

College of St. Thomas

Location	St. Paul, Minnesota
Program title	Master of Software Design and Development
Degree requirements	Ten required courses, including a two-semester project course sequence, and four elective courses. All courses are three semester credits.
Required courses	Technical Communications Programming Methodologies DBMS and Design Systems Analysis and Design I Software Productivity Tools I Software Project Management Software Quality Assurance/Quality Control Legal Issues in Technology
Program initiation	February 1985
Source	This information was reported to the SEI by the College of St. Thomas in June 1989.

This program was developed through an advisory committee made up of technical managers from Twin Cities companies such as Honeywell, IBM, Sperry, 3M, NCR-Comten, and Control Data. Elective courses are added to the curriculum on the basis of need as expressed by technical managers in local industry or by students in the program.

The program is applied rather than research-oriented. Most instructors are from industry (14 of 23 in the spring 1989 semester). Instead of a thesis, students complete a two semester software project for a local company; in many cases this company is their employer, but the project must not be part of their normal work responsibilities.

Classes are offered evenings, and 98% of students work full-time in addition to their studies. Students normally require three years to complete the degree. The program enrolled 252 students in spring 1989.

George Mason University

Location	Fairfax, Virginia
Program title	Master of Science in Software Systems Engineering
Degree requirements	30 hours of course work in the School of Information Technology and Engineering, including five required courses.
Required courses	Introduction to Software Engineering Formal Methods in Software Engineering Software Requirements, Prototyping, and Design Software Project Management Software Project Laboratory
Elective courses	Five courses, including a second semester of Software Project Laboratory, or three courses and 6 semester hours of master's thesis.
Program initiation	Fall 1989 (core courses offered beginning Fall 1988)
Source	This information was reported to the SEI by George Mason University in April 1989.

The program for the degree of Master of Science in Software Systems Engineering is concerned with engineering technology for developing and modifying software components in systems that incorporate digital computers. The program is concerned with both technical and managerial issues, but primary emphasis is placed on the technical aspects of building and modifying software systems.

In addition to the degree program, the university offers a graduate certificate program in software systems engineering. The certificate program is designed to provide knowledge, tools, and techniques to those who are working in, or plan to work in, the field of software systems engineering, but do not desire to complete all of the requirements for a master's degree. Students in the certificate program must already hold or be pursuing a master's degree in a science or engineering discipline. The requirements for the certificate are completion of the five required courses listed above.

Monmouth College

Location	West Long Branch, New Jersey
Program title	Master of Science in Software Engineering
Degree requirements	30 credit hours, consisting of 6 core and 4 elective courses.
Core courses	Mathematical Foundations of Software Engineering I Programming-in-the-Large Project Management Computer Networks Software Engineering I System Project Implementation (Laboratory Practicum)
Elective courses	Mathematical Foundations of Computer Science II Programming-in-the-Small Protocol Engineering Selected Topics in Software Engineering Programming Languages Computer Architecture Operating System Implementation Database Management (additional electives are under development)
Program initiation	1986
Source	This information was reported to the SEI by Monmouth College. Further information was obtained from "Revised Graduate Software Engineering Curriculum at Monmouth College," Amoroso, S., Kuntz, R., Wheeler, T., and Graff, B. *Software Engineering Education; SEI Conference 1988*, Gary A. Ford, ed. New York: Springer-Verlag, 1988, 70-80.

The program is offered through the departments of computer science and electrical engineering. The current enrollment is more than 100, and to date 50 students have completed the degree requirements.

Rochester Institute of Technology

Location Rochester, New York

Program title Master of Science in Software Development and Management

Degree requirements 48 credits (quarter system; typical course is 4 credits)

Required courses
Principles of Software Design
Principles of Distributed Systems
Principles of Data Management
Software and System Engineering
Project Management
Organizational Behavior
Analysis and Design Techniques, or
Analysis & Design of Embedded Systems
Software Verification and Validation
Software Project Management
Technology Management
Software Tools Laboratory
Software Engineering Project

Program initiation Fall 1987

Source This information was reported to the SEI by RIT in April 1989.

The program has approximately 100 students at the RIT campus and 15 students at Griffiss Air Force Base in Rome, New York. Approximately 90% of the students attend part-time.

Seattle University

Location Seattle, Washington

Program title Master of Software Engineering

Degree requirements 45 credits (quarter system), including eight require core courses, four elective courses, and a three quarter project sequence.

Required courses
Technical Communication
Software Systems Analysis
System Design Methodology
Programming Methodology
Software Quality Assurance
Software Metrics
Software Project Management
Formal Methods

Elective courses
System Procurement Contract Acquisition and Administration
Database Systems
Distributed Computing
Artificial Intelligence
Human Factors in Computing
Data Security and Privacy
Computer Graphics
Real Time Systems
Organization Behavior
Organization Structure and Theory
Decision Theory
(other electives may be selected from the MBA program)

Prerequisite note Prospective students must have at least two years of professional software experience.

Program initiation 1978

Source This information was taken from "The Master of Software Engineering [MSE] Program at Seattle University After Six Years," Mills, E., *Software Engineering Education: The Educational Needs of the Software Community*, Norman E. Gibbs and Richard E. Fairley, eds. New York: Springer-Verlag, 1986, 182-200.

Seattle University is an independent urban university committed to the concept of providing rigorous professional educational programs within a sound liberal arts background. In 1977, the university initiated a series of discussions with representatives from local business and industry, during which software engineering emerged as a critical area of need for specialized educational programs. Leading software professionals were invited to assist in the development of such a program, which was initiated the following year.

Normally, classes are held in the evenings and students are employed full-time in addition to their studies. The first students in the program graduated in 1982.

Texas Christian University

Location Fort Worth, Texas

Program title Master of Software Design and Development

Degree requirements 36 semester hours, including nine required courses and three electives; submission of a technical paper to a journal for publication.

Required courses
Introduction to Software Design and Development
Modern Software Requirements and Design Techniques
Applied Design, Programming, and Testing Techniques
Management of Software Development
Economics of Software Development
Computer Systems Architecture
Database and Information Management Systems
Software Implementation Project I
Software Implementation Project II

Program initiation Fall 1978

Source This information was taken from "Adapting to Changing Needs: A New Perspective on Software Engineering Education at Texas Christian University," Corner, J.R., and Rodjak, D.J. *Software Engineering Education: The Educational Needs of the Software Community*, Norman E. Gibbs and Richard E. Fairley, eds. New York: Springer-Verlag, 1986, 149-171.

The university established a graduate degree program in software engineering in 1978. Due to external pressure, prompted by the absence of an engineering college at TCU, the program was given its current name in 1980.

The program offers most of its courses in the evening, and all 50 students in the program are employed full-time in the Dallas/Fort Worth area.

University of Houston-Clear Lake

Location	Houston, Texas
Program title	Master of Science in Software Engineering Sciences
Degree requirements	36 credit hours, including 30 hours of required courses and 6 hours of electives.
Required courses	Specification of Software Systems Principles and Applications of Software Design Software Generation and Maintenance Software Validation and Verification Software Project Management Master's Thesis Research Advanced Operating Systems Theory of Information and Coding Synthesis of Computer Networks
Elective courses	Must be chosen from courses in software engineering, computer science, computer systems design, or mathematical sciences.
Program initiation	Awaiting approval
Source	This information was reported to the SEI by the University of Houston-Clear Lake in March 1989.

The university has submitted a proposal to the Texas Coordinating Board for Higher Education to offer the master's degree. Approval is expected late in 1989 or early in 1990.

University of Pittsburgh

Location	Pittsburgh, Pennsylvania
Program title	Master of Science in Software Engineering
Degree requirements	33 credits: four required software engineering courses; additional required and optional courses in computer science
Required courses	(these are not the official course titles) Software specification and design Conversion of software specifications into products Models of information systems Software engineering project
Elective courses	Courses in areas such as: Theory of computation Design and analysis of algorithms Language design Advanced operating systems Computer architecture Modeling and simulation Principles of database systems User interface design and evaluation Artificial intelligence
Program initiation	1989
Source	This information was reported to the SEI by the University of Pittsburgh in the Fall 1989.

This program is project oriented, emphasizes a methodological approach to software development, and provides a more focused education than the traditional Master of Science in computer science. Applicants with professional experience may be given special consideration for admission, although such experience is not required. All students' programs are individually designed with the help of a faculty advisor. There is no thesis requirement.

The Wichita State University

Location	Wichita, Kansas
Program title	Master of Science in Software Engineering; Master of Computer Science in Software Engineering
Degree requirements	30 credit hours total: two required courses, six credit hours of software engineering electives, additional electives in software engineering or computer science, and practicum (3 hours) or thesis (6 hours) on a software engineering topic.
Required courses	Software Requirements, Specification and Design Software Testing and Validation
Elective courses	Software Project Management Ada and Software Engineering Systems Analysis Topics in Software Engineering (recent offerings have included Configuration Management, Formal Methods, Quality Assurance, Software Metrics, and Formal Verification of Software)
Program initiation	Spring 1989
Source	This information was reported to the SEI by Wichita State in June 1989.

The Wichita State University Department of Computer Science has created a set of courses than can lead to a specialization in software engineering within the existing Master of Science and Master of Computer Science degree programs. These courses are taught in cooperation with the Software Engineering Institute's Software Engineering Curriculum Project and Video Dissemination Project.

Schools and Courses

This year, as in the past, we updated course entries by contacting those institutions appearing in the last publication of the directory and requesting that they revise their entries. In addition, we made an effort to increase our coverage of software engineering courses by sending a large number of questionnaires to institutions not represented in past editions. More than 30 institutions represented in this version of the directory appear here for the first time.

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 titles of articles, reports, or other published papers. In such cases, the papers shown are consistently used and considered to be required course reading.

Changes in the Schools and Courses Section

Changes we adopted this year include:

- **Electronic mail addresses for contacts.** In the questionnaire mailed out this year, we requested that the contact for an institution provide us with his/her electronic mail address. For individuals who provided us with this information, we have included it in their listings.
- **Merging of information into new Tools field.** In previous versions of the directory, we have listed the compilers, computers, and languages used for each course in separate fields. In this edition, this information is merged into one field called **Tools**. This field also includes other software tools used in the course.

How to Use This Section

The directory is organized by state (in the U.S.), province (in Canada), or country (in other regions). 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 three sub-titles: **Codes**, **Textbooks**, and **Tools**. The **Codes** represent characteristics of the course and are explained in detail later in this section. **Textbooks** contains a listing of texts used for the course, and **Tools** contains a listing of software and hardware used.

Abbreviations of Degrees

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, BCS means Bachelor of Computer Science, BS EE means Bachelor of Science in Electrical Engineering, MSE is Master of Software Engineering, and MA CE stands for 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 of 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
PHD AT	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
SSE	Software Systems Engineering
SSM	Systems Science and Math.
SYSE	Systems Engineering
SYSS	Systems Science
SYST	Systems Technology
TCS	Teaching of Computer Science
O	Other

Explanation of Course Codes

A complete **Courses** entry has five codes on the second line, arranged in order of course level, prerequisite, status, frequency, and the number of years that the course has been taught. The last code is self-explanatory. The other four codes are as follows:

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

Following are examples of **Courses** entries containing these fields:

Information Systems Analysis, Design, and Evaluation (INF SC 272)
Codes: G P E O 6
Textbooks: *Fundamentals of Systems Analysis, 3rd ed.*
by Fitzgerald, Jerry and Fitzgerald, Arda
Tools: C
IBM PC
Mac
VAX 780
VAX 8650

Software Engineering and Software Tools (INF SC 276)
Codes: G P E O 5
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.

United States

Alabama

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

Degrees: BS, MS, PHD

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

Update: September 1988

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

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

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

Software Engineering Environments (CSE 625)
Codes: G N E Y 1
Textbooks: *CASE : Computer-Aided Software Engineering* by Fisher, Allen
Tools: CASE products : TAGS, Excelerator, HTI-001

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

Degrees: BS, MS, PHD

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

Update: February 1988

Courses: **Formal Specifications and Software Development** (CS 520)
Codes: G N R Y 9
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Sequent Balance 21000
VAX 11/750
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
College of Science
Computer Science
Huntsville, AL 35899

Degrees: BS, MS, PhD

Contact: Dr. Carl G. Davis
Chairman

Update: January 1990

Courses: **Software Engineering** (CS650)
Codes: G P E Y 5
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: TAGS, DCDS, MacProject
Pascal, Ada, C

Advanced Software Engineering (CS750)
Codes: G P E D 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.

Software Requirements and Design Methodologies (CS651)
Codes: G P E Y

Software Testing and Reliability (CS652)
Codes: G N E Y

Software Management and Quality Assurance (CS653)
Codes: G N E Y

Alaska

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

Degrees: BS CS, MS CS

Contact: Prof. P. J. Knoke
Associate Professor of Computer Science
(907) 474-5107
User ID: FFPJK@Alaska
Network: BITNET

Update: January 1990

Courses: **Software Engineering** (CS 401)
Codes: U N R Y 6
Textbooks: *Software Engineering - A Practitioner's Approach, 2nd ed.* by Pressman, Roger S.
Tools: MacProject II
various compilers, computers, languages

Additional Information:
Software Engineering is basically a project course in which teams of 5 students work on a project with requirements derived from real software development needs in the community. The project covers a 14-week period during which software engineering concepts are introduced through lectures.

Arizona

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

Degrees: BS, MS, PHD

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

Update: November 1987

Courses: **Software Project Management and Development I** (CSC 460)
Codes: U P E T 9
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: VAX (VMS or UNIX)
Pascal, Ada

Software Project Management and Development II (CSC 560)
Codes: G P E T 6
Textbooks: Selected readings

Software Requirements (CSC 563)
Codes: G P E Y 6
Textbooks: Selected readings

Software Design (CSC 430/530)
Codes: B P R T 5
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
Tools: C
Sequent Symmetry running Dynix

Software Testing (CSC 565)
Codes: G P E Y 6
Textbooks: Selected readings

Software Maintenance (CSC 566)
Codes: G P E Y 6
Textbooks: Selected readings

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

Compilers and Systems Software (CSC 453)
Codes: B P R Y 1

Additional Information:
Textbooks for Special Topics in Software Engineering depend on topic. The topics used in the past have been "Software Metrics" and "Software Environments."

University of Arizona

Faculty of Science
Department of Computer Science
Tucson, AZ 85721

Degrees: BS CS, MS CS, PHD CS

Contact: Prof. Gregory R. Andrews
Department Head
(602) 621-6613
User ID: greg@cs.arizona.edu
Network: Internet

Update: January 1990

Courses: **Software Design** (Computer Science 430/530)
Codes: B P R T 5
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
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 and Systems Software (Computer Science 453)
Codes: B P R Y 13
Textbooks: *Compilers Principles, Techniques, and Tools*
by Aho, Sethi & Ullman
Tools: Sequent Symmetry running Dynix
VAX running Berkeley UNIX
C

Advanced Topics in Software Systems (Computer Science 630)
Codes: G P E D 13

Arkansas

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

Degrees: BS, MS, BA

Contact: Prof. Greg Starling
Chairman
(501) 575-6427
User ID: Starling@UAFSYSB.UARK.EDU
Network: BITNET

Update: February 1990

Courses: **Software Development** (CSAS 4003)
Codes: U P E D 3
Tools: PL/1, Pascal
IBM 4381, Macintosh

Structured Programming II (CSAS 1003)
Codes: U P R Y 3
Tools: Pascal
IBM 4381, Macintosh

Ada for Software Design (CSAS 4013)
Codes: U P E D
Textbooks: *Ada*
by Saib, Sabina
Tools: IBM 4381/R14, Macintosh
VM CMS
Ada

California

California Institute of Technology
Division of Engineering and Applied Science
Computer Science Option
Pasadena, CA 91125

Degrees: MS CS, PHD CS

Contact: Prof. K. Mani Chandy
Option Representative
(818) 359-6559
User ID: Mani@vlsi.caltech.edu
Network: Internet

Update: January 1990

Courses: **Concurrency in Computation** (CS 139)
Codes: B P E O 5
Tools: Message-passing concurrent computers
UNIX systems
C

Computation, Computers & Programs (CS 20)
Codes: U P E T

Computer Algorithms (CS 138)
Codes: B P E T

Programming Laboratory (CS 140)
Codes: B P E O

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

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

Degrees: BS CS, MS CS

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

Update: May 1987

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

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

Software Tools (CSC 340)
Codes: U P E O 5
Tools: Pyramid UNIX
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

Degrees: B CS, M CS

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

Update: October 1988

Courses: **Advanced Programming** (CS 340)
Codes: U P R T 2
Textbooks: *Software Development in Pascal* by Sahni, Sartaj
Tools: Pascal
IBM PC/XT

Software Engineering (CS 360)
Codes: U P E O 2
Textbooks: *Software Engineering with Ada* by Booch, Grady
Tools: Irvine Compiler Corporation, Ada
Integrated Solution workstation

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

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

Degrees: BS, MS

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

Update: November 1987

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

Systems Design (CSCI 270)
Codes: 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)
Codes: 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)
Codes: U N E T 11
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Tools: Ada
IE .I AT
Prime 9600

Software Metrics and Control (CSCI 310)
Codes: G P E O 3

Software Design (CSCI 311)
Codes: 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 P.

Software Analysis and Testing (CSCI 312)
Codes: G P E O 11

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

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

Degrees: BS, MS

Contact: Sally Gamon
Secretary
(818) 885-3398

Update: May 1987

Courses: **Program Design Techniques** (CS 380)
Codes: U P R T 9
Textbooks: *Software Design and Development*
by Gilbert, Philip
Structured Analysis and System Specification
by DeMarco, Tom
Tools: Pascal (Turbo, PR1ME)
AT&T 3B5
CDC Cyber 170/750
DEC PDP 11/44
IBM XT
Prime

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

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

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

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

Additional Information:
Four Computer-Aided Software Engineering (CASE) tools are used in the school's

computer lab.

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

Degrees: BS CS, MS CS

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

Update: September 1988

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

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

Software Engineering Project Management (CSC 171)
Codes: 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 P.

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

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

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

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

Foundation of Software Engineering (CSC 203)
Codes: 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)
Codes: G P E Y 11
Textbooks: *An Integrated Approach to Software Development* by Abbott, J.R.
Tools: IBM PCs
CASE tools

Software Engineering Economics (CSC 231)
Codes: G P E Y 15
Textbooks: *Software Engineering Economics* by Boehm, Barry W.
Tools: IBM PCs
WICOMO or other PC-based cost analysis tools

Advanced Computer System Analysis (CSC 240)
Codes: 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)
Codes: 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 1 or 1.5 years. Software Requirement Analysis and Design, Software Engineering Economics, and Advanced Computer System Analysis are offered once every 3 semesters. Foundation of Software Engineering is required for a MS in Computer Science if the student does not have an undergraduate foundation in software engineering.

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

Degrees: MS SE

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

Update: June 1987

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

Advanced Software Engineering (CS 622)
Codes: G P R T 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: TeleSoft Ada
IBM 4381 with VM/CMS
CMS

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

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

Software Engineering Project II (CS 627b)
Codes: G P R T 3
Textbooks: *Information System Specification and Design Road Map*
by Connor, D.
Tools: TeleSoft Ada
IBM 4381 with VM/CMS
CMS

Software Engineering Project III (CS 627c)
Codes: G P R T 3
Textbooks: *Information System Specification and Design Road Map*
by Connor, D.
Tools: TeleSoft Ada
IBM 4381 with VM/CMS
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 from home. All classes are offered in a 1 class per month format, for a total of 48 contact hours in a 4 week period. The last 3 classes (CS 627a, CS 627b, and CS 627c) are capstone senior project classes 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

Degrees: BS CS, MS CS, MS IS

Contact: Dr. Julius G. Assad
Associate Professor

(213) 337-4413

Update: September 1988

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

Software Engineering II (CS-476)
Codes: U P E Y 1

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

San Jose State University
School of Science
Department of Mathematics and Computer Science
Programs in Computer Science and Mathematics
San Jose, CA 95192-0103

Degrees: BA, BS, MA, MS

Contact: Prof. Veril L. Phillips
Chairman
(408) 924-5100

Update: February 1990

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

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

Santa Clara University
School of Engineering
EECS
Computer Engineering
Santa Clara, CA 95053

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

Contact: Dr. Daniel W. Lewis
Associate Chair for Computer Engineering
(408) 554-4483
User ID: DLEWIS@SCU
Network: BITNET

Update: February 1990

Courses: **Structure and Interpretation of Computer Programs** (EECS 172)
Codes: U P B Y 4
Textbooks: *Structure and Interpretation of Computer Programs* by Abelson and Sussman
Tools: IBM PC, HP engineering workstations TLC-LISP, PC-Scheme, Scheme

Introduction to Software Engineering (EECS 174)
Codes: U P B Y
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: UNIX workstations

Structure and Interpretation of Computer Programs (EECS 561)
Codes: G P B A 4
Textbooks: *Structure and Interpretation of Computer Programs* by Abelson and Sussman
Tools: HP workstations, IBM PC/AT and compatibles Scheme, PC-Scheme

Software Engineering (EECS 585)
Codes: G P B Y 4
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: UNIX workstations

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

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

Contact: Roy Jones
(415) 723-6092

Update: January 1989

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

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

The Claremont Graduate School
Department of Information Science
Claremont, CA 91711
Degrees: MS CIS, MS MIS, PHD

Contact: Prof. Lorne Olfman
Assistant Professor
User ID: OLFMANL@CLARGRAD
Network: BITNET

Update: November 1989

Courses: **Information Systems-Analysis and Design** (IS 305)
Codes: G P R Y 5
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.
The Practical Guide to Structured Systems Design, 2nd ed.
by Page-Jones, Meilir
Tools: IBM PC/AT
Design/1, Method/1, Excelerator

Systems Planning (IS 328)
Codes: G P B Y 5
Textbooks: *Readings in Systems Planning (IS 328)*
by Olfman, Lorne
Tools: IBM PC/AT
Action Diagrammer, Design/1, Excelerator, Rbase for DOS
University of Arizona GroupSystems, PRISM
selected 4GLs

Large Scale Software Development (IS 362)
Codes: G P R Y 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: IBM PC/AT, Macintosh
Excelerator
selected 4GLs

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

Degrees: BEECS, MS, ME, PHD, DENG

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

Update:

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

Degrees: BS, MS, PHD

Contact: Prof. Nancy Leveson
Associate Professor
(714) 856-7403
User ID: nancy@ics.uci.edu
Network: Internet

Update: July 1987

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

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

Software Engineering B (245B)
Codes: 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 the project requirement for B.S.

University of California, Santa Cruz
Natural Sciences
Computer and Information Sciences and Computer Engineering
Santa Cruz, CA 95064

Degrees: BS IS, MS IS, PHD IS, BS CE, MS CE, PHD CE

Contact: Nancy Ann Furber
Administrative Manager
(408) 459-4822
User ID: nancy@spica.ucsc.edu
Network: Internet

Update: January 1990

Courses: **Software Methodology** (CIS 115)
Codes: U P E Y 4
Textbooks: *Software Engineering, 3rd ed.*
by Sommerville, Ian
Tools: C++
UNIX
make, RCS, curses package (specifically for C++)
data flow diagrams, paper prototyping

Software Engineering (CE 276)
Codes: G P E Y 1
Textbooks: Selected readings

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

Degrees: MS ISE, PHD ISE

Contact: Dr. Mark H. Chignell
Assistant Professor
(213) 743-2705
User ID: chignell%mizar.usc@oberon.usc.edu

Update: October 1988

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

Cognitive Engineering (ISE 576)
Codes: G P R Y 2
Textbooks: *Readings in Human-Computer Interaction*
by Baecker, R.M. and W.A.S. Buxton
Tools: MacIntosh II
HyperCard / Hypertalk

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

Degrees: MS CS, PHD CS

Contact: Dr. Mark H. Chignell
Assistant Professor
(213) 743-2705
User ID: chignell%mizar.usc@oberon.usc.edu

Update: November 1988

Courses: **Introduction to Software Engineering** (CS 201L)
Codes: 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
Tools: Sun 3 Workstations

Design and Construction of Large Software Systems (CS 477L)
Codes: 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
Tools: Sun 3 Workstations

Management of Computing: Theory and Practice (CS 510)
Codes: G N E Y 1
Tools: Sun 3 and IBM RT Workstations

Design and Construction of Large Software Systems (CS 577a)
Codes: 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
Tools: Sun 3 Workstations

Design and Construction of Large Software Systems (CS 577b)
Codes: 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.
Tools: Sun 3 Workstations

Colorado

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

Degrees: BS CS

Contact: LtCol William E. Richardson
Professor and Head
(719) 472-3592
User ID: BILL@USAFA.ARPA

Update: September 1988

Courses: **Systems Analysis and Design I** (Comp Sci 453)
Codes: 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)
Codes: U P R Y 7
Textbooks: *The Practical Guide to Structured Systems Design*
by Page-Jones, Meilir

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

Real-Time Systems (Comp Sci 473)
Codes: U P R Y 1

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

Degrees: BS, MS

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

Update: None

Courses: **Introduction to Software Engineering** (CS 330)
Codes: U N R T 1

Textbooks: *Software Engineering with Ada and Modula-2* by Wiener, Richard, and Sincovec, Richard
Tools: MicroVAX

Systems Engineering Management (CS 435/535)
Codes: B N E A 1

Software Engineering Laboratory (CS 436/536)
Codes: B P E A 1

Software Specification and Requirements Analysis (CS 531)
Codes: G N E A 1

Software Design (CS 532)
Codes: G N E A 1

Software Testing (CS 533)
Codes: G N E A 1

Software Maintenance (CS 534)
Codes: G N E A 1

Topics and Readings in Software Engineering (CS 630)
Codes: 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

Degrees: MS, PHD

Contact: Prof. Michael S. Martin
Assistant Chairperson
(303) 871-3291
User ID: *mmartin@ducair*

Update: September 1988

Courses: **Software Engineering I, II, III** (COMP 4380, COMP 4381, COMP 4382)
Codes: G P E Y 5
Tools: C, Pascal
VAX 11/750

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

Connecticut

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

Degrees: BS

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

Update: November 1987

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

Software Engineering II (CS 514)
Codes: G P R Y 2
Tools: Pascal

Computer System Software and Architecture I (CS 516)
Codes: G P R Y 2
Tools: Pascal

Computer System Software and Architecture II (CS 517)
Codes: G P R Y 2
Tools: Pascal

On Line, Real Time, and Time Sharing Systems (CS 257)
Codes: G P E Y 2
Tools: 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

Degrees: MCS

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

Update: None

Courses: **Software Engineering I** (35677)
Codes: G P B T 5

Software Engineering II (35678)

Codes: G P E Y 5

Software Engineering Specification (66696)
Codes: G P E Y

User Interface Development (66834)
Codes: G P E Y 5
Textbooks: *Designing the User Interface*
by Schneiderman
Readings in Human Computer Interaction
by Baecker & Buxton
Tools: Sun, Macintosh
Sunview, Hypercard, Prototyper
C, Pascal, Hypertalk

Delaware

University of Delaware
College of Arts and Science
Department of Computer and Information Sciences
Newark, DE 19716

Degrees: BA, BS, MS, PHD

Contact: Prof. Eugene J. Bell
Assistant Professor
(302) 451-1957

Update: None

Courses: **Advanced Topics: Software Engineering** (CIS 879)
Codes: G N E O 2
Tools: C
Modula-2
VAX UNIX

District of Columbia

The American University
Department of Computer Science and Information Systems
Washington, DC 20016

Contact: Dr. Mehdi Owrang
Assistant Professor
(202) 885-3159

Update: January 1990

Courses: **Software Engineering** (40-345)
Codes: U P E Y 2
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: C, Pascal
Teamwork
IBM PC

Software Engineering (40-700)
Codes: G P E D
Textbooks: *Software Engineering: The Production of Quality Software*
by Pfleeger, Shari Lawrence

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

Degrees: BS CS, MS CS, SCD

Contact: James Foley
Chairman
(202) 994-6083

Update: None

Courses: **System Software and Software Engineering** (C.Sci. 151)
Codes: U P R T 5
Textbooks: *Software Engineering, 3rd ed.*
by Sommerville, Ian
Tools: Sun Workstations
C, UNIX

Computer Science 270 (C.Sci. 270)
Codes: G P E Y 2
Textbooks: *Program Construction and Verification*
by Backhouse, R. C.
The Specification of Complex Systems
by Cohen, B., W.T. Harwood, and M.I. Jackson
Tools: PC
Sun
Lex, Lint, Prolog, UNIX, Yacc

Additional Information:
System Software and Software Engineering is offered each Fall.

Florida

Barry University
School of Computer Science
Department of Computer Science
Computer Science
Miami, FL 33161

Degrees: BCS, MCS, MO, PHD CS, CIS, MIS, SE, TCS, CSE

Contact: Dr. L. O. Stromberg
Chair, Department of Computer Science
(305) 899-3608
User ID: LOS@Barry.edu

Update: January 1990

Courses: **Software Engineering** (CS 640)
Codes: G P R A 2
Textbooks: *Tutorial on Software Design Techniques, 4th ed.* by Freeman & Wasserman
Tools: Ada, C, Pascal
CASE, Focus
VAX 6310

Applied Software Development Project (CIS 512)
Codes: G P R T 4
Textbooks: *Structured Analysis Methods* by Teague
Tools: Ada, C, Pascal
CASE, Focus
VAX 6310

Florida Atlantic University
College of Engineering
Department of Computer Science
Boca Raton, FL 33431-0991

Degrees: BS, MS, MCS
Contact: Dr. Neal S. Coulter
Chairman
(407) 367-3180
User ID: coultern@servax
Network: BITNET

Update: November 1989

Courses: **Software Engineering** (CIS 6610)
Codes: G N R A 9
Textbooks: *Software Engineering* by Sommerville, Ian
Tools: Ada, C++, Pascal
HP 900V/300 Series
PCs
VAX 6230
VAX 8800

Principles of Software Design (CIS 4610)
Codes: U P R T 2
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Software Engineering: A Programming Approach
by Bell, D., Morrey, I. and Pugh, J.
Tools: DEC Ada
VAX 8800

Additional Information:
Software Engineering is offered 1-2 times per calendar year. Principles of Software Design is offered 2-3 times per calendar year.

Nova University
Center for Computer and Information Sciences
Graduate Department of Computer Science
Program in Computer Science
Ft. Lauderdale, FL 33314

Degrees: BS CS, MS CS, SCD CS

Contact: Dr. Edward R. Simco
Director
(305) 475-7563
User ID: uucp:gatech!ufl!florida!nova!vaxle

Update: February 1990

Courses: **Software Engineering** (CIS 680)
Codes: G N R Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: Ada, Concurrent C, Pascal, C++
3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)

Software Engineering Implementation (CIS 682)
Codes: G P E Y 4
Textbooks: *Practical Handbook for Software Development*
by Birrell and Ould
Software Engineering Metrics and Models
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Tools: Ada, Concurrent C, Pascal, C++
3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)

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

Software Engineering Project (CIS 870)
Codes: G P R Y 2
Textbooks: *Designing the User Interface*

by Shneiderman, Ben

Tools: Ada, Concurrent C, Pascal, C++
3B2/500 (UNIX)
VAX 785 (VMS)
VAX 8550 (ULTRIX)

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

Degrees: BS E, MS, MS E, PHD

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

Update: September 1988

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

Software Engineering II (ECM 6807)
Codes: G P E Y 1
Textbooks: *Ada: An Introduction*
by Saib, S.
Ada Language Reference Manual
(ANSI MIL-STD-1815A)
Software Engineering Concepts
by Fairley, Richard E.
Tools: 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

Degrees: MS CS, PHD CS

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

Update: None

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

Software Tools (COP 5682)
Codes: 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

Degrees: MS, PHD

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

Update: None

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

Software Engineering II - Tools and Applied Techniques (COP 6634)
Codes: G P E B 1

Hawaii

University of Hawaii at Hilo
Natural Sciences
Department of Computer Science and Engineering
Hilo, HI 96720

Degrees: BCS

Contact: Dr. Bill Chen
Professor
(808) 933-3388
User ID: chen@UHCCUX.UHCC.Hawaii.EDU
Network: Internet

Update: February 1990

Courses: **Compiler Theory** (CS 435)
Codes: U P E Y 4

Computer Sciences Applications (CS 494)
Codes: U P E D 1

Software Engineering Methodologies (CS 465)
Codes: U P E Y
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.
Software Engineering
by Sommerville, Ian
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Teaching a Project-Intensive Introduction to Software Engineering
by Tomayko, James

Systems Analysis and Design (CS 360)
Codes: U P R Y 5
Textbooks: *Computers and the Information Society*
by Rosenberg, R.
Crafting a Compiler
by Fischer, C. and LeBlanc, R. Jr.
Modern Structured Analysis
by Yourdon, Edward N.
Selected readings
Software Engineering
by Sommerville, Ian
Software Engineering: A Beginners Guide
by Pressman, Roger S.
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Software Engineering: An Industrial Approach
by Radice, R. and Phillips, R.
Systems Analysis and Design
by Kendall, J. and Kendall, K.
Tools: Excelerator
IBM PC
Macintosh
Ada/CS, Turbo Pascal
Janus/Ada
MacBubbles

Database Management System Design (CS 425)

Codes: U P E D 1

Textbooks: *Principles of Database Systems*
by Ullman, J.
Teaching a Project-Intensive Introduction to Software Engineering
by Tomayko, James
Understanding Database Management Systems
by Vasta, J.

Tools: IBM PC
Turbo Pascal

Idaho

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

Degrees: BS CS, MS CS

Contact: Dr. John Dickinson
Chairman
(208) 885-6589
User ID: JOHND@IDUI1
Network: BITNET

Update: October 1987

Courses: **CS Design I** (CS 480)
Codes: U P R T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: HP workstations, IBM 4381
IBM PC, VAX 11/780

CS Design II (CS 481)
Codes: U P R T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: HP workstations, IBM 4381
IBM PC, VAX 11/780

Software Engineering (CS 410/510)
Codes: B P E Y 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: HP workstations
IEW, TEAMWORK

Software Metrics (CS 511)
Codes: G P R B 4
Textbooks: *Controlling Software Projects*
by DeMarco, Tom
Software Engineering Metrics and Models
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Tools: Metric extraction tools
Cost estimation tools

Software Quality Assurance and Testing (CS 404/504)
Codes: B P E Y 4
Textbooks: *Software Quality Engineering*
by Deutsch and Willis
Software Testing Techniques
by Beizer
Tools: Turbo Pascal
IBM PC

Empirical Studies in Programming (CS 404/504)
Codes: B P E B

Additional Information:

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

Illinois

Bradley University
College of Liberal Arts and Sciences
Department of Computer Science
Peoria, IL 61625

Degrees: BS, MS

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

Update: April 1990

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

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

Programming Methodology (CS 503)
Codes: 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)
Codes: U P E Y 2

Structured Programming Using C (CS 221)
Codes: 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
Tools: C
AT&T 3B series
VAX

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

Software Engineering II (CS 616)

Codes: 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

Degrees: BS, MS

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

Update: May 1987

Courses: **Software Projects** (394)
Codes: U P R O 6
Tools: DEC
VAX 11/780
C

Software Engineering (365)
Codes: U P R O 3
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: TeleSoft
VAX 11/780
Ada

Software Measurement and Quality (366)
Codes: 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)
Codes: 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)
Codes: U N E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: TeleSoft
VAX 11/780
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

Degrees: BA CS, MS M

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

Update: None

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

Software Engineering (MSY 578)
Codes: 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

Degrees: BA, BS CS

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

Update: September 1988

Courses: **Software Design and Development** (CS 424)
Codes: B P E Y 5
Textbooks: *Software Engineering: Planning for Change* by Lamb, David
Topics in Software Engineering (CS 524)
Codes: G N E O 2
Tools: Ada
MicroVAX 2

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

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

Contact: Dr. Carl K. Chang
Assistant Professor
(312) 996-4860
User ID: ckchang@uicbert.eecs.uic.edu
Network: CSNET

Update: February 1989

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

Advanced Topics in Software Engineering (EECS 481)
Codes: G P E Y 5
Textbooks: *Software Engineering: Analysis and Verification*
by Lewis, T. G.
Tools: Sun 3 and Sun SPARC Workstations
UNIX BSD 4.2 C
Petri Net Tools

Software Engineering Environments (EECS 482)
Codes: G P E Y 5
Textbooks: *Software Engineering Environments*
by Charette, Robert
Tools: Sun 3 and Sun SPARC Workstations
UNIX BSD 4.2 C

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

Degrees: MS, MS TCS, MCS, PHD

Contact: Dr. Samuel N. Kamin
Associate Professor
(217) 333-6769
User ID: kamin@a.CS.UIUC.EDU

Update: January 1989

Courses: **Operating Systems** (CS 323)
Codes: B P E O 16
Textbooks: *An Introduction to Operating Systems*
by Deitel, H.M.
Tools: Path Pascal
IBM 9000

Software Engineering (CS 327)
Codes: B P E Y 6
Textbooks: *Software Engineering: A Practitioner's Approach*

by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.

Tools: C, Lisp, Pascal
IBM PC/RT

Additional Information:

Operating Systems is offered twice a year.

Indiana

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

Degrees: BS, MA, MS

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

Update: May 1987

Courses: **Software Engineering I (Systems Analysis)** (497)
Codes: 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
Tools: C, COBOL, FORTRAN, Pascal
Dept VAX 785 (UNIX)
VAX cluster (three 785 and one 86500)

Software Engineering II (Design and Development) (498)
Codes: 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 N. and Constantine, Larry L.
Tools: C, COBOL, FORTRAN, Pascal
Dept VAX 785 (UNIX)
VAX cluster (3 785, 1 86500)

Principles of Software Engineering (580)
Codes: G N R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Ada, C
Dept VAX 785 (UNIX)
VAX cluster

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 from CS 497-498 are actual projects selected by the students and each is approved by the professor. We are presently developing 2 courses which 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 and will be given by the Department of Psychological Science.

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

Degrees: BA, BS, MS, PHD

Contact: Prof. Edward L. Robertson
Professor
(812) 335-4954
User ID: elr@iuvax.cs.indiana.edu

Update: September 1988

Courses: **Information Systems I** (C445)
Codes: 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.
Tools: VAX (ULTRIX)
Xerox workstations
C, FORTRAN, Ingres, Modula-2, dBase III plus, rBase 5000

Information Systems II (C446)
Codes: 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.
Tools: VAX (ULTRIX)
Xerox workstations
C, FORTRAN, Ingres, Modula-2, dBase III plus, rBase 5000

Software Engineering Management (C607)
Codes: 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 P.
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)
Codes: 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 P.
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 the BA/BS requirement with suitable individual project and paper.

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

Degrees: BS, MS, PHD

Contact: Dr. H. E. Dunsmore

Associate Professor
(317) 494-1996
User ID: bxd@purdue.edu

Update: None

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

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

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

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

Degrees: BS, MS, PHD

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

Update: June 1987

Courses:

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

Rose-Hulman Institute of Technology
Department of Computer Science
Terre Haute, IN 47803

Degrees: BS

Contact: Prof. Frank H. Young
Chairman
(812) 877-8401
User ID: young@rosevc.rose-hulman.edu
Network: BITNET

Update: February 1990

Courses: **Software Engineering** (CS 414)
Codes: U P R Y 5
Textbooks: *Software Engineering, 2nd ed.*
by Pressman, Roger S.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: Ada, Pascal, C
DEC VAX 6320 (VMS), Sun workstations

Software System Documentation (CS 405)
Codes: U P R Y 4

Senior Computer Science Project I & II (CS 497/CS 498)
Codes: U P R Y 2

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

Degrees: BA, BS, MS CSED, MS MIS

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

Update: None

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

Software Engineering Project (CS 494/495/497)
Codes: U P R T 1

Software Engineering (CS 521)
Codes: 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.

Iowa

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

Degrees: BS, MS, PHD

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

Update: October 1988

Courses: **Software Engineering** (CS 411)
Codes: U N E O 6
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Tools: HP 9000 Model 350
Ada

Software Engineering (CS 512)
Codes: 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

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

Contact: William F. Decker
Asst. Research Scientist
(319) 335-0747
User ID: decker@cs.uiowa.edu
Network: Internet

Update: March 1990

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

Kansas

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

Degrees: BA, BS, MS, MCS

Contact: Dr. Donald Gotterbarn
(316) 689-3156
User ID: gotterbarn@twsuvax
Network: BITNET

Update: December 1989

Courses: **Introduction to Software Engineering** (CS 580)
Codes: B P E T 8
Textbooks: *Software Engineering, 3rd ed.*
by Sommerville, I.
Tools: Ada, Pascal
IBM 3031D
VAX 750

Ada and Software Engineering (CS 611)
Codes: G P E Y 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: ALSYS
IBM at CLONE
Ada

Applications Systems Analysis (CS 684)
Codes: G P E B 7

Software Testing and Reliability (CS 882)
Codes: G P R Y 7
Tools: Ada, Pascal
VAX

Requirements Specification and Design (CS 881)
Codes: G P R B 1
Textbooks: Selected readings
Tools: VAX 8300

Software Project Management (CS 886)
Codes: G P E B 2
Textbooks: *Managing Programming People*
by Metzger, P.W.
Selected readings
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.

Topics in Software Engineering (CS 889)
Codes: G P E Y 2
Textbooks: Varies by topic
Tools: Varies by topic

Additional information:

Software Engineering MCS emphasis was established in 1988. Its requirements are: CS 580, 881, 882, internship, and practicum. The electives are: 6 hours such as CS 611, 684, 886, and special topics. Special topics offered in 1987-88 were:

Software Configuration Management and Software Project Management and the special topic in 1989-90 was Software Reuse.

Kentucky

Northern Kentucky University
Department of Mathematics and Computer Science
Highland Heights, KY 41076

Degrees: BS CS

Contact: Dr. Charles E. Frank
Coordinator
(606) 572-5320
User ID: frank@nkuvax
Network: BITNET

Update: February 1990

Courses: **Software Engineering** (CSC 440)
Codes: U P R T 5
Textbooks: *Software Engineering: A Beginner's Guide*
by Pressman, Roger S.
Tools: C, Modula-2, dBASE III+
Sun, PC

University of Louisville
J.B. Speed Scientific School
Information Science & Data Processing
Louisville, KY 40292

Degrees: BS IS

Contact: Dr. Ronald A. Mann
Professor and Chair
(502) 588-7520
User ID: RAMANN02@ULKYVX
Network: BITNET

Update: February 1990
Courses: **Analysis & Design of Informations Systems** (ISDP 510)
Codes: U P R Y 4
Textbooks: *Structured Techniques*
by Martin and McClure
Systems Analysis & Design, 2nd ed.
by Whitten and Bentley
Tools: Excelerator
IBM PS/2 Model 50

Special Topics: Programming in the Large (ISDP 500)
Codes: U P E B 2
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Software Components with Ada
by Booch, Grady
Software Engineering with Ada
by Booch, Grady
Tools: IBM PS/2 Model 50, VAX
Ada

Western Kentucky University
Ogden College of Science, Technology and Health
Department of Computer Science
Bowling Green, KY 42101

Degrees: BS, MS

Contact: Dr. Kenneth Modesitt
Professor and Department Head
(502) 745-4642

Update: October 1988

Courses: **Structured Systems Analysis** (CS 448)
Codes: B P E Y 5

Introduction to Computer Sciences: Ada (CS 245)
Codes: U P R Y 3
Textbooks: *Ada: An Introduction*
by Saib, S.
Tools: Ada
C, FORTRAN
VAX, PCs
Anatool, Excelerator (Index Technology)
CASE Tools: ProMod, DesignAid (Nastec), Analyst Toolkit

Louisiana

Louisiana State University at Shreveport
College of Science
Department of Computer Science
Shreveport, LA 71115

Degrees: BS CS, MS SYST

Contact: Dr. Dave Foley
Associate Professor of Computer Science
(318) 797-5184

Update: February 1990

Courses: **Software Engineering Project** (CSC 480/481)
Codes: U P R T 5
Textbooks: *Software Engineering, 3rd ed.*
by Sommerville, Ian
Tools: Turbo Pascal 5.5
IBM PC compatibles

Louisiana Tech University
Department of Computer Science
Ruston, LA 71272

Degrees: BS, MS

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

Update: September 1988

Courses: **Structured Design** (CS 203)
Codes: U P R O 4
Textbooks: *Software Engineering: The Production of Quality Software*
by Pfleeger, Shari Lawrence
Tools: Sun, IBM PC
Ada, C

Software Methodology (CS 460)
Codes: U P E Y 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Sun, IBM PC
Ada, C

System Design (CS 540)
Codes: G P E Y 4
Tools: Sun, IBM PC
Ada, C

Additional Information:
Structured Design is offered twice a year.

Northeast Louisiana University
Department of Computer Science
Monroe, LA 71209-0575

Degrees: BS CS

Contact: Dr. Alan Yaung
Assistant Professor
(318) 342-2186
User ID: CNYAUNG@NLU.EDU
Network: CSNET

Update: February 1990

Courses: **Software Engineering** (CS 460)
Codes: U P R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: PC, VAX 11/780, Macintosh
Pascal

University of Southwestern Louisiana
The Center for Advanced Computer Studies
Computer Science and Engineering
Lafayette, LA 70504-4330

Degrees: BS CS, MS CS, MS CE, PhD CS, PhD CE

Contact: Dr. Steve Landry
Associate Director
(318) 231-6768
User ID: spl@cacs-usl.edu
Network: Internet

Update: February 1990

Courses: **Introduction to Software Methodology** (CMPS 453)
Codes: B P E Y 4
Textbooks: *Elements of Programming Style*
by Keringhan & Plaugher
Software Engineering - A Practitioner's Approach
by Pressman, Roger S.
Tools: UNIX, make, rcs, shell-script, awk, profile

Software Methodology (CMPS 553)
Codes: G P E Y 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Software Engineering, 2nd Ed.
by Pressman, Roger S.
The Practical Guide to Structured Systems Design
by Meiler

Advanced Software Methodology (CMPS 653)
Codes: G P E D 5
Textbooks: Selected readings

Maryland

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

Degrees: BS, MS, PHD

Contact: Dr. H. Dieter Rombach
Assistant Professor
(301) 454-8974
User ID: dieter@cs.umd.edu
Network: Internet

Update: September 1988

Courses: **Software Design and Development** (CMSC 435)
Codes: B P E T 6
Textbooks: *Software Engineering: Planning for Change*
by Lamb, David
Software Product Assurance: Techniques for Reducing Software Risk
by Bryan and Siegel
Tools: VAX/UNIX
C, Pascal
Verdix Ada

Computer Science I (CMSC 112)
Codes: U N R T 6
Textbooks: *PascAlgorithms*
by Reingold and Reingold
Tools: VAX/UNIX
VAX Pascal Compiler

Computer Science II (CMSC 113)
Codes: U P R T 6

Software Design and Development in Ada (CMSC 838)
Codes: G P E D 3
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Software Engineering with Ada
by Booch, Grady
Tools: Verdix Ada
VAX 8600

A Quantitative Approach to Software Management and Engineering (CMSC 735)
Codes: 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.

Introduction to AI Programming (CMSC 421)
Codes: U N E Y 6
Textbooks: *Artificial Intelligence Programming*
by Charniak, Riesbeck, McDermott, and Meehan
Programming in Prolog
by Clocksin, W. F. and Mellish, C. S.

Tools: MicroVAXes
LISP, Prolog

Additional Information:

The department offers other software engineering related courses, among them: Theory of Language Translation (CMSC 430), Theory of Programming Languages (CMSC 630), as well as a variety of software engineering related seminars.

Massachusetts

Boston University
College of Engineering
Department of Electrical, Computer, and Systems Engineering
Programs in Systems Engineering, Computer Engineering, Electrical Engineering
Boston, MA 02215

Degrees: MS EE, MS CE, MS SYSE, PHD E

Contact: Dr. John W. Brackett
Coordinator, Soft. Eng. Graduate Program
(617) 353-5898
User ID: jwb@buenga.bu.edu

Update: October 1988

Courses: **Advanced Data Structures** (SC 504)
Codes: B N B Y 1
Textbooks: Selected readings
Tools: DEC VAX Ada
Encore
VAX 785

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

Applications of Formal Methods (SC 517)
Codes: 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)
Codes: 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.
Tools: IBM PC on VAX 785

The Computer as a System Component (SC 714)
Codes: G P R Y 1
Textbooks: Selected readings
Tools: DEC VAX Ada
Encore
VAX 785

Software Engineering Project (SC 912)
Codes: G P R Y 4
Tools: DEC VAX Ada
Encore

IBM PC
VAX 785
Workstations
Ada predominantly, but depends on project

Additional Information:

We also teach 2 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 the IBM PC).

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

Degrees: BS, MS, PHD

Contact: Prof. F. J. Corbato
Associate Head for Computer Science and Engineering
(617) 253-6001

Update: September 1988

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

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

Additional Information:

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

Northeastern University (Entry 1)
College of Computer Science
Boston, MA 02115

Degrees: BS, BA, MS, PHD

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

User ID: rasala@corwin.ccs.northeastern.edu

Update: February 1990

Courses: **Software Design and Development** (COM 1205)
Codes: U P R A 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Think Pascal, Think C, or Sun C
Macintosh SE and Sun workstations
Hypercard
Software Through Pictures

Software Design and Development (COM 3205)
Codes: G N E Y 5
Textbooks: *Abstraction and Specifications in Program Development*
by Liskov, Barbara and Guttag, John
Software Engineering: A Practitioner's Approach, 2nd ed.
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Tools: Sun workstations, PC, Macintosh SE
C, Lisp, Pascal
Software Through Pictures, Teamwork

Requirements Analysis and Specification (COM 3210)
Codes: G P E Y
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
Tools: Sun workstations, PC, Macintosh SE
C, Lisp, Pascal
Software Through Pictures, Teamwork

Software Testing, Verification and Validation (COM 3220)
Codes: G P E Y

Northeastern University (Entry 2)
College of Engineering
Department of Industrial Engineering and Information Sciences
Engineering Software Design
Boston, MA 02115

Degrees: MS CSE

Contact: Prof. Mieczyslaw M. Kokar
Program Coordinator
(617) 437-4849
User ID: Kokar@Northeastern.edu

Update: February 1990

Courses: **Engineering Project Management** (IIS 3217)
Codes: G N B B 5
Textbooks: *Project Management*
by Meredith, J.R. and Mantel S.J.
Tools: Project Workbench for the IBM PC

Software Engineering I (IIS 3637)
Codes: G P R B 4
Textbooks: *Software Engineering, 2nd ed.*

by Sommerville, Ian
Software Engineering: A Practitioner's Approach, 2nd ed.
by Pressman, Roger S.
Tools: Excelerator
IBM PC

Software Engineering II (IIS 3625)
Codes: G P R B 4
Textbooks: *Analyzing Systems*
by Kowal
Using Excelerator for Systems Analysis & Design
by Whitten and Bentley
Tools: Excelerator
IBM PC

Software Engineering Project (IIS 3651)
Codes: G P R Y 4

Additional Information:
The MS CSE degree has a specialization in Engineering Software Design. IIS 3217 is offered in the Fall quarter on the Boston campus and in the Spring quarter on the Burlington campus.

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

Degrees: BS CSE, BS EE, MS, PHD

Contact: Jan Cuny
(413) 548-9120

Update: October 1988

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

Performance Evaluations (ECE 673)
Codes: G P E Y 1

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

Contact: Jan Cuny
(413) 548-9120

Update: November 1988

Courses: **Software Engineering** (COINS 520)
Codes: B P X Y 5
Textbooks: Selected readings
Software Engineering with Modula-2 and Ada

by Wiener, Richard and Sincovec, Richard
Tools: Students' choice: Ada, Lisp, C, Pascal
Students' choice

Software Engineering Practicum (COINS 620)
Codes: G P X B 3

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

University of Massachusetts at Boston
Department of Mathematics and Computer Science
Boston, MA 02125

Degrees: BS, MS

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

Update: None

Courses: **Software Engineering I** (650)
Codes: G P R Y 1
Tools: UNIX on VAX 750

Software Engineering II (660)
Codes: G P R Y 1
Tools: UNIX on VAX 750

Software Engineering Laboratory I (651)
Codes: G P R Y 1
Tools: UNIX on VAX 750

Software Engineering Laboratory II (661)
Codes: G P R Y 1
Tools: UNIX on VAX 750

Worcester Polytechnic Institute
Computer Science
Worcester. MA 01609

Degrees: PHD, MS, BS CS/EE, MS BS M

Contact: Dr. Robert E. Kinicki
Chairman
(508) 831-5357
User ID: Kinicki@wpi-cs.wpi.edu
Network: CSNET

Update: February 1990

Courses: **Software Engineering** (CS 4733)

Codes: U P O Y 5
Textbooks: *Software Engineering - A Practitioner's Approach*
by Pressman, Roger S.
Tools: PC, Sun, Macintosh, Encore
Pascal, C
Teamwork

Human Computer Interaction (CS 3041)
Codes: U P O Y 5
Textbooks: *Designing the User Interface*
by Shneiderman, Ben
Tools: Pascal or C

Database Design (CS 4431)
Codes: U P E B 5
Textbooks: *Fundamentals of Database Systems*
by Elmasvi and Navathe
Tools: SQL, Entity Relational Model

Software Engineering (CS 541)
Codes: G P O Y 5
Textbooks: Selected readings
Tools: Mainframes and PCs
Pascal, C, or Ada
Teamwork

Database Management Systems (CS 542)
Codes: G P E Y 5
Textbooks: *Database and Knowledge Based Systems*
by Ullman
Tools: SQL, Entity Relational Model

Michigan

Andrews University
Department of Computer Information Science
Berrien Springs, MI 49104-0360

Degrees: MS SE

Contact: Dr. Daniel R. Bidwell
Graduate Director for Computer Science
(616) 471-3425
User ID: bidwell@Andrews.edu

Update: February 1990

Courses: **Programming Project Management** (INSY 645)
Codes: G P R Y 4
Textbooks: *Software Configuration Management: Coordination for Team Productivity*
by Babich, W.A.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
The Program Development Process: The Programming Team PART II
by Aron, J.D.

Software Engineering I (INSY 541)
Codes: G P R Y 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Demo II

Software Engineering II (INSY 542)
Codes: G P R Y 5
Textbooks: *Designing User Interfaces for Software*
by Dumae
Developing Effective User Documentation
by Simpson and Casey
Writing Better Computer User Documentation
by Brockmann, R. John

Computer Architecture (COSC 565)
Codes: G P R Y 5
Textbooks: *Computer Systems Architecture*
by Beck

Operating Systems I (COSC 461)
Codes: B P R Y 5
Textbooks: *Operating Systems Design and Implementation*
by Tanenbaum, A.S.
Tools: Minix operating system

Systems Analysis I (INSY 481)
Codes: B P R Y 5
Textbooks: *Systems Analysis and Design Methods*
by Whitten, Bentley, and Ho

Systems Analysis II (INSY 482)
Codes: B P R Y 5

Database Systems (INSY 472)

Codes: B P R Y 5
Textbooks: *Databases Systems for Management*
by Courtney, J.F.
Tools: Dbase, Informix for UNIX

Data Structures (INSY 472)
Codes: B P R Y 5
Textbooks: *Data Structures: An Advanced Approach Using C*
Tools: C, Fortran, Pascal
PC
UNIX

Grand Valley State University
Science and Mathematics
Department of Mathematics and Computer Science
MS in Computer Information Systems (emphasis in software engineering)
Allendale, MI 49401

Degrees: MS CIS

Contact: Prof. Joseph J. Adamski
Associate Professor
(616) 895-2046
User ID: 21874jja@msu.bitnet
Network: BITNET

Update: February 1990

Courses: **Systems Analysis** (650)
Codes: G N R Y 2

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

Degrees: BS, MS, PHD

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

Update: October 1987

Courses: **Design of Language Processors I** (CPS 451)
Codes: U P R Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Theory and Practice of Compiler Writing
by Tremblay and Sorenson
Tools: Sun 3 file server
Workstations on Ethernet
C, UNIX

Design of Language Processors II (CPS 452)
Codes: U P R Y 6
Textbooks: *Software Engineering Concepts*

by Fairley, Richard E.
Theory and Practice of Compiler Writing
by Tremblay and Sorenson

Tools: Sun 3 file server
Workstations on Ethernet
C, UNIX

Design of Language Processors III (CPS 453)
Codes: U P R Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Theory and Practice of Compiler Writing
by Tremblay and Sorenson
Tools: Sun 3 file server
Workstations on Ethernet
C, UNIX

Design of Database Systems III (CPS 484)
Codes: U P E Y 2
Textbooks: *Database Systems and Concepts*
by Silbersatz and Korth
Software Engineering Concepts
by Fairley, Richard E.
Tools: C, UNIX, LEX

Design of Database Systems I (CPS 483)
Codes: U P E Y 2
Textbooks: *Files & Databases*
by Smith and Bernes
Software Engineering Concepts
by Fairley, Richard E.
Tools: C, UNIX, LEX

Systems Software Development (CPS 316)
Codes: U P R T 2
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Systems Software
by Beck
Tools: C, UNIX
Sun computers

Additional Information:
A full academic year sequence is 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

Degrees: BS CS, MS CS

Contact: Dr. Linda M. Ott
Associate Professor
(906) 487-2187
User ID: linda@mtu.edu

Update: October 1988

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

Software Engineering (CS465)
Codes: U P E Y 3
Textbooks: *Software Engineering, 2nd ed.*
by Sommerville, Ian
Tools: CC
Sequent Balance 8000 running Dynix
C

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

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

Degrees: BSE ISE, MSE ISE

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

Update: None
Courses: **Software Engineering** (I&SE 553)
Codes: G P E Y 1
Textbooks: *Controlling Software Projects: Management Measurement and Estimation*
by DeMarco, Tom
Software Design and Development
by Gilbert, Philip
Tools: Michigan Terminal System (Amdahl)

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

Degrees: BS, MS, PHD

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

Update: None

Courses: **Engineering Software Design** (ECE 660)
Codes: G P X Y 1
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.

Tools: 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

Degrees: BS CS, MS CS

Contact: Dr. Mark Kerstetter
Associate Professor
(616) 387-5658
User ID: kerstetter@gw.wmich.edu

Update: October 1988

Courses: **Software Systems Development** (544)
Codes: 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 P.
Tools: C, COBOL, FORTRAN, Pascal
IBM-PC/XT/AT
IBM PS/2
Macintosh
VAX/UNIX
VAX/VMS
dBase

Additional Information:

Software Systems Development uses real projects and is offered 3 times per year. 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 "presentation day," which takes place at the end of the semester.

Minnesota

College of St. Thomas
Computer Science
Master of Software Design and Development
St. Paul, MN 55105

Degrees: MSDD, MS

Contact: Dr. Bernice Folz
Professor and Dean
(612) 647-5367

Update: February 1990

Courses: **Technical Communications** (CS 500)
Codes: G N R T 3
Textbooks: *Handbook of Technical Writing*
by Brusaw, Alred, and Olin
How to Write a Usable User Manual
by Weiss
Manual for Technical Communications
Readings for Technical Writers
by Journet and Kling

Software Engineering Methodologies (CS 510)
Codes: G N R T 3
Textbooks: *Algorithms + Data Structures = Programs*
by Wirth, N.
Classics in Software Engineering
by Yourdan
Data Structure and Algorithms
by Aho, Hopcroft, and Ullman
Software Engineering Concepts
by Fairley, Richard E.
Software Engineering in Ada
by Cummings, R.

Software Productivity Tools (CS 520)
Codes: G P R T 3
Textbooks: *A Guide to INGRES*
by Date, Chris
Analysis and Design of Information Systems
by Senn
CASE - Using Software Development Tools
by Fisher, Alan S.
Fourth Generation Languages, Vol. I
by Martin
INGRES Manuals from Relational Technology

Using Excelerator for Systems Analysis and Design
by Whitten and Bentley
Tools: IBM - AT, PS/2
DEC VAX/VMS
Excelerator, INGRES + 4GL Components, Analyst Helper,
ORACLE, PSL/PSA, HOS.Uselt

DBMS and Design (CS 530)
Codes: G P R T 3

Textbooks: *Database Systems Concepts*
by Karth and Silberschatz
Tools: DEC VAX/VMS, IBM PS/2, ORACLE, INGRES, Informix

Systems Analysis and Design I (CS 540)
Codes: G P R T 3
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.
Systems Analysis and Design
by Kendall and Kendall
Tools: Macintosh - ICONIX
IBM - AT, PS/2 - E..celerator

Data Modeling and Information Analysis (CS 541)
Codes: G N E Y 1
Textbooks: ACM TODS, Vol. 1, No. 1, 1976
Information Analysis Concepts and Methodology
by Control Data Corp.
The Entity-Relationship Model - Toward a Unified View of Data
by Chen, Peter
Tools: IBM - AT
PRECISE (CDC)

Software Project Management (CS 600)
Codes: G P R T 3
Textbooks: *Software Engineering Project Management - Tutorial*
by Thayer, R. H.
Tools: IBM AT
Timeline, Primevera

Operating Systems Design (UNIX and C) (CS 610)
Codes: G P E Y 3
Textbooks: *Operating Systems Concepts*
by Peterson & Silberschatz
Operating Systems Design and Implementation
by Tannenbaum
Tools: DEC VAX/VMS
C Language

Real-Time Systems and Applications (CS 612)
Codes: G P E Y 1
Textbooks: *Introduction to Real-Time*
by Allworth and Zobel
Tools: Macintosh - ICONIX

Graphics (CS 620)
Codes: G P E Y 3
Textbooks: *Computer Graphics*
by Hearn and Baker
Tools: IBM - PC, VAX/VMS
Turbo Pascal, GK2000, Picsure

Telecommunications (CS 625)
Codes: G P E Y 3
Textbooks: *Computer Networks*
by Tannenbaum

Artificial Intelligence and Knowledge Based Systems (CS 635)
Codes: G P E T 3
Textbooks: *Artificial Intelligence and the Design of Expert Systems*
by Lugert & Stubblefield
Tools: DEC VAX/VMS, IBM AT, Macintosh, LISP, Prolog, Allegro

Knowledge Based Systems II (CS 636)
Codes: G P E Y 3
Textbooks: *A Guide to Expert Systems* by Waterman
Tools: IBM PC
PC+

St. Cloud State University
College of Science and Technology
Department of Computer Science
Computer Science
St. Cloud, MN 56301-4498

Degrees: BS CS

Contact: Dr. Annette D. Schoenberger
Associate Professor
(612) 255-4966
User ID: Annette%TIGGER@MSUS1
Network: BITNET

Update: February 1990

Courses: **Software Engineering I** (CSCI 420-520)
Codes: B P E B 1
Textbooks: Selected readings
Software Engineering, Planning for Change by Lamb, David
Software Engineering with Ada (2nd Edition) by Booch, Grady
Tools: Ada, Pascal
Design Notations; Jackson, Harel

Software Engineering II (CSCI 421-521)
Codes: B P E B 1
Textbooks: Selected readings
Software Engineering with Ada (2nd Edition) by Booch, Grady

Software Engineering III (CSCI 422-522)
Codes: B P O B 1
Textbooks: Selected readings
Software Engineering, Planning for Change by Lamb, David
Software Engineering with Ada (2nd Edition) by Booch, Grady
Tools: Ada, Pascal
Design Notation: Jackson, Harel

Software Engineering Project (CSCI 430-530, 431-531, 431-532)
Codes: B P B B 1
Textbooks: Language reference manuals
Tools: Ada, Pascal

University of Minnesota
Institute of Technology
Department of Computer Science
Program in Computer Science

Minneapolis, MN 55455

Degrees: BS, MS, PHD

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

Update: June 1987

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

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

Software Engineering (III) (Csci 5199)
Codes: 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.
Tools: Ada
Sun
MSG

Software Requirement, Design and Maintenance (Csci 5199/8199)
Codes: 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)
Codes: 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)
Codes: B P E Y 3
Textbooks: *Software Engineering with Ada*

by Booch, Grady

Tools: Ada
Sun

Software Specification (Csci 5199/8199)
Codes: 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.

Missouri

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

Degrees: BS, MS, SCD

Contact: Dr. Gruia Catalin Roman
Associate Professor
(314) 889-6190
User ID: gcr@wucs2.wustl.edu

Update: February 1990

Courses: **Distributed System Design** (CS 576S)
Codes: G P E B 2

Modular Programming (CS 545S)
Codes: G P E B 5

Programming Systems and Language (CS 455)
Codes: B P R O 11
Textbooks: *Coordinated Computing: Tools and Techniques for Distributed Software*
by Filman, Robert E. and Friedman, Daniel P.
Programming Languages: Design and Implementation
by Pratt, Terrence W.
Tools: DEC Ada, Franz Lisp, Prolog
MicroVAX II

Research Seminar on Distributed System Design (CS 673.1 - CS 673.6)
Codes: G N E T 2

Software Engineering Workshop (CS 456)
Codes: B P R O 11
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Programming in Modula-2
by Wirth, Niklaus
Tools: DEC Ada, DECSRC Modula-2+
Micro VAX II
VAX 11/750
Modula-2, Smalltalk

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

Montana

University of Montana
College of Arts and Sciences
Department of Computer Science
Missoula, MT 59812-1008

Degrees: BS CS, MS CS

Contact: Prof. Alden Wright
Professor of Computer Science
(406) 243-4790
User ID: apple.com!umtlcs_ahw
Network: Usenet

Update: February 1990

Courses: **Implementation** (CS 543)
Codes: G P R Y 4
Textbooks: Selected readings

Requirements and Specifications (CS 541)
Codes: G N R Y 4
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.
Tools: Excelerator
IBM AT

Design (CS 542)
Codes: G P R Y 4
Textbooks: *Structural Design*
by Yourdon, Edward N. and Constantine, Larry L.

Formal Semantics and Specification (CS 539)
Codes: G P O B 2
Textbooks: *Program Construction & Verification*
by Backhouse, R. C.
The Science of Programming
by Gries, David

Advanced Programming Languages - Object Oriented Design and Programming (CS 535)
Codes: G P E B 2
Textbooks: *Object-Oriented Software Construction*
by Meyer
Tools: Eiffel language
VAX 785 running ULTRIX

New Hampshire

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

Degrees: BA, MS, PHD

Contact: Samuel W. Bent
Associate Professor
(603) 646-2760
User ID: sam.bent@dartmouth.edu

Update: October 1988

Courses: **Software Design and Implementation** (CS 23)
Codes: U P R O 2
Textbooks: *Programming Pearls*
by Bentley, Jon Louis
Software Engineering Concepts
by Fairley, Richard E.
Tools: C, Lightspeed Pascal
CONVEX
Macintosh
VAX 11/785
AWK, LEX

Additional Information:

Software Design and Implementation is offered 2 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.

New Jersey

Fairleigh Dickinson University
College of Science and Engineering
Department of Mathematics and Computer Science
Teaneck, NJ 01666

Degrees: BS, BSE, MS

Contact: Dr. Gertrude Levine
Associate Professor
(201) 692-2020

Update: February 1990

Courses: **Advanced Programming Language Concepts Using Ada** (CS 439)
Codes: U P E D 1
Textbooks: *Software Engineering Concepts with Ada*
by Booch, Grady
Tools: Ada, DEC debugger, LSE
DEC workstations

Special Topics in Ada (CS 847)
Codes: G P R Y 1
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Tools: Ada, DEC debugger, LSE
DEC workstations

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

Degrees: MS SE

Contact: Prof. Ed McCrohan
Director

Update: None

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

Network Design and Protocols II (SE 511)
Codes: G X R X 1

Operating System Implementation (SE 515)
Codes: G X R X 1

Software Engineering I (SE 516)
Codes: G X R X 1

Software Engineering II (SE 517)
Codes: G X R X 1

System Project Implementation (SE 525)
Codes: G X R X 1

Software Project Management (Video Course)
Codes: X X X X

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

Degrees: BS, MA CS

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

Update: None

Courses: **Software Engineering and Reliability** (Y0701 594)
Codes: 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.

Programming Languages (Y0701 484)
Codes: U P E B 5
Textbooks: *Programming Languages: Design and Implementation*
by Pratt, Terrence W.
Tools: Ada

Stockton State College
Professional Studies
Information and Computer Sciences
Pomona, NJ 08240

Degrees: BA O, BS CS, BS IS

Contact: Murray R. Kirch
Professor of Comp. Sci. & Mathematics
(609) 652-4353
User ID: kirch@pilot.njin.net
Network: Internet

Update: February 1990

Courses: **Software Engineering with Ada** (INFO 4130)
Codes: U P E Y 1
Textbooks: *Ada as a Second Language*
by Cohen, Norman H.
Software Engineering with Ada
by Booch, Grady
Tools: Briefcase (to be replaced with Excelerator)
VAX/VMS Ada compiler system
VAX 6310
LARCH

New Mexico

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

Degrees: BS, MS, PHD

Contact: Prof. Andrew H. Sung
Chairman
(505) 835-5949
User ID: sung@nmtvax.nmt.edu

Update: January 1989

Courses: **Software Construction** (CS328)
Codes: U P E O 6
Textbooks: *The Mythical Man-Month: Essays on Software Engineering*
by Brooks, Frederick P.
Tools: C
VAX 750 under UNIX

Design and Analysis of Software Systems (CS528)
Codes: G P E D 3
Tools: C
VAX 750 under UNIX

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

New Mexico State University
School of Arts and Sciences
Department of Computer Science
Program in Computer Science
Las Cruces, NM 88003

Degrees: BS, MS, PHD

Contact: Prof. Juris Reinfelds
Department Head
(505) 646-3723

Update: October 1988

Courses: **Software Development** (CS 371)
Codes: U P R T 5
Textbooks: *Ada: An Advanced Introduction*
by Gehani, Narain
Software Engineering: A Practitioner's Approach
by Pressman, Roger S.
Tools: Ada
IBM PC
Sun
Modula-2

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

Degrees: AAS CS

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

Update: July 1987

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

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

New York

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

Degrees: PHD

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

Update: June 1988

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

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

Degrees: BS, MS, PHD

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

Update: February 1990

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

Software Tools (MA 250)
Codes: U P R Y 2
Tools: Turbo C
Zenith 200

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

Degrees: BA, BS, MS, PHD

Contact: Dr. Gail E. Kaiser
Associate Professor
(212) 854-3856
User ID: kaiser@cs.columbia.edu

Network: Internet

Update: None

Courses: **Software Design Laboratory** (W3152)
Codes: U P R T 5
Tools: Standard UNIX tools available on SunOS

Software Engineering (W4156)
Codes: B P B Y 5
Textbooks: *Software Engineering, 3rd ed.*
by Sommerville, Ian

Programming Environments and Software Tools (E6123)
Codes: G P E B 2

Special Projects in Computer Science (W3998, E6901, others)
Codes: B P E D 5
Tools: Tops 20
UNIX

Additional Information:
Various projects in software engineering and other areas can be negotiated between 1 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 or research staff member.

Cornell University
School of Engineering
Department of Computer Science
Ithaca, NY 14853

Degrees: BS, ME, PHD

Contact: Prof. Dexter Kozen
Graduate Fields Representative for C.S.
(607) 255-8593

Update: October 1987

Courses: **Intro. Database Management Systems** (432)
Codes: B P E Y 6
Textbooks: *An Introduction to Database Systems*
by Date, C.J.
The C Programming Language
by Kernighan, Brian and Ritchie, Dennis
Tools: CC
VAX
C, Pascal

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

Degrees: BA, BS, MS

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

Update: September 1988

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

Introduction to Software Engineering (CIS 640)
Codes: G P E Y 1
Tools: IBM mainframe

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

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

Contact: Prof. Martin L. Shooman
Professor

Update: None

Courses: **Software Design and Engineering** (CS306)
Codes: U P E Y 1

Software Engineering I (CS606)
Codes: G P B O 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Tools: Software Engineering Laboratory

Software Engineering II (CS607)
Codes: G P E B 1
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Tools: 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

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

Contact: Prof. Martin L. Shooman
Professor

Update: None

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

Software Engineering II (CS607)
Codes: G P E B 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Tools: 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

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

Contact: Prof. Martin L. Shooman
Professor

Update: None

Courses: **Software Engineering I** (CS606)
Codes: G P B Y 1
Textbooks: *Software Engineering: Design, Reliability, and Management* by Shooman, Martin L.
Tools: 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

Degrees: BS, MS, PHD

Contact: Prof. Arthur Sanderson

Update: September 1988

Courses: **Master's Project** (66.698)
Codes: G N R O 16

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

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 that is individually arranged.

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

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

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

Update: None

Courses: **Software Engineering I** (35.677)
Codes: 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)
Codes: 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

Degrees: BS CS, MS CS

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

Update: None

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

Principles of Distributed Systems (ICSA-725)
Codes: G X R X 1

Principles of Data Management (ICSA-720)
Codes: G X R X 1

Software Engineering Concepts (ICSA-820)
Codes: G X R X 1

Analysis & Design Techniques (ICSA-821)
Codes: G X R X

Program Design and Implementation (ICSA-823)
Codes: G X R X

Program Testing and Reliability (ICSA-835)
Codes: G X R X

Software Project Management (ICSA-830)
Codes: G X R X 1

Software Project Laboratory (ICSA-894)
Codes: G X R X

Software Engineering Project (ICSA-895)
Codes: G X R X

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

State University of New York College at Brockport
School of Letters and Sciences
Department of Computer Science
Undergraduate Computer Science
Brockport, NY 14420

Degrees: BS CS

Contact: Prof. Linda M. Northrop
Assistant Professor
(716) 395-2323
User ID: NORTHROP@BROCK1P
Network: BITNET

Update: February 1990

Courses: **Software Systems Development** (CSC 427)
Codes: U P R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: Pascal, Ada, Information
PRIME 9955
IBM PC

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

Degrees: BS CS, MS CS, PHD AT/CS

Contact: Dr. Thomas F. Piatkowski
Professor
(607) 777-4802
User ID: tfp@bingvma.bitnet
Network: BITNET

Update: February 1990

Courses: **Software Engineering Analysis** (CS-546)
Codes: G P E D 2
Textbooks: *Software Engineering: Design, Reliability, and Management*
by Shooman, Martin L.
Tools: ALSYS Ada, DEC Ada
IBM PC/AT
VAX 780

Software Engineering I (CS-545)
Codes: G P E T 4
Textbooks: *Software Engineering*
by Sommerville, Ian
Software Engineering with Ada
by Booch, Grady
Tools: DEC Ada
VAX 6340

Software Engineering I (cross listed with CS-545) (CS-345)
Codes: U P E B 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Software Engineering with Ada
by Booch, Grady
Tools: DEC Ada
VAX 6340

Formal Design and Specification Methods (CS-578)
Codes: G P E B 4
Textbooks: Selected readings

Additional Information:
Miscellaneous software engineering projects have been undertaken. For example, a group study produced a lengthy report on how to implement a

Master's degree in "Software and Computer Systems Engineering." Funded graduate research supports major studies of formal software methodologies, software metrics, and 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

Degrees: BS, MS, PHD

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

Update: May 1987

Courses: **Techniques of Software Design** (MSC-520)
Codes: 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.
Tools: Berkeley UNIX Pascal
VAXes and Sun workstations under UNIX 4.3 BSD
CLU, Modula-2

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

Degrees: BS, MS

Contact: Prof. David Hannay
Co-Chair EE/CS Department
(518) 370-6270

Update: None

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

North Carolina

Lenoir-Rhyne College
Natural Science & Math Division
Computer Science
Hickory, NC 28603

Contact: Dr. Gail Miles
Chair and Associate Professor
(704) 328-7268

Update: April 1990

Courses: **Software Systems Analysis and Design** (CSC 400)
Codes: U P R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Excelerator
80386 Microcomputers, Macintosh SE & II

Senior Project - Software Engineering Option (CSC 450)
Codes: U P R Y 1
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Tools: Modula-2, Ada, 4GL
Excelerator
VAX, Microvax, Apollo
80386 Microcomputers and Macintosh SE & II

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

Degrees: BS, MS, MCS

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

Update: May 1987

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

Software Engineering Project (CSC 472)
Codes: U P E Y 4

Tools: Verdix C
MicroVAX (ULTRIX)
C and UNIX Shell

Intro to Programming Environments (CSC 471)
Codes: U P E Y 4
Tools: Verdix C
MicroVAX (ULTRIX)
C and UNIX Shell

Software Engineering with Ada (CSC 481)
Codes: U P E Y 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: Verdix Ada
MicroVAX (ULTRIX)

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

Degrees: MS CS, PHD CS, BS M

Contact: Ms. Katrina B. Coble
Admissions and Graduate Secretary
(919) 962-1900
User ID: admit@cs.unc.edu
Network: Internet

Update: February 1990

Courses: **Software Engineering Laboratory** (Comp 145)
Codes: B P B Y 53
Textbooks: *IEEE Tutorial on Software Design Techniques*
by Freeman, Peter and Wasserman, Anthony I.
Software Engineering Concepts
by Brooks, Frederick P.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: C, C++, Smalltalk, Pascal
MacProject, Stellar, Silicon Graphics
VAX and Sun workstations

Software Engineering (Comp 227)
Codes: G P R Y 5
Textbooks: *IEEE Tutorial on Software Design Techniques*
by Freeman, Peter and Wasserman, Anthony I.
Software Engineering Concepts
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.

North Dakota

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

Degrees: BS, MS, PHD

Contact: Prof. Kenneth Magel
Chair, Comp. Sci. and Operation Research
(701) 237-8189
User ID: ncmagd@ndsuvax

Update: October 1988

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

Systems Analysis (CS 213)
Codes: U P X Y 1
Tools: IBM 3081 using CMS

System Testing and Maintenace (CS 313)
Codes: U P R Y 1
Textbooks: *The Art of Software Testing* by Myers, Glenford
Tools: Macintosh Pascal
Macintosh II

Realtime Software Design (CS 413)
Codes: U P R Y 1

Additional Information:
Every undergraduate takes at least 4 courses that require substantial projects. Every graduate student takes at least 2 courses that require substantial projects. Several courses at all levels devote 2-3 weeks each to software engineering methodologies, concepts, or practices.

Ohio

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

Degrees: MS, MS CE, MS EE, PHD

Contact: Dr. Paul D. Bailor
Assistant Professor
(513) 255-3576
User ID: pbailor@galaxy@afit.af.mil
Network: Internet

Update: January 1990

Courses: **Software Project Management** (AMGT553)
Codes: G N O A 3
Textbooks: Selected readings

Systems & Software Analysis (EENG593)
Codes: G N R T 5
Textbooks: *Modern Systems Analysis*
by Yourdon, Edward N.
Software Engineering, 3rd ed.
by Sommerville, Ian

Software Systems Programming Laboratory (EENG690)
Codes: G P R A 6

Software Environments (COSC755)
Codes: G P E Y 5
Textbooks: Selected readings
Tools: Verdix Ada
VAX 11/785

Principles of Embedded Systems Software (COSC655)
Codes: G N R Y 5

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

Degrees: BS CS, MS CS

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

Update: November 1987

Courses: **Software Development** (464)
Codes: B P E Y 8
Textbooks: *Software Engineering with Student Project Guidance* by Mynatt, Barbee
Tools: Teamwork, Prototyper
VAX Station, IBM PC/AT
Yourdon notation

Software Engineering (564)
Codes: G P E B 5

Human Factors in Computing (565)
Codes: G N E B 2
Textbooks: *An Introduction to Human-Computer Interaction* by Booth
Tools: Prototyper
Hypercard
Oasis

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

Degrees: BS CIS, MS CIS

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

Update: November 1987

Courses: **Structured Systems Analysis** (CIS 433)
Codes: 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)
Codes: U P E O 6
Textbooks: *The Practical Guide to Structured Systems Design* by Page-Jones, Meilir
Tools: IBM 3081
IBM PC
COBOL, PSL/PSA, Structured Architect, dBase III

Software Engineering (CIS 620)
Codes: 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
Tools: IBM 3081
VAX 11/750

Systems Analysis and Design (CIS 634)
Codes: G P E O 6
Textbooks: *The Practical Guide to Structured Systems Design* by Page-Jones, Meilir
Tools: IBM 3081
IBM PC

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

Degrees: BS, MS, PHD

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

Update: May 1987

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

Software Engineering Projects (43107)
Codes: U P E D 3
Textbooks: *Software Engineering* by Sommerville, Ian
Tools: UNIX

Ohio State University
Department of Computer and Information Science
Columbus, OH 43210

Degrees: BS CIS, MS CIS, PHD CIS

Contact: Dr. Stu Zweben
Associate Professor
(614) 292-9526
User ID: ZWEBEN@CIS.OHIO-STATE.EDU
Network: Internet

Update: February 1990

Courses: **Software Engineering** (CIS 757)
Codes: B P E O 5
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.* by Pressman, Roger S.
Tools: Sun workstations
IDE STP
Pascal, C

Systems Programming (CIS 560)
Codes: U P R T 5

Textbooks: *Systems Software, 2nd ed.*
by Beck
Tools: Sun workstations
IDE STP
Pascal

Information Systems Analysis and Design (CIS 516)
Codes: U P B T 4
Textbooks: *Structured Analysis Methods for Computer Information Systems*
by Teague and Pidgeon
Tools: Sun workstations
IDE STP

Software Testing (CIS 788.D12)
Codes: G P E Y 2
Textbooks: Selected readings

User Interface Development (CIS 788.10F)
Codes: B P E B 4
Textbooks: *Readings in Human Computer Interaction*
by Baecker and Buxton
Tools: PC, Macintosh, Sun, HP

Revisable Software Research Project (CIS 888.Z12)
Codes: G N E T 4

Software Engineering Project (CIS 788.12)
Codes: B P E O

Additional Information:
CIS 757 is offered 2 of 3 quarters per academic year.

Wright State University
College of Engineering and Computer Science
Department of Computer Science and Engineering
Dayton, OH 45435

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

Contact: Prof. Howard V. Carson
Assistant to the Chair
(513) 873-2491
User ID: cse_dept@wright.edu
Network: CSNET

Update: October 1988

Courses: **Software Engineering I** (Software Engineering 760)
Codes: G P E Y 1
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: compiler suitable to project
computer suitable to project
language suitable to project

Software Engineering II (Software Engineering 761)
Codes: G P E Y 1
Textbooks: *Approaches to Prototyping*
by Budde, Reinhard
Tutorial: Software Reusability

by Freeman, Peter

Tools: compiler suitable to project
computer suitable to project
language suitable to project

Introduction to Software Engineering (Computer Engineering 460/660)

Codes: B P R T 1

Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Software Engineering with Ada, 2nd ed.
by Booch, Grady

Tools: VAX Ada compiler
DEC VAX 11/785 running VMS

Concurrent Software Design (Computer Engineering 434/634)

Codes: 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.

Tools: C
NCR Tower 32/600 running UNIX System V

Additional Information:

Data Structures and Software Design (unlisted) involves some software engineering. A local area network of 8 Sun-3 UNIX workstations with high resolution terminals, including 1 color display, were available in 1987 to provide a powerful software development environment.

Oklahoma

Rogers State College
Computer Science Division
Claremore, OK 74017

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

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

Update: None

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

Oregon

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

Degrees: BS, MS, PHD

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

Update: None

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

Software Systems: Methodology (CS 561)
Codes: G P R Y 1
Tools: Macintosh
C++, Pascal

Software Systems: Design (CS 562)
Codes: G P R Y 1
Tools: Macintosh
C++, Pascal

Portland State University
School of Engineering and Applied Science
Department of Computer Science
Portland, OR 97207

Degrees: BS CS, MS CS, PHD IS

Contact: Prof. Leonard Shapiro
Department Head
(503) 725-4036
User ID: len@cs.pdx.edu
Network: Internet

Update: February 1990

Courses: **Software Engineering** (CS 454)
Codes: B P E Y 4

Testing and Verification (CS 510TV)
Codes: G P E Y 2

Software Metrics (CS 510SM)
Codes: G P E Y 2

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

Degrees: BA, BS, MA, MS, PHD

Contact: Prof. Alan Eliason
Associate Professor
(503) 686-4408
User ID: eliason@cs.uoregon.edu

Update: October 1988

Courses: **Software Methodology I** (CIS 422)
Codes: U P R T 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Scheme, Smalltalk
Prototyper, RCS/UNIX
Sun SPARC, Macintosh II, Tektronix 4300

Software Methodology II (CIS 423)
Codes: U P E O 51
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
Tools: C, RAPID, Smalltalk
Sun SPARC, Macintosh II, Tektronix 4300

Software Engineering (CIS 510)
Codes: G N R Y 11
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Software Specification Techniques
by Gehani, Narain and McGettrick, Andrew D.
Tools: C, RAPID
Sun SPARC, Macintosh II, Tektronix 4300

Additional Information:
Software Methodology II is offered 2 to 3 times a year.
Other courses are offered in Expert Systems and Database Management Systems at the graduate level.

Pennsylvania

Allegheny College
Department of Computer Science
Meadville, PA 16335

Degrees: BS CS

Contact: Robert D. Cupper
Professor and Chair
(814) 332-2881
User ID: cupp@music.alleg.edu
Network: BITNET

Update: January 1990

Courses: **Introduction to Computer Science I** (CS110)
Codes: U N R T 4
Textbooks: *Computer Science: An Overview*
by Brookshear, J. Glen
Introduction to Computing and Computer Science with Pascal
by Walker, Henry M.

Introduction to Computer Science II
Codes: U P R T
Textbooks: *Second Course with Modula/2*
by Tucker, Allen

Carnegie Mellon University (Entry 1)
School of Computer Science
Software Engineering
Pittsburgh, PA 15213

Degrees: MSE

Contact: Dr. Normam Gibbs
Professor and Director
(412) 268-7703
User ID: gibbs@sei.cmu.edu
Network: Internet

Update: February 1990

Courses: **Software Systems Engineering** (17-711)
Codes: G N R Y

Formal Methods in Software Engineering (17-712)
Codes: G N R Y 1

Advanced System Design Principles (17-713)
Codes: G N R Y

Software Creation and Maintenance (17-721)
Codes: G N R Y 1

Analysis of Software (17-722)
Codes: G N R Y 1

Software Project Management (17-723)
Codes: G N R Y 4

Software Development Studio (17-781, 782, 783)
Codes: G P R Y 1

Software Development Seminar (17-791, 792)
Codes: G P R Y 1

Carnegie Mellon University (Entry 2)
Mellon College of Science/School of Computer Science
Pittsburgh, PA 15213

Degrees: BS M/CS, PHD CS

Contact: Dr. Allan Fisher
Associate Dean for Undergrad. Education
(412) 268-7688
User ID: alf@vlsi.cs.cmu.edu
Network: Internet

Update: February 1990

Courses: **Software Engineering** (15-413)
Codes: U P E T 6
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: Andrew workstations
UNIX on VAX
Ada, C, and Lisp

Additional Information:
15-413 is 1 of 4 courses, any 2 of which are required for the Math/CS BS degree.

Cheyney University
Arts & Sciences
Computer & Information Sciences
Cheyney, PA 19319

Degrees: BA IS

Contact: Prof. Jesse Williams
Associate Professor
(215) 399-2348

Update: February 1990

Courses: **Software Engineering Using Ada** (MAS 413/513)
Codes: B P E D 2
Textbooks: *Ada Language and Methodology* by Watt, Wichmann & Findlay
Tools: Ada
IBM PS/2 Model 70/486

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

Degrees: BS CS, MS CS

Contact: Dr. Jeffrey L. Popyack
Program Coordinator for Computer Science
(215) 895-2668
User ID: popyack@duvm
Network: BITNET

Update: February 1990

Courses: **Software Engineering I** (N677)
Codes: U P R Y 6
Textbooks: *Software Engineering: Planning for Change* by Lamb, David
Tools: Lightspeed Pascal, Prime C, Sun 2.1 Modula-2
Sun, Macintosh, PC/AT
VDM
Proxy

Software Engineering II (N678)
Codes: U P E Y 6
Textbooks: *Software Engineering: Planning for Change* by Lamb, David
Tools: Lightspeed Pascal, Prime C, Sun 2.1 Modula-2
Proxy
Sun, Macintosh, PC/AT
VDM

Software Engineering I (M745)
Codes: G P E B 6
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: Lightspeed Pascal, Prime C, Sun 2.1 Modula-2
Proxy
Sun, Macintosh, PC/AT
VDM

Software Engineering II (M746)
Codes: G P E B 6
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: Lightspeed Pascal, Prime C, Sun 2.1 Modula-2
Proxy
Sun, Macintosh, PC/AT
VDM

Topics in Software Engineering (M748)
Codes: G P E D 6

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

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

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

Update: May 1987

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

Shippensburg University
College of Arts and Sciences
Department of Mathematics and Computer Science
Program in Computer Science
Shippensburg, PA 17257

Degrees: BS CS

Contact: Dr. Howard Bell
Department Chairman
(717) 532-1431

Update: September 1988

Courses: **Software Design for Information Systems** (CPS305)
Codes: U P E Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: UNIX
AT&T 3B2
Microcomputers
Sperry 1100
C, FORTRAN, Pascal

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

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

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

Update: February 1990

Courses: **Theorem Proving and Program Verification** (675)
Codes: 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)
Codes: G N E X 3
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: OPS5
Pascal
VMS

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

Project in Information Science (301)
Codes: U P R T 1
Tools: AT&T 3B2
PCs

Software Design (338)
Codes: 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 L.
Tools: IBM 4381 PCs

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

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

Degrees: BS, MS, PHD

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

Update: June 1987

Courses: **Software Design Methods** (CMPSC 416)
Codes: B P E Y 4
Textbooks: *Ada as a Second Language*
by Cohen, Norman H.
Software Engineering
by Sommerville, Ian
Tools: IBM Ada
IBM 3090

University of Pennsylvania

School of Engineering and Applied Science
Department of Computer and Information Science
Program in Computer Science and Engineering
Philadelphia, PA 19104

Degrees: BSE

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

Update: January 1989

Courses: **Interactive System Design** (CSE 280)
Codes: U P E B 1
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Tools: 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

Degrees: BS, MS, PHD

Contact: Dr. James G. Williams
Chairman
(412) 624-9418
User ID: JIM%idis.uucp@pitt.csnet
Network: CSNET

Update: June 1987

Courses: **Information Systems Analysis, Design, and Evaluation** (INF SC 272)
Codes: G P E O 6
Textbooks: *Fundamentals of Systems Analysis, 3rd ed.*
by Fitzgerald, Jerry and Fitzgerald, Arda
Tools: C, COBOL, FORTRAN, Pascal
IBM PC
Mac
VAX 780
VAX 8650

Software Engineering and Software Tools (INF SC 276)
Codes: G P E O 5
Textbooks: *Software Engineering: A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.

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

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

Contact: Dr. Daniel Joyce
(215) 645-7344
User ID: djoyce@uvaxcom
Network: BITNET

Update: January 1989

Courses: **Software Engineering** (CSC 4700)
Codes: U P R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: Logitech Modula-2/86, Turbo Pascal
Zenith 386
Modula-2

Software Engineering (CSC 8540)
Codes: G N E Y 4
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.

South Carolina

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

Degrees: BS, BS CIS, MS, PHD CS

Contact: Dr. A. Joseph Turner
Professor and Chairman
(803) 656-3444
User ID: turner@clemson.edu
Network: Internet

Update: October 1987

Courses: **Software Development Methodology** (CpSc 472/672)
Codes: B P B T 5
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: VAX cluster with VMS & ULTRIX
C, Modula-2, Ada, C++
VAXset, dbx

Design and Programming Methodology (CpSc 872)
Codes: G P E T 3
Textbooks: *Abstraction & Specification in Program Development*
by Liskov & Guttag
Software Design: Methods and Techniques
by Peters, Lawerence J.
Tools: some tools

Software Verification, Validation, and Measurement (CpSc 873)
Codes: G P E Y 4
Textbooks: Selected readings

Introduction to Software Development (CpSc 372)
Codes: U P R T
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: VAX cluster with VMS & ULTRIX
C, Modula-2, Ada
VAXset, dbx

Additional Information:
Software Development Methodology is offered once or twice per year. Software Verification, Validation, and Measurement is offered every 2 years when demand warrants.

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

Degrees: BS, MS

Contact: Dr. Gordon L. Bailes
Chairman
(615) 929-5332
User ID: I01BAILES@ETSUACE
Network: BITNET

Update: September 1988

Courses: **Software Engineering** (222-3250)
Codes: U P R A 4
Software Engineering: A Beginner's Guide
by Pressman, Roger S.
Tools: Cadre's Teamwork
IBM PS/2 50, 80 -- OS/2 and MS-DOS
WordPerfect

Software Design (222-5300)
Codes: G N B Y 3
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: IBM PS/2
Teamwork PCSA

Advanced Programming Techniques (222-3310)
Codes: U P R A
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.
Structured Systems Design
by Page-Jones, Meilir
Tools: IBM PS/2 50's and 80's
Cadre's Teamwork
Ada

Software Specification (222-5210)
Codes: G P E Y
Textbooks: *The Specification of Complex Systems*
by Cohen, Harwood, and Jackson
Tools: IBM PC
Pascal

Software Verification and Validation (222-5220)
Codes: G N B Y
Textbooks: *Software System Testing and Quality Assurance*
by Beizer, Boris
Tools: none used

Software Project Management (222-5230)
Codes: G P O Y 2
Textbooks: *Managing Programming People*

by Metzger, P. W.
Selected readings

Tools: IBM PS/2 50's and 80's
Cadre's Teamwork
Miscellaneous estimation and scheduling software
WordPerfect

Ethical Issues in the Use of Computers (222-5450)
Codes: G N E Y 1
Textbooks: *Computer Ethics*
by Johnson, Deborah
Selected readings

Fisk University
Natural Science and Mathematics
Department of Mathematics and Computer Science
Computer Science
Nashville, TN 37208-3051

Degrees: BS CS, BS M

Contact: Ms. Vivian J. Fielder
Assistant Professor

Update: February 1990

Courses: **Introduction to Computer Science II** (CS120)
Codes: U P R T 1
Textbooks: *Computer Science*
by Namae, Douglas
Pascal
by Dale and Weems
Software Engineering Concepts
by Fairley, Richard E.
Tools: Pascal
VAX 11/750, IBM PC

Special Topics - Introduction to Software Engineering (CS390)
Codes: U P E D
Textbooks: *Software Components & Ada: Structures, Tools, and Subsystems*
by Booch, Grady
Software Engineering & Ada
by Booch, Grady
Software Engineering Concepts
by Fairley, Richard E.
Tools: Pascal, Ada, C
IBM PS/2, IBM PC, VAX 11/750 with VMS

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

Degrees: BS CS, MS CS

Contact: Dr. Jack Thompson
Head, Computer Science

(615) 755-4329

Update: July 1987

Courses: **Software Engineering I** (CpSc 350)
Codes: U P R Y 10
Textbooks: *Systems Development*
by Eliason, Alan L.
Tools: Pascal
Briefcase, Excelerator, ISPF on PCs
IBM 4381

Software Engineering II (CpSc 450)
Codes: U P R Y 6
Textbooks: *Complete Guide to Software Testing*
by Hetzel
Software Engineering
by Sommerville, Ian
Tools: PL/I
IBM 4381

Software Project Management (CpSc 520)
Codes: G P E B 5
Textbooks: *Controlling Software Projects*
by DeMarco, Tom
Practical Project Management
by Page-Jones, Meiler

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

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

Degrees: BA, BS, MS, ME, PHD

Contact: Dr. Stephen R. Schach
Associate Professor
(615) 322-2924
User ID: srs@vuse.vanderbilt.edu
Network: Internet

Update: November 1989

Courses: **Software Engineering** (CS 287)
Codes: B P E Y
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Verdix Ada
Sun 3/50, 3/80
UNIX

Topics in Software Engineering (CS 387)
Codes: G P E Y 2

Texas

Baylor University
College of Arts and Sciences
Department of Engineering and Computer Science
Computer Science
Waco, TX 76798

Degrees: BA CS, BS CS, BE, MS CS

Contact: Dr. William B. Poucher
(817) 755-3871
User ID: Poucher@Baylor
Network: BITNET

Update: January 1990

Courses: **Introduction to Software Engineering** (CSI4344)
Codes: B P B Y 4
Textbooks: *Software Engineering - A Practitioner's Approach, 2nd ed.*
by Pressman, Roger S.
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: Anatool, Prototyper
MacApp, MPW Pascal, Lightspeed Pascal
Object Pascal

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

Degrees: BA CS

Contact: Prof. Ken Kennedy
Chairman
(713) 527-4834
User ID: ken@rice.edu

Update: September 1988

Courses: **Programming Studio** (COMP 310)
Codes: X P X Y 3
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
Tools: Powell's Modula-2 compiler on VAX, moving to C++ compiler on Sun/UNIX
VAX 11/750
moving to Sun 3/50

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

Degrees: BA, BS, MA, MS

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

Update: June 1987

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

Advanced Software Engineering (CS 5398)
Codes: 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
Tools: VAX Ada, VAX C
VAX 8600 with VMS

St. Edward's University
Physical, Biological Sciences
Computer Science
Austin, TX 78704

Degrees: BA CS, BS CS

Contact: Dr. Barbara Boucher Owens
Associate Professor of Computer Science
(512) 448-8463

Update: February 1990

Courses: **Software Engineering** (CS 39)
Codes: U P E Y 1
Textbooks: *Software Engineering*
by Sommerville, Ian

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

Degrees: BBA, BS, MS, MS CS

Contact: Dr. Jarrell C. Grout
Professor
(409) 568-1876
User ID: jcgrout@sfaustin
Network: BITNET

Update: October 1988

Courses: **Software Development Principles** (513)

Codes: G N E B 2
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.

Texas Christian University
AddRan College
Computer Science Department
Master's of Software Design and Development
Ft. Worth, TX 76129

Degrees: MSDD

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

Update: February 1990

Courses: **Introduction to Software Design and Development** (SODE 5143)
Codes: G N R Y 9
Textbooks: *Software Engineering*
by Pressman, Roger S.
Software Engineering: An Industrial Approach
by Radice, R. and Phillips, R.

Ada Design and Development (SODE 6013)
Codes: G P E D 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: DEC Ada
DEC VAX 11/780

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

Security and Privacy (SODE 6053)
Codes: 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)
Codes: 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)
Codes: G P R Y 8
Textbooks: *Software Evolution*
by Arthur, L.
The Art of Software Testing
by Myers, Glenford J.

Management of Software Development (SODE 6153)
Codes: G P R Y 8
Textbooks: *Implementing Software Engineering Practices*
by Buckley, Fletcher

Principles of Software Engineering Management
by Gilb, Tom

Economics of Software Development (SODE 6163)
Codes: G P R Y 8
Textbooks: *Programming Productivity*
by Jones, R.
Software Engineering Economics
by Boehm, Barry W.

Effective Communications in Small Groups (SODE 6193)
Codes: G P E D 3
Textbooks: *Guide to Managerial Communication*
by Munter

Software Implementation Project I (SODE 7113)
Codes: G P R Y 7
Textbooks: *How to Write Macintosh Software*
by Master, Scott
Tools: Apple Macintosh, ANATOOLS, MACSCHEDULE, Prototyper, Think Pascal, MicroPlanner PLUS

Software Implementation Project II (SODE 7123)
Codes: G P R Y 7

Object Oriented Programming (SODE 6023)
Codes: B P E D

Texas Tech University
Computer Science Department
Lubbock, TX 79409-3104

Degrees: BS, MS, PHD

Contact: Dr. Donald J. Bagert, Jr.
Assistant Professor of Computer Science
(806) 742-1189
User ID: bedjb@ttacs1
Network: BITNET

Update: February 1990

Courses: **Senior Project Design** (CS 4411)
Codes: U P R Y 3
Textbooks: *CASE Using Software Development Tools*
by Fisher, Alan S.
Software Engineering Concepts
by Fairley, Richard E.
Tools: Ada, Pascal (Turbo Pascal 5.5)
Excelerator on PCs

Senior Project Implementation Laboratory (CS 4412)
Codes: U P R Y 3
Textbooks: *CASE Using Software Development Tools*
by Fisher, Alan S.
Software Engineering Concepts
by Fairley, Richard E.
Tools: Ada, Pascal (Turbo Pascal 5.5)
Excelerator on PCs

Principles of Software Development Systems (CS 5366)
Codes: G P E Y
Textbooks: *Programming in Ada, 3rd Edition*
by Barnes, John Gilbert Presslie
Software Engineering, 3rd Edition
by Sommerville, Ian
Tools: Ada, Pascal, C
Excelerator/RTS on VAX and PCs

Software Development Systems (CS 5363)
Codes: G P E Y 5
Textbooks: *Software Engineering, 3rd Edition*
by Sommerville, Ian
Tools: Ada, Pascal, C
Excelerator/RTS on VAX and PCs

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

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

Contact: Dr. Paul C. Grabow
Assistant Professor
(817) 273-2348
User ID: cs-grabow@uta.edu

Update: September 1988

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

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

Advanced Software Engineering (CS 6324)
Codes: G P E Y 6
Textbooks: *Applying Software Engineering Principles with FORTRAN*
by Marca, David
Tools: Ada, Pascal
VAX 11/780

Software Engineering in Ada (CSE 5321)
Codes: G P E O 2
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie

Tools: DEC Ada
VAX 11/780

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

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

Degrees: BA, BS, MS, PHD

Contact: Dr. Laurie Werth
Professor
(512) 471-9535
User ID: lwerth@cs.utexas.edu

Update: November 1989

Courses: **Software Engineering** (CS373)
Codes: U P E T 7
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: Hypercard, MacApp/MPW, Object Pascal
HP9000 workstations
Macintosh
Ada, C, Smalltalk

Software Engineering Economics (EE 382M)
Codes: 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

Degrees: BS, MS, PHD

Contact: Dr. Simeon Ntafos

Associate Professor and Program Head
(214) 690-2181

Update: None

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

Software Validation, Verification, and Performance Measurement (CS 6367)
Codes: G P E O 1

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

The University of Texas at El Paso
College of Engineering
Computer Science Department
El Paso, TX 79968-0518

Degrees: BS CS, CE, EE; MS CS, EE; PhD CE

Contact: Dr. Daniel Cooke
Assistant Professor
(915) 747-5470

Update: February 1990

Courses: **Software Engineering I** (CS 3410)
Codes: U P R Y 4
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Pascal, Prolog

Software Engineering II (CS 3411)
Codes: U P R Y 4
Tools: This is a project course. The tools and languages used vary depending upon the nature of the project.

Software Engineering (CS 3531)
Codes: G P E Y

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

Degrees: BS, MS

Contact: Dr. Barbara Boucher Owens
Associate Professor of Computer Science
(512) 448-8463

Update: None

Courses: **Programming Methodology** (CS 3773)
Codes: 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.
Tools: IBM 4381 with CMS
VAX 11/780 with VMS

Software Design (CS 5103)
Codes: G P E O 1
Textbooks: *The Program Development Process: Part II: The Programming Team*
by Aron, Joel D.
Tools: IBM 4381 with CMS

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

Software Testing (CS 5133)
Codes: G P E O 1
Textbooks: *The Art of Software Testing*
by Myers, Glenford J.
Tools: 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 3 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

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

Contact: Dr. George C. Collins
Assistant Dean and Director of Student Affairs
(713) 488-9386

Update: September 1988

Courses: **Ada Programming Language** (CSCI 3432)
Codes: 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
Tools: VAX 11/785

Software Design Methodologies (CSCI 4432)
Codes: U P E Y 3
Textbooks: *A Unified Methodology for Developing Systems*
by Wallace, Stockenberg and Charette

Tools: Ada (DEC)
VAX 11/785

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

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).

Utah

Brigham Young University
College of Math and Applied Sciences
Department of Computer Science
Provo, UT 84602

Degrees: BS CS, MS CS, PHD CS

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

Update: November 1987

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

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

Systems Analysis (CS 425)
Codes: 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)
Codes: 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)
Codes: G P E O 4
Textbooks: *IEEE Tutorial: Software Configuration Management*
by Bryan, William, Chadbourne, Christopher, 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)
Codes: G P E O 4

Additional Information:
Introduction to Software Design is offered 3 times each 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

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

Update: February 1990

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

Software Engineering (CS 631)
Codes: B P X X

Software Engineering (CS 632)
Codes: B P X X
Textbooks: *Abstraction and Specification in Program Development*
by Liskov, Barbara and Guttag, John
Selected readings

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

Degrees: BS, MS

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

Update: October 1988

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

Software Systems (CS 456)
Codes: U P R O 8
Textbooks: *Software Engineering Methodology*
by Turner, Ray
Tools: VMS
VAX 8500
Pascal

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

Virginia

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

Degrees: BS CS, MS CS, PHD CS

Contact: Dr. Robert E. Noonan
Professor
(804) 221-3456
User ID: noonan@cs.wm.edu
Network: Internet

Update: September 1988

Courses: **Software Engineering** (CS 435, 535)
Codes: B P E Y 1
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: Pascal, Ada, C
T
IBM PC-AT

Formal Methods in Software Engineering (CS 555)
Codes: G P E Y 2
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Tools: Sheffield Pascal
Primes

Human Factors (CS 575)
Codes: G P E B 5
Textbooks: *Software Psychology: Human Factors in Computer and Information Systems*
by Shneiderman, Ben
Tools: Sheffield Pascal
Primes

Theory of Program Correctness (CS 552)
Codes: G P B O 5
Textbooks: *The Science of Programming*
by Gries, David
Tools: Sheffield Pascal
Primes

Program Testing (CS 605)
Codes: G P E B 5
Tools: Sheffield Pascal
Primes

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

George Mason University
SITE

Information Systems & Systems Engineering
Fairfax, VA 22030

Degrees: BCS, MCS, MSE, PHD CS

Contact: Prof. Paul Ammann
Assistant Professor
(703) 764-4664
User ID: pammann@gmuvax2.gmu.edu
Network: Internet

Update: February 1990

Courses: **Formal Methods and Models in Software Engineering** (CS 623)
Codes: G P R T 4

Software Construction (CS 619/SWSE 619)
Codes: G P R T

Software Design (SWSE 621)
Codes: G P R T 1

Software Project Lab (SWSE 626)
Codes: G P R T 1

Software Project Management (SWSE 625)
Codes: G P R T 1

Software Requirements and Prototyping (SWSE 620)
Codes: G P R T 1
Textbooks: *Science of Programming*
by Gries, David
Selected readings
Software Construction in Ada
by Sanden
Software Engineering: A Practitioner's Guide
by Pressman, Roger S.
Software Requirements: Analysis & Specification
by Davis
Tutorial: Software Engineering Project Management
by Thayer, Richard
Tools: WICOMO, COSTMODL
SuperProject Plus

Advanced Software Requirements (SWSE 720)
Codes: G P E Y
Textbooks: Selected readings

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

Degrees: MS CS, MCS, PHD

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

Update: June 1987

Courses: **Software Engineering Laboratory** (CS 485)
Codes: U P R Y 6
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Sheffield Pascal
Prime

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

Software Engineering (CS 885)
Codes: G N E D 1

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

Degrees: BA, BS, MA, MS

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

Update: None

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

Washington

Eastern Washington University
Mathematical Sciences & Technology
Computer Science
Cheney, WA 99004

Degrees: MCS, BCS, BS CIS, BA CSED, MED, BA M/CS

Contact: Prof. Ray E. Hamel
Chair, Department of Computer Science
(509) 359-6260

Update: February 1990

Courses: **Senior Seminar** (CSCD 498)
Codes: U P R Y 4
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Pascal, C
Course Builder
MacProject, TeamWork
Sun, PC, Macintosh

Software Engineering (CSCD 524)
Codes: G P R Y 4

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

Degrees: MSE

Contact: Dr. Everald E. Mills
Director of Software Engineering
(206) 296-5510
User ID: mills%sumax.uucp@beaver.cs.washington.edu

Update: September 1988

Courses: **Technical Communication** (SE 508)
Codes: G N R Y 9
Textbooks: *The Elements of Style*
by Strunk and White
Writing for the Technical Professions
by Trzyna, T.
Tools: Encore
Macintosh
PCs
C, Pascal

Software Systems Analysis (SE 510)
Codes: G P R Y 9
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.

Tools: *Encore*
Macintosh
PC
Various languages

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

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

Software Quality Assurance (SE 516)
Codes: G P R Y 9
Textbooks: *Testing Software Development*
by Ould and Unwin
The Art of Software Testing
by Myers, G.
Tools: Encore
Macintosh
PC
Various languages

Software Metrics (SE 518)
Codes: G P R Y 9
Textbooks: *Software Engineering Metrics and Models*
by Conte, S.D., Dunsmore, H.E., and Shen, V.Y.
Tools: Encore
Macintosh
PC
Various languages

Software Project Management (SE 531)
Codes: G P R Y 9
Textbooks: *Dynamic Project Management: A Guide for Managers and Engineers*
by Kezborn & Schilling
Managing a Programming Project
by Metzger, P.
Tools: Encore
Macintosh
PC
Various languages

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

Formal Methods (SE 543)
Codes: G P R Y 9
Textbooks: *Structured Programming : Theory and Practice*
by Linger, Richard C., Mills, Harlan D., and Witt, Bernard I.

Human Factors in Computing (SE 560)
Codes: G P E Y 9
Textbooks: *Designing the User Interface*
by Schneiderman, B.
Elements of Friendly Software Design
by Heckel, P.
Tools: Encore
Macintosh
PC
Various languages

Data Security and Privacy (SE 562)
Codes: G P E Y 9
Textbooks: *Security, Accuracy, and Privacy in Computer Systems*
by Martin, James
Tools: Encore
Macintosh
PC

Software Engineering Project 1, 2, 3 (SE 585, SE 586, SE 587)
Codes: G P R Y 9
Tools: Varies by project

Special Topics (SE 591, SE 592, SE 593)
Codes: G P E D 9
Textbooks: Varies by topic
Tools: Varies by topic

Independent Study (SE 596, SE 597, SE 598)
Codes: G P E D 9
Textbooks: Varies by topic
Tools: 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

Degrees: BS CS, MS CS, PHD CS

Contact: Prof. Richard E. Pattis

Assistant Professor
(206) 545-3798
User ID: pattis@cs.washington.edu

Update: October 1988

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

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

Degrees: BS, MS, PHD

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

Update: None

Courses: **Software Development** (CptS 422)
Codes: 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 P.
The UNIX C Shell Field Guide
by Anderson, Gail and Anderson, Paul
Tools: UNIX systems

Software Development Lab (CptS 423)
Codes: 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
Tools: UNIX systems

Verification (CptS 522)
Codes: 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 are available.

West Virginia

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

Degrees: MS
Contact: Prof. Robert N. Hutton
Associate Professor

Update: May 1987

Courses: **Systems Analysis Techniques** (IS 605)
Codes: G N R Y 5
Textbooks: *Structured Analysis*
by Yourdon, Edward N.

System Design (IS 610)
Codes: G P R Y 6
Textbooks: *Computer Information Systems Development: Design and Implementation*
by Adams, Powers, and Mills
Tools: VM/CMS
VAX

Software Engineering Principles (IS 625)
Codes: G P E Y 4
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: VAX Ada

Ada Programming (IS 525)
Codes: B N E Y 4
Textbooks: *Programming in Ada*
by Barnes, John Gilbert Presslie
Tools: VAX Ada

West Virginia University
Department of Statistics and Computer Science
Program in Computer Science
Morgantown, WV 26506

Degrees: BS, MS, PHD

Contact: Dr. Donald F. Butcher
Professor and Chairman
(304) 293-3607
User ID: dfb@b.cs.wvu.wvnet.edu
Network: Internet

Update: February 1990

Courses: **Software Engineering** (CS 275)
Codes: U P E Y 2
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: VAX

Ada

Ada with Software Engineering (CS 291/391)
Codes: 6 P E Y 3
Textbooks: *Software Engineering with Ada*
by Booch, Grady
Tools: Digital Ada
VAX 11/780 under VMS

Principles of Software Development (CS 170)
Codes: U P E Y 5
Tools: PL/I optimizing compiler on VAX PL/I
PL/I optimizing compiler in IBM
IBM 3081
VAX 11/780
PL/I and system utilities

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

Systems Analysis (CS 270)
Codes: U P E Y
Textbooks: *Modern Structured Analysis*
by Yourdon, Edward N.

Additional Information:

Courses numbered 0-99 are Freshman and Sophomore level courses. Courses numbered 100-299 are Junior and Senior level courses. Up to 4 200-level courses may count as credit towards the MS degree for graduate students. 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.

Wisconsin

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

Degrees: BS EE, MS EE, PHD EE

Contact: Dr. Russell J. Niederjohn
Professor and Chairman
(414) 224-6820
User ID: NIEDERJOHN@MUCSD
Network: BITNET

Update: February 1990

Courses: **Software Engineering** (EECE-211)
Codes: G N E T 11
Tools: Pascal
VAX

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

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

Degrees: MS, PHD

Contact: Prof. M. Smith
Department Chairman
(608) 262-3768

Update: October 1987

Courses: **Computer Methods in Industrial Engineering** (490-612-9)
Codes: G N B Y 9
Textbooks: Selected readings
Tools: Turbo Pascal
IBM PC

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

Degrees: BS, MS, PHD

Contact: Dr. K. Vairavan
Chair, Computer Science

(414) 229-5183
User ID: ku@cs.uwm.edu
Network: Internet

Update: June 1988

Courses: **Introduction to Software Engineering** (262-536)
Codes: B P R O 8
Textbooks: *Software Engineering, A Practical Approach*
by Pressman, Roger S.
Software Engineering in C
by Darnell, Peter A. and Margolis, Philip E.
Tools: 68000 based, VAX 11/750, MicroVAX 2000 running X11

Software Engineering Laboratory (262-438)
Codes: B P E Y 1
Textbooks: None -- project based course
Tools: VAX 11/750, 68000 based, MicroVAX 2000
UNIX/C under X11

Additional Information:
262-536 Introduction to Software Engineering is offered twice/year.

University of Wisconsin-Stout
Mathematics Department
Applied Mathematics / Concentration in Software Development
Menomonie, WI 54751

Degrees: BS M

Contact: Prof. Bruce W. Johnston
Professor of Computer Science
(715) 232-2481
User ID: Johnston@uwstout
Network: BITNET

Update: February 1990

Courses: **Software Engineering** (354-448)
Codes: U P B T 6
Textbooks: *Software Engineering*
by Sommerville, Ian
Software Engineering with Ada
by Booch, Grady
Tools: VAX and Zenith 286 PCs running Ada with Telesoft and Meridian compilers

Wyoming

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

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

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

Update: September 1988

Courses: **Software Engineering** (COSC 684)
Codes: B P O B 1
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Ada on VAX 8800
PC
VAX 11/785
VAX 8800

Software Engineering Management (COSC 884)
Codes: G P O B 1
Textbooks: *Managing the Software Process*
by Humphrey, W.S.
Tools: Ada
VAX 8800

Software Engineering Laboratory (COSC 685)
Codes: B P O B 1

Software Management Laboratory (COSC 885)
Codes: G P E B

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

Australia

Victoria

Royal Melbourne Institute of Technology
Information Technology Division
Melbourne, VC 3001 Australia

Degrees: BS CS, MS CS

Contact: Prof. Anthony Y. Montgomery
Head
660-2943
User ID: aym%goanna.oz@uunet.uu.net

Update: March 1990

Courses: **Software Engineering 1** (CS280)
Codes: U X R X 1

Software Engineering 2 (CS381)
Codes: U X E X 1
Textbooks: *Models and Measurements for Quality Assessment of Software* by Mohanty, S.N.

Software Engineering 3 (CS 387)
Codes: U X E X 1
Textbooks: *The Mythical Man-Month: Essays on Software Engineering* by Brooks, Frederick P.

Canada

Alberta

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

Degrees: BS, MS, PHD

Contact: Dr. Paul Sorenson
Chairman

Update: December 1989

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

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

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

Specification and Verification (CMPUT 508)
Codes: 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
Tools: VAX computer systems (UNIX OS)
Various specification languages

British Columbia

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

Degrees: BS, MS

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

Update: June 1987

Courses: **Software Engineering** (CSC 365)
Codes: U P R T 6
Textbooks: *The Mythical Man-Month: Essays on Software Engineering* by Brooks, Frederick P.
Tools: C, Pascal on UNIX 4.2
Pyramid
VAX 11/780

Implementation of Software Engineering Methods
Codes: B P E Y 3
Tools: C
Pyramid
Sun
VAX

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

Nova Scotia

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

Degrees: BCS, MS

Contact: Dr. Leslie H. Oliver
Professor and Director
(902) 542-2201 x331
User ID: oliver@acadiau.ca
Network: BITNET

Update: October 1988

Courses: **Software Engineering** (Comp 3653)
Codes: U P B Y 4
Textbooks: *Software Engineering: A Practitioner's Approach* by Pressman, Roger S.
Tools: Turbo Pascal, UNIX C
PC-Compatible
Sun
Excelerator

Additional Information:
Acadia University also offers degrees in BCSH, BCSS Software, and BCSS Business Data Processing.

Ontario

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

Degrees: BS, MS

Contact: Dr. David A. Lamb
Assistant Professor
(613) 545-6067
User ID: dalamb@qucis.wiscvm
Network: BITNET

Update: June 1987

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

Software Engineering (CISC 422/CISC 838)
Codes: B P E Y 4
Textbooks: *Software Engineering: Planning for Change*
by Lamb, David
Tools: IBM Pascal/VS
IBM 3081 under VM/CMS

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. H. Ural
Associate Professor
(613) 564-5092
User ID: HURSL@UOTTAWA
Network: BITNET

Update: October 1988

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

Software Engineering II (CSI 4112)

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

Software Testing: Theory and Practice (CSI 5111)
Codes: G N E Y 7
Textbooks: Selected readings

Software Engineering (CSI 5112)
Codes: G N E Y 5
Textbooks: Selected readings
Tools: VAX 750
Modula II, Ada

Additional Information:

The University of Ottawa also offers the following programs:
B.Sc. Major and Honours with General Computer Science
B.Sc. Major and Honours with Information and Management System
Software Engineering (offered in the Winter and Summer terms)
Software Engineering I (offered twice a year)

courses in Ada (Ada Language Concepts, CSI 2161) and Modula-2 (Modula-2 Language Concepts, CSI 2169) are also offered.

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

Degrees: BM, MM, PHD

Contact: Dr. David Taylor
(519) 888-4432
User ID: dtaylor@saugeen.waterloo.edu

Update: October 1988

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

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

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

Techniques in Systems Analysis (CS 482)
Codes: 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.

Quebec

Concordia University
Faculty of Engineering and Computer Science
Department of Computer Science
Montreal, PQ H3G 1M8 Canada

Degrees: BCS, MCS, PHD

Contact: Prof. Pankaj Goyal
Associate Professor
(514) 848-3018

Update: March 1990

Courses: **Software Engineering** (COMP 354)
Codes: U P R T 2
Textbooks: *Software Engineering Concepts*
by Fairley, Richard E.
Tools: Sun-C, Sun-Pascal
Sun workstations (network)

Additional Information:
We offered an Ada-Language Laboratory during the 1987-88 academic year. Several compilers were under evaluation.

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

Degrees: MS, PHD

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

Update: None

Courses: **Advanced Topics (Software Engineering)** (308-762A)
Codes: 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
Tools: Cambridge Modula-2, Modula-2/68, Powell Modula-2
Sun 3
VAX 11/780

Advanced Topics (Programming Environments) (308-767B)
Codes: G P E Y 3
Textbooks: *Interactive Programming Environments*
by Barstow, David R., Shrobe, Howard E., and Sandewall, Erik
Tools: Cambridge Modula-2, Modula-2/68, Powell Modula-2

Sun 3
VAX 11/780

Additional information:
The School offers research study (M.Sc. and Ph.D.) in software engineering as well as offering software engineering projects for masters students.

University of Quebec at Montreal
Computer Science
Departement of Mathematics and Computer Science
Montreal, QC H3C 3P8 Canada

Degrees: PHD M/CS, MS M/CS/CIS, BS M/CS/CIS

Contact: Dr. Philippe J. Gabrini
Head, Computer Science Section
(514) 987-3087
User ID: R23414@VQAM.bitnet
Network: BITNET

Update: March 1990

Courses: **Software Engineering** (INF 5050)
Codes: U P R B 5
Textbooks: *Software Engineering* by Sommerville, Ian
Tools: Modula-2
Sun workstations, PCs

Software Engineering I (INF 7410)
Codes: G N E Y 4
Textbooks: Selected readings
Tools: Modula-2
CASE tools

Software Engineering II (INF 7420)
Codes: G N E Y 4
Textbooks: Selected readings
Tools: Modula-2
CASE tools

Saskatchewan

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

Degrees: BA, BS, MS

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

Update: October 1988

Courses: **Business Information Systems** (CS 270)
Codes: U P R T 11
Textbooks: *Elements of Systems Analysis, 4th ed.*
by Gore, Marvin and Stubbe, John W.
Tools: IBM PC AT
Excelerator InTech

Advanced Systems Analysis and Design (CS 372)
Codes: U P E Y 4
Textbooks: *Introduction to Systems Analysis and Design: A Structured Approach*
by Kendale, Penny A.
Tools: UNIX C
Berkeley 4.2 UNIX on VAX 750
C programming language

Project Management for Data Processing Applications (CS 373)
Codes: U P E T 5
Textbooks: *Managing Computer Resources, 2nd ed.*
by Hussain and Hussain

Advanced Topics in System Software (CS 430)
Codes: U P E O
Textbooks: *Distributed Databases, Principles & Systems*
by Stefano, Ceri, Giuseppe and Pelagatti

Advanced Topics in Database Systems (CS 470)
Codes: U P E Y
Textbooks: *An Introduction to Database Systems, 3rd ed.*
by Date, C.J.
Tools: INGRES, DB2/SQL

Introduction to Database Systems and Document Storage and Retrieval (CS 375)
Codes: U P E T
Textbooks: *The Database Book*
by Loomis, Mary E.S.
Tools: INGRES

Additional Information:
CS 430 is offered every other year.

Mexico

Instituto Technologico y de Estudios Superiores de Monterrey
Graduates and Research
Informatics Graduate Program
Monterrey, NL 64849 Mexico

Degrees: MS

Contact: Dr. Carlos Scheel
58-20-00 x5011
User ID: SCHEEL@TECMTYVM
Network: BITNET, Internet

Update: March 1990

Courses: **Software Engineering** (SI-151)
Codes: G P R Y 4
Textbooks: *Software Engineering: A Practitioner's Approach*
by Pressman, Roger S.
Software Engineering Concepts
by Fairley, Richard E.
Tools: Modula-2, C, 4th Dimension
VAX, MICRO-VAX, IBM 4381
IBM PS/2 Model 50/80
ALTOS

Advanced Programming Techniques (SI-150)
Codes: G P R Y 4
Textbooks: *Fourth Generation Languages, vol. I-III*
by Martin, James
Interactive Programming Environments
by Barstow and Shrobe
Tools: Oracle, Linc, IEW
VAX 3681, UNISYS A3, IBM 4381

Programming Design (CB-150)
Codes: G N R B 4
Textbooks: *Programming by Design*
by Miller and Miller
Software Tools in Pascal
by Kernighan, Brian and Plauger
Tools: Pascal, C
IBM PS/2 Model 50/80
IBM 4381

Information Engineering (SI-154)
Codes: G P R Y 1
Textbooks: *Information Engineering*
by Martin, J. and Finkelstein, C.
Strategic Data-Planning Methodologies
by Martin, J.
Tools: C, Pascal, Oracle
IBM 4381, IBM PS/2 Model 50/80
VAX

United Kingdom

Scotland

University of Stirling
Department of Computing Science
Stirling, SL FK9 4LA United Kingdom

Degrees: BS, MS

Contact: Dr. David Budgen
(44) 786 73171
User ID: db@uk.ac.stir.cs
Network: JANET

Update: March 1990

Courses: **Software Engineering** (31W7)
Codes: U N B Y 7
Textbooks: *Software Engineering, 3rd Edition*
by Sommerville, Ian
The Craft of Software Engineering
by Macro, Allen and Buxton, John
The Mythical Man-Month: Essays on Software Engineering
by Brooks, Frederick P.
Tools: CASE Tools: Teamwork

Formal Specification (SE2)
Codes: G N R Y 3
Textbooks: *Introduction to Discrete Mathematics for Software Engineering*
by Denvir, Tim
Tools: 3B15 Computer
HP UNIX Workstations

Additional Information:
Our degree programmes are fairly structured, and so we can put a software engineering bias into many of the course units that are not specifically concerned with software engineering themes (e.g., the course unit on concurrency). The two course units listed are those that concentrate on specific areas of software engineering itself.

University of Strathclyde
Faculty of Science
Department of Computer Science
Program in Computer Science
Glasgow, SL G1 1XH United Kingdom

Degrees: BCS, B IE

Contact: Dr. Robin B. Hunter

Update: April 1990

Courses: **Software Engineering** (52.302)
Codes: U P R Y 7

Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Pascal
Sequent
Ada

Systems Analysis and Design (52.304)
Codes: U N R Y 16
Textbooks: *Basic Systems Analysis*
by Daniels, Alan and Yeates, Donald
Information Systems Design
by Brookes, Cyril H. P.
Software Engineering with Systems Analysis and Design
by Steward, Donald V.
Systems Analysis and Design: A Structured Approach
by Davis, William S.
Systems Analysis and Design for Computers
by Millington, Ellis, Horwood

Software Engineering (52.415)
Codes: U P E Y 6
Textbooks: *Software Engineering*
by Sommerville, Ian

Formal Methods (52.415)
Codes: U N E Y 11
Textbooks: *Program Verification Using Ada*
by McGettrick, Andrew D.
Tools: Sequent
Ada/Anna

Systems Design
Codes: G N R Y 6
Textbooks: *Introduction to Systems Analysis and Design: A Structured Approach*
by Kendall, Penny A.
Tools: Turbo Pascal
IBM PC

Software Engineering
Codes: G N E Y 6
Textbooks: *Software Engineering*
by Sommerville, Ian
Tools: Ada, Pascal

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS NONE
2a. SECURITY CLASSIFICATION AUTHORITY N/A	3. DISTRIBUTION/AVAILABILITY OF REPORT APPROVED FOR PUBLIC RELEASE DISTRIBUTION UNLIMITED
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) CMU/SEI-90-TR-4	5. MONITORING ORGANIZATION REPORT NUMBER(S) ESD-TR-90-206
6a. NAME OF PERFORMING ORGANIZATION SOFTWARE ENGINEERING INSTITUTE 6b. OFFICE SYMBOL (If applicable) SEI	7a. NAME OF MONITORING ORGANIZATION SEI JOINT PROGRAM OFFICE
6c. ADDRESS (City, State and ZIP Code) CARNEGIE MELLON UNIVERSITY PITTSBURGH, PA 15213	7b. ADDRESS (City, State and ZIP Code) ESD/XRS1 HANSCOM AIR FORCE BASE, MA 01731
8a. NAME OF FUNDING/SPONSORING ORGANIZATION SEI JOINT PROGRAM OFFICE 8b. OFFICE SYMBOL (If applicable) SEI JPO	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER F1962885C0003
8c. ADDRESS (City, State and ZIP Code) CARNEGIE MELLON UNIVERSITY SOFTWARE ENGINEERING INSTITUTE JPO PITTSBURGH, PA 15213	10. SOURCE OF FUNDING NOS. PROGRAM ELEMENT NO.: PROJECT NO.: N/A TASK NO.: N/A WORK UNIT NO.: N/A
11. TITLE (Include Security Classification) Software Engineering Education Directory	
12. PERSONAL AUTHOR(S) Bill Mc Steen, Brian Gottier, Mark Schmick	
13a. TYPE OF REPORT FINAL 13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Yr., Mo., Day) April, 1990 15. PAGE COUNT 166
16. SUPPLEMENTARY NOTATION	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB. GR.	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The directory provides information about software engineering courses and software engineering degree programs offered by universities, primarily in the United States.

20 DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS ☒	21 ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED, UNLIMITED
22a NAME OF RESPONSIBLE INDIVIDUAL KARL SHINGLER	22b TELEPHONE NUMBER (Include Area Code) (412) 268-7630 22c OFFICE SYMBOL SEI JPO