

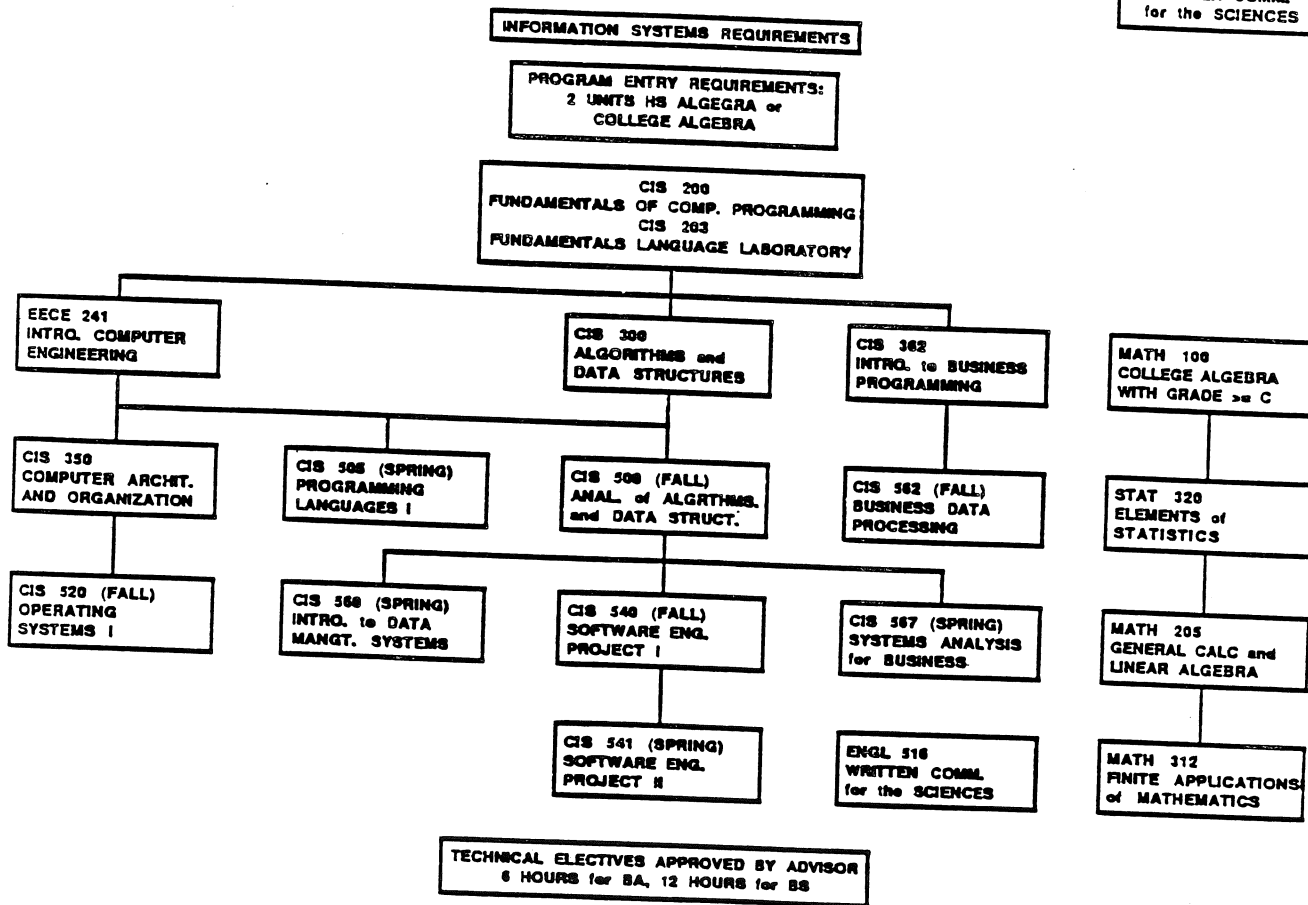
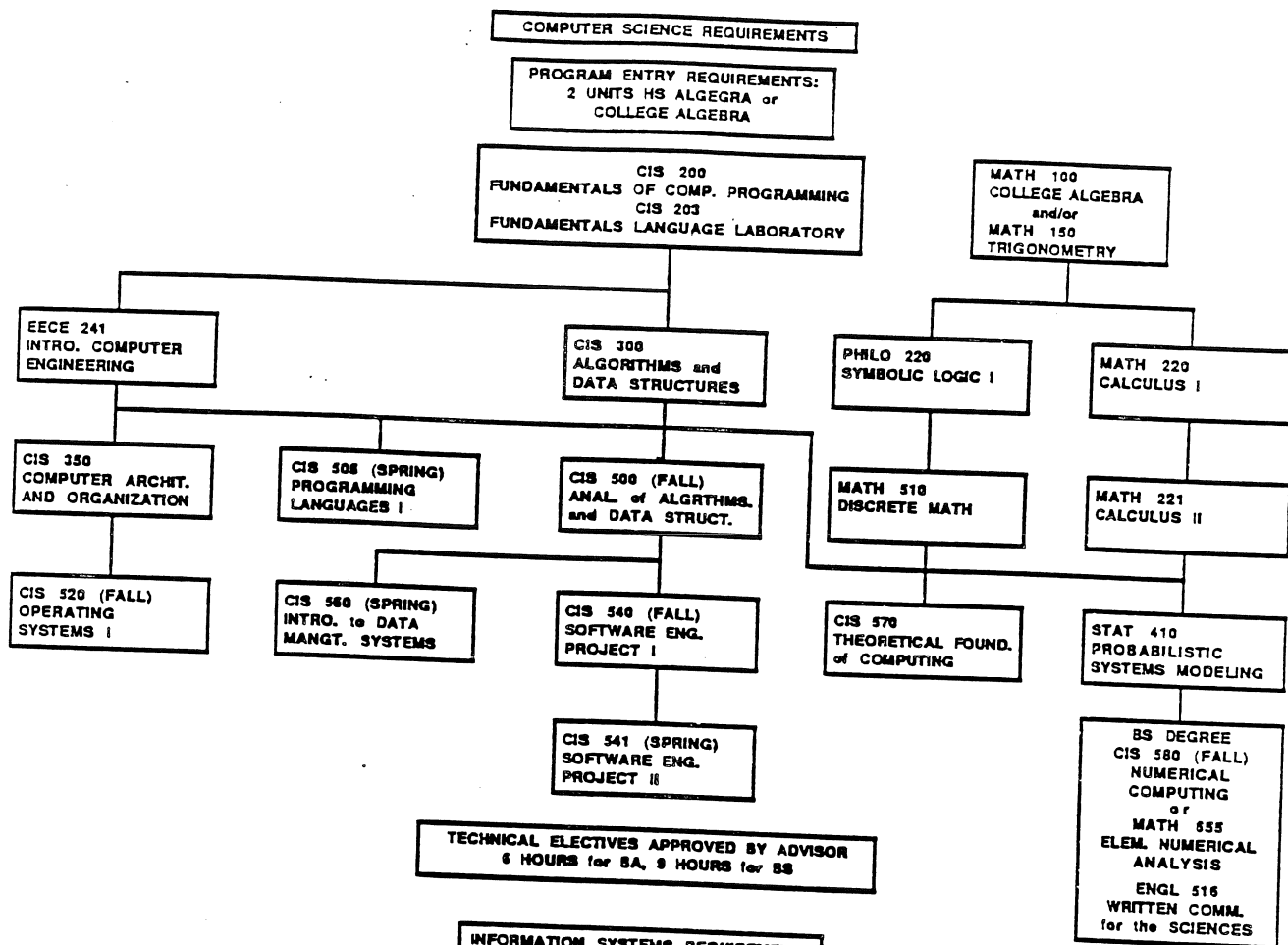
KANSAS STATE UNIVERSITY

1991 GUIDE TO REQUIREMENTS

FOR

MAJORS IN COMPUTER SCIENCE & INFORMATION SYSTEMS

To major in computer science or information systems you must meet the general requirements of the University, the requirements of the College of Arts and Sciences, and the requirements of the Department of Computing and Information Sciences (all of which are listed in the General Catalog). The requirements for the BS and BA degrees are outlined on the sample curriculum guide check sheets. An up-to-date copy of the curriculum guide should be kept in your folder in the CIS office for your use during advising. Please update your guide form when you pick up your enrollment permit and take the updated version with you when you see your advisor. Please return it to the CIS office - Nichols Hall 234 - after you have been advised.



KANSAS STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
LIST OF COURSES THAT FULFILL DEGREE REQUIREMENTS
As of March, 1990

ENGLISH COMPOSITION I & II
PUBLIC SPEAKING (or Argumentation & Debate)
PRINCIPLES OF PHYSICAL FITNESS

HUMANITIES: 4 courses, 11 hrs. minimum. One course from each of the 4 areas. They may be used at the same time to count toward the major. No course may be used to satisfy more than one specific requirement in this section. Only courses taken for two or more credit hours satisfy these requirements.

1. FINE ARTS: 1 course

Anthropology--Creativity & Culture 515, Afro-American Music & Culture 517
Art technique courses 200-799, art history 195 & 196, Intro to Museum Studies 305, Computer Imaging Art 400
Dance courses 205, 323, 324, 325, 326, or 371
History of Dance--HIST 459
*Music--200, 201, 245, 250, 255, 280, 310, 385, 420, 424, 455, 480, 570, 601, 602, or 650
Theatre courses 260-799

2. PHILOSOPHY: 1 course

Except Logic courses--110, 220, and 510

3. WESTERN HERITAGE: 1 course

*History courses in Greco-Roman, Western European or North American experience
Constitutional Law Courses--POLSC 613, 614, 615, 616, 799
Women's Studies--DAS 105, 405, 506
American Ethnic Studies--DAS 160
Political Thought Courses--POLSC 301, 661, 663, 667, 671, 675, or SOCIO 709
Humanities Courses--ENGL 230, 231, 233, 234
Modern Language Courses--FREN 514, GRMN 530
SPAN 565, SPAN 566
Music - Intro to American Music 245
Speech - Rhetoric of the Sixties 460

4. LITERARY OR RHETORICAL ARTS: 1 course

*English courses in literature or creative writing 250-799 except 301, 400, 401, 405, 415, 490, 492, 499, 520, 516, 530, 796
*Modern Language literature courses, including literature in translation
Theatre courses 562, 764
Speech 330, 335, 430, 432, 434, 460, 725, 730, 732, or 733

BS Degree only: Levels I & II in the same foreign language will satisfy Western Heritage and the Literary and Rhetorical Arts requirements.

SOCIAL SCIENCES: 4 courses from 3 disciplines, 12 hrs. minimum.

Up to 2 courses from a single dept. may be used to fulfill the distribution requirements set forth in this section. They may be used at the same time to count toward the major. One course must be 500-799 level or carry a prereq in same dept.

At least 3 of the 4 courses must be from:
Psychology, Sociology, Cultural Anthropology, (including Archaeology), Geography (except Environmental I & II (220 & 221), Economics, Political Science, History

The 4th course can be from one of the above or from the following:

Women's Studies--DAS 105, 405, or 506
Gerontology--DAS 315, 415
Speech--323, 435, 520, 720, 726; Linguistics except Gen. Phonetics 601
Journalism & Mass Communications--Intro to Mass Comm 235, Ethnic Media 530, Women & Media 612, Hist Journalism 660, Law Mass Comm. 665, Mass Comm: Ethics & Issues 685
Radio-Television--Radio-TV & Society 300, Hist Telecomm. 660 or RTV Crit. 675
Physical Education--Motor Dev & Learn 320, Soc. Dimen. 340, or Sport & Contemp Society 435
Anthropology - Pro-Seminar in Appl. Anth 640

NATURAL SCIENCES:

BS Degree: 4 courses/14 hr. min.

BA Degree--3 courses/11 hr. min.

Courses that fulfill this requirement may be used at the same time to count toward the major. No courses may be used to satisfy more than 1 specific requirement in this section. Only courses taken for 2 or more credit hours satisfy these requirements & courses in excess of 5 cr. hr. count as 2 courses.

1. A Life Science with Lab
2. A Physical Science with Lab
3. A Life or Physical Science

Life Sciences:Biology, Biochem., Paleobiology (Geol) 581 or 704, Intro. Physical Anthro. 280, 281, Paleoanthro. 688, Primatology 691, Osteology 694, Osteology Lab 695

Physical Sciences:Physics, Chemistry, Envir. Geog I & II (220 & 221) ONLY; Geol except Paleobiology 581, Paleoecology 704

4. BS Degree only:1 course (3 cr. hr. min.) with a prereq. in the same dept chosen from the following: Life or Phys. Sci. listed in #3, Biochem courses with chem. prereq, PE--330 Kinesiology, Physio. of Exercise 335, Psych.-Psychobiol. 470, Fund. of Percep. & Sensation 480

*Courses listed on following pages.

QUANTITATIVE & ABSTRACT FORMAL REASONING.:

BS DEGREE ONLY

Courses used for this requirement may also satisfy any major requirement for which it qualifies. Select one of the following three options:

1. Three courses from: Math, Stat, Logic (Philo), Computer Sci (note: CIS 200 requires lab 203 and is equivalent to one required course)
2. One of the following pairs:
 - Quant Analysis in Geog.700 & Stat I level course
 - Meas & Eval in PE 710 & Stat. I level course
 - General Physics I 113 & Trig. 150
 - Methods in Social Res 520 & Stat. I level course
 - Intermed. Quant Meth 725 & Stat. I level course
 - Meth in Social Work Res 519 & Stat I level course
3. Level II: 2 courses
 - Computer Science--Fund of Comp. Prog. 200 & lab 203 (to count as one course)
 - Math--Plane Trig. 150, Applied Math 201, General Calc. & Lin. Algebra 205
 - Philosophy--Symbolic Logic II 510
 - Statistics--Elem. of Statistics 320, Elem. Statistics for the Social Sciences 330, Biometrics I 340, Business & Econ. Stat. I 350, Statistical Methods for Social Sci 702, Statistical Methods for Nat. Sciences 703

--OR--

- Level III: 1 course
- Computer Science--Algorithmic & Data Struct. 300, Comp. Architecture and Organ. 350
 - Math--Technical Calc I 210, Anal Geometry & Calc I 220
 - Philosophy--Topics in Metalogic 701
 - Statistics--Biometrics II 341, Business & Econ. Stat II 351, Anal. of Variance & Covariance 704, Regression & Correlation Analysis 705

BA DEGREE ONLY

Foreign Language: 4 courses 15 hrs. One of the foreign language sequences offered by the Dept. of Modern Languages or equivalent competency.

Mathematics: 1 course 3 hours
100-799 level course offered by the Dept. of Mathematics, or any other course for which there is a mathematical prerequisite. Any course used to satisfy this requirement cannot be used to satisfy any other general education requirement.

INTERNATIONAL OVERLAY:

This course may also satisfy a requirement in the major, social sciences, or humanities. The 4th course in a single foreign language sequence (other than Latin) will satisfy this requirement.

- Anthropology--Intro. Cultural 200, Intro. to Ling. Anthro. 220, Intro to aeology 260, Civ. of South Asia I 505, Civ. of South Asia II 506, Folk Cultures 507, Male & Female 508, Cultural Ecology & Econ. 511, Political Anthropology 512, Creativity & Culture 515, Ethnomusicology 516, Afro-Amer. Music & Cult. 517, African American Cultures 536, Cultures of India & Pakistan 545, Cultures of Africa 550, Culture & Personality 604, Religion in Culture 618, Indians of No. Amer. 630, Indian Cultures of So. Amer. 634, Pro-Seminar in Appl. Anth 640, Precolumbian Civ. of Mexico & Guatamala 673, Archaeology of the Old World 676
- Economics--Civ. of So. Asia I 505, Civ. of So. Asia II 506, Capitalism & Socialism 636, Intern'l Trade 681, Underdeveloped Countries 682
- Geography--World Reg 100, Human Geog 200, Honors 201, Civ. of So. Asia I 505, Civ. of So. Asia II 506, Latin Amer. 620, Europe 640, Soviet Union 650, Geog of Hunger 710, World Population Patterns 715
- History--Russian Culture & Civ. 250, Gandhi & Indian Revol. 350, Hist. of Hinduism 504, Civ. of So. Asia I 505, Civ. of So. Asia II 506, World War II 514, U.S. & World Affairs 1776-Present 543, U.S. & Soviet Relations since 1917 544, War in 20th Cent. 545, Colonial Hispanic Amer. 561, Mod. Mexico 562, Russian Revol. & Soviet Sys. 564, European Diplomatic Hist. to Napoleon 576, European Diplomatic Hist. since Napoleon 577, Russia to 1801 591, Grandeur & Decline of Imperial Russia 592, Topics in Non-Western Hist. 598
- Journalism & Mass Comm--Intern'l Comm 670
- Management--Intern'l Business (Bus. Adm.) 690
- Marketing--Intern'l Marketing (Bus. Adm.) 544
- Modern Languages--Russian Culture & Civ. 250, Russn Lit. in Translation: 19th Cent. 504, Russn Lit Trans: Soviet Period 508, Survey Russian Lit. 552
- Political Science--World Politics 333, Civ. of So. Asia I 505, Civ. of So. Asia II 506, Contemp. Chinese Pol. 511, International Relations 541, American Foreign Policy 543, Pol. of Dev. Nations 545, Latin Amer. Pol. 622, So. Asian Pol. 623, Mid. East Pol. 624, SE Asian Pol. 625, African Pol. 626, Soviet-Style Regimes 627, Compar. Security Estab. 628, Admin. in Dev. Nations 629, Intern'l Conflict 642, Intern'l Pol. Eur. 645, Intern'l Law 647, Intern'l Defense Strag. 649, Intern'l Organ. 651, Intern'l Pol. So. Asia 652, Intern'l Pol. Mid East 653
- Sociology--Civ of So Asia I 505, Civ of So Asia II 506, Religion in Culture 618, Soc. & Change So. Asia 742

NAME _____

MAJOR _____

ADDRESS _____

DEGREE _____

DATE _____

Courses for Computer Science			Courses for Information Systems		
Anal Geom & Calc I	MATH220	4	Elem of Statistics	STAT320	3
Anal Geom & Calc II	MATH221	4	Intro Business Prog	CIS362	3
Discrete Math	MATH510	3	Gen Calc & Lin Alg	MATH205	3
Symbolic Logic I	PHIL220	3	Finite Applications#	MATH312	3
Prob System Modeling	STAT410	3	Business Data Prog*	CIS562	3
Theo. Found of Comp.	CIS570	3	Systems Analysis#	CIS567	3
			Written Comm for Sc	ENGL516	3
BS Degree Only					
Written Comm for Sc	E516	3			
Elem Numerical Anal*	M655	3			
or					
Numerical Computing*	CIS580	3			

Courses required for BOTH Majors

Fund. of Computer Programming	CIS 200	3
Fund. Language Laboratory	CIS 203	1
Intro. to Computer Engineering	EECE 241	3
Algor. & Data Structures	CIS 300	3
Computer Archit. & Prog.	CIS 350	3
Anal of Algorithms & Data Struct*	CIS 500	3
Intro. to Programming Languages#	CIS 505	3
Operating Systems I*	CIS 520	3
Software Engineering Project I*	CIS 540	3
Software Engineering Project II#	CIS 541	3
Intro to Data Management Systems#	CIS 560	3

* Fall ONLY
Spring ONLY

Technical Electives To Be Approved By Advisor:
(6 hrs for BA degree, 9-12 hours for BS degree)

1. _____
2. _____
3. _____
4. _____

Courses for Requirements for Both Degrees

See Current Listing for Courses That Fulfill Requirements

English I	3
English II	3
Oral Communications	2-3
Concepts of PE	1

Courses for BA Degree		Courses for BS Degree	
Humanities (4 Courses)	12	Humanities (4 Courses)	11
1. Fine Arts	_____	1. Fine Arts	_____
2. Philosophy	_____	2. Philosophy	_____
3. Western Heritage	_____	3. Western Heritage	_____
4. Literary or Rhetorical Arts	_____	4. Literary or Rhetorical Arts	_____
Social Sciences (4 Courses)	12	Social Sciences (4 Courses)	12
1. _____	_____	1. _____	_____
2. _____	_____	2. _____	_____
3. _____	_____	3. _____	_____
4. Courses must be 500-799 or have prereq. in same dept.	_____	4. Course must be 500-799 or have prereq. in same dept.	_____
Natural Sciences (3 Courses)	11	Natural Sciences (4 Courses)	14
1. Life Science w/Lab	_____	1. Life Science w/Lab	_____
2. Physical Science w/Lab	_____	2. Physical Science w/Lab	_____
3. Life or Physical Science	_____	3. Life or Physical Science	_____
		4. Course w/ prereq. in same dept.	_____
Foreign Languages (4 Courses)	15		
1. _____	_____	Quantitative requirement is met by majoring in CMPSC or INSYS	
2. _____	_____		
3. _____	_____		
4. _____	_____		
Math (1 Course)	3	Internat'l Overlay (1 course)	3
1. _____	_____	1. _____	_____

AREAS OF TECHNICAL ELECTIVES

1991

COMPUTER SCIENCE MAJORS

BA select 6 hours, BS select 9 hours as follows:

Courses taken to meet the Computer Science major may not be used as technical electives. Technical electives must be Computing and Information Sciences 300 level and above. One course must be from the CIS 600 or CIS 700 levels.

INFORMATION SYSTEM MAJORS

BA select 6 hours, BS select 12 hours from the suggested coursework for a particular track.

DATABASE MANAGER

CIS 600	Microcomputer Software
CIS 761	Data Base Management Systems
MANGT 420	Management Concepts
MANGT 421	Production/Operations Management
MANGT 466	Management Information Systems

INFORMATION SYSTEMS ANALYST/DESIGNER

CIS 740	Software Engineering
ACCT 211	Financial Accounting
FINAN 450	Business Finance
MANGT 420	Management Concepts
MANGT 466	Management Information Systems
MKTG 400	Marketing

MANAGEMENT INFORMATION SYSTEMS

ACCT 211	Financial Accounting
MKTG 400	Marketing
FINAN 450	Business Finance
MANGT 466	Management Information Systems
CIS 762	Office Automation
PSYCH 560	Industrial Psychology

APPLICATIONS PROGRAMMER

CIS 600	Microcomputer Software
CIS 535	Introduction to Computer-Based Knowledge Systems
CIS 636	Computer Graphics
CIS 740	Software Engineering
CIS 745	Software Development Management

COMMUNICATIONS ANALYST

CIS 600	Microcomputer Software
CIS 750	Advanced Computer Architecture
CIS 762	Office Automation
CIS 725	Computer Networks
PSYCH 425	Problem Solving and Decision Making

GUIDELINES

FOR THE

MASTER OF SCIENCE DEGREE

IN THE

DEPARTMENT OF COMPUTING AND INFORMATION SCIENCES

KANSAS STATE UNIVERSITY

JANUARY 1989

GRADUATE STUDIES COMMITTEE

Dr. William J. Hankley—Chair
Dr. David A. Schmidt
Dr. Virgil Waldorf

I. INTRODUCTION

These guidelines describe departmental and university requirements for a Master of Science (M.S.) Degree in Computing and Information Sciences. Students are expected to adhere to these standards. If exceptions are warranted, the student must consult the Graduate Studies Committee to determine alternate means of meeting the standards.

The guidelines stated here are those of the Computing and Information Sciences Department. Certain other regulations are imposed by the Kansas State University Graduate School and are described in the "Student Guide for Masters and Doctoral Degrees," available from the Graduate School Office, and in the "Graduate Student Handbook," published by the Graduate Student Council. It is the student's responsibility to know and satisfy all requirements.

The Graduate Studies Committee will keep each student informed of the committee's view of his or her progress towards the M.S. degree. In keeping with this commitment, an annual review of all graduate students is performed each January, and a written evaluation is transmitted to each student.

Graduate students are expected to participate in the professional activities of the Department. This includes attending seminars and colloquia, suggesting improvements in curriculum (both graduate and undergraduate), and suggesting new teaching techniques.

II. ADMISSION

The "Directions for Applying for Graduate Studies in Computer Science" manual gives detailed information about the application process. A student well prepared for graduate study will have a good background in "mainstream computer science." This includes experience with block structured programming languages (e.g., Pascal), "modular" languages (e.g., Modula, Ada, or Smalltalk), and non-procedural languages (e.g., Lisp, Prolog, or ML), and background in computer architecture or assembly programming, data structures, operating systems, database systems, software engineering, and computing-related mathematics (e.g., mathematical logic, discrete mathematics, or calculus). A student who lacks experience in some of these areas may be asked to do specific coursework to resolve the deficiencies.

III. REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

The M.S. degree requires a minimum of 30 credit hours of graduate level coursework, a limited number of credit hours from other accredited graduate programs can be applied. (Note: a student who chooses the "non-thesis-report" Program Option must take 33 credit hours; see Section II(b).) Each new student is assigned a faculty member to serve as an *Academic Advisor*. The Academic Advisor helps the student select courses and reviews the student's progress until a Major Professor is selected. The coursework must include:

Background Requirement: CMPSCT700; this requirement is waived if the student has already taken a course on compiler construction.

Seminar Requirement: CMPSQ897. This course is an introduction to the department, general literature in computer science, and technical writing. It must be taken during a student's first year of graduate studies. Based upon the instructor's evaluation of a student's writing skills, the student may be required to take ENGL516.

Implementation Requirement: One of the courses: CMPSQ620, 630, 636, 690, or 700. These

courses require the student to complete a substantive software project, including specification, design, testing, and documentation.

Theory Requirement: One of the courses: CMPS675 or 770. These courses cover formal proof techniques.

Breadth Requirement: Three of the courses: CMPS671 (specification and verification), 705 (programming language), 730 (artificial intelligence), 720 (operating systems), 740 (software engineering), or 761 (database systems). (Note: CMPS672 may be substituted for CMPS761, and CMPS725 may be substituted for CMPS720.) These courses give the student exposure to a breadth of areas in computing. Other courses numbered CMPS67xx may be used to satisfy this requirement, provided that permission is granted by the Graduate Studies Committee.

Specialization Requirement: One course numbered CMPS68xx or CMPS69xx (excluding seminar, projects, and M.S. research courses).

The student must receive a grade of "B" or better for each course used to satisfy the above requirements.

IIIa. Advisor and Supervisory Committee

By the end of the first year as a graduate student, a student must select a *Major Professor*. The Major Professor helps the student choose a *Supervisory Committee*, pick a *Program Option*, and formulate a *Program of Study*. The *Supervisory Committee* is a group of three faculty members (including the Major Professor) that approves the student's *Program of Study* and *Program Option* and gives final approval for the student's degree. The final approval is granted at the *Oral Examination*, which is held when all other requirements are met for the degree. The *Oral Examination* is described in Section IIIc. The *Program Option* is described in Section IIIb. The *Program of Study* lists the courses that the student takes to satisfy the coursework requirements for the M.S. degree. A student must obtain a *Program of Study Form* from the Graduate School, list the courses on it, have the *Supervisory Committee* sign it, and return it to the Graduate School. The *Program of Study Form* should be completed by the end of the student's first year of studies.

IIIb. The Program Option

The *Program Option* can take one of three forms:

Non-thesis-report Option: Write a major paper, for example, as part of a CMPS68xx course. This option requires 33 credit hours for a M.S. degree.

Report Option: Undertake a project that culminates in a written report; 2 credit hours for CMPS698 are awarded for the work. Project work satisfying the *Implementation Requirement* can be used, subject to the approval of the Major Professor. This option requires 30 credit hours for a M.S. degree.

Thesis Option: Perform original research that culminates in a written thesis; 6 credit hours for CMPS699 can be awarded for the work. This option requires 30 credit hours for a M.S. degree.

The document written to satisfy the *Program Option* should represent the best possible writing by the student; it is not to be written or extensively edited by the Major Professor. Students should begin their writing early enough so there will be time for review by the Major Professor and rewriting by the student prior to the *Oral Examination*. Once the student has completed the doc-

ument, the student must visit the Graduate School and obtain the Graduate School's Approval Form. The *Supervisory Committee* members sign the Approval Form, and the student returns it to the Graduate School.

If a student chooses either the thesis or report options, the thesis or report must meet the Graduate School's standards. Tentative copies of the thesis or report are due in the Major Professor's office approximately two months prior to graduation. The Graduate School requires three copies of the thesis or report, which are submitted after the *Oral Examination*.

IIIc. The Oral Examination

Once the *Supervisory Committee* members have signed the Graduate School's Approval Form, the student returns the form and tells the Graduate School the time, date, and place of the *Oral Examination*. The examination should take place approximately one month before graduation, and it must occur no sooner than one week after the Approval Form is returned.

The *Oral Examination* is a presentation of the student's *Program Option* work and a defense of the student's scholarly effort. The exact format of the *Oral Examination* is decided by the *Supervisory Committee*, and the student must consult the Major Professor prior to the examination to establish the format.

A student can either pass or fail the *Oral Examination*, subject to a vote by the *Supervisory Committee*. If the student fails, a second attempt of the *Oral Examination* cannot be retaken in less than two weeks nor more than twelve months after the failed examination, unless an extension is granted by the Dean of the Graduate School. No third try is allowed.

IV. NORMAL PROGRESS

Each semester of enrollment, a student must make *normal progress* towards the M.S. degree. *Normal progress* is considered to be the following:

- a grade point average that is 3.00 or better.
- a Major Professor selected and a *Program of Study* filed with the Graduate School by the end of the first year in attendance.
- a coursework load of at least 9 credit hours per semester.

V. UNRESOLVED ISSUES

Any issues not covered in this document shall be resolved by the Graduate Studies Committee in consultation with the faculty of the Department of Computing and Information Sciences.

GUIDELINES
FOR THE
DOCTOR OF PHILOSOPHY DEGREE
IN THE
DEPARTMENT OF COMPUTING AND
INFORMATION SCIENCES

KANSAS STATE UNIVERSITY
January 1989

GRADUATE STUDIES COMMITTEE
Dr. William J. Hankley—Chair
Dr. David A. Schmidt
Dr. Virgil Valentine

1. INTRODUCTION

1a. These guidelines give departmental and university standards for attainment of a Doctor of Philosophy (PhD) Degree in Computing and Information Sciences. You are expected to adhere to these standards. If exceptions are warranted, your advisor and the Graduate Studies Committee must be consulted to determine alternate means of meeting the standards.

1b. The guidelines stated herein are those of the faculty of the Computing and Information Sciences Department at Kansas State University. Certain other regulations are imposed by the Kansas State University Graduate School and are described in the "Student Guide for Masters and Doctoral Degrees," which is available from the Graduate School Office, and in the "Graduate Student Handbook," published by the Graduate Student Council. It is your responsibility to know and satisfy all requirements. 1c. The PhD program in Computing and Information Sciences is offered jointly by Kansas State University in Manhattan and the University of Kansas in Lawrence. Acceptance into the program implies acceptance by both departments. You may elect to fulfill residency and other requirements at either school. You may select courses from offerings at both schools.

2. ADMISSION

2a. In the usual case, you must first complete a Master's degree in computer science or a related field. See the booklets "Directions for Applying for Graduate Study in Computing and Information Sciences" and "Guidelines for the Master of Science Degree in Computing and Information Sciences at Kansas State University" for details.

2b. You must take the Graduate Record Exam (GRE). Successful applicants have a combined GRE Verbal plus Quantitative score of at least 1100.

2c. If you are an international student and you received received your Bachelor's degree abroad, you must take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 575. (The exam is waived in certain cases, e.g., for an applicant from Canada or Britain.)

2d. You must possess a grade point average of 3.50 (on a scale where an "A" is 4.00) for your Master's level coursework. Your Master's degree work must include material called the *Core Courses*. The Core Courses are:

- a compiler construction course
- a course in theoretical computer science (formal language theory or analysis of algorithms)
- three courses in "breadth areas" (artificial intelligence, database systems, operating systems, programming languages, software engineering, or systems specification)

If your Master's degree studies do not include this material, you may still apply. The Graduate Studies Committee may choose to admit you with the requirement that you take specific course material to remedy deficiencies.

3. GENERAL REQUIREMENTS

3a. The PhD degree requires at least 90 semester hours of graduate-level credit, typically distributed as 30 hours of Master's work, 30 hours of PhD level coursework and 30 hours of PhD research, culminating in a PhD dissertation. (See Section 4.1 below.) All work must be completed within seven years. At least one full year must be spent in residence at Kansas State University.

- 3b. You must maintain a 3.00 grade point average in all coursework.
- 3c. You must make regular progress toward completion of the degree. Progress of graduate students is reviewed each year in January by the Graduate Studies Committee. A written evaluation is sent to you and placed in your permanent file. Any student who does not maintain an adequate grade point average or who does not respond to a warning of inadequate progress will be placed on probation, with written notice from the Graduate School. A student on probation must correct deficiencies within the time limit indicated in the written notice or be dismissed from the graduate program.
- 3d. If you are employed by the department, you must enroll in at least 9 hours of graduate-level courses each Fall and Spring term of enrollment.
- 3e. Sometime in your graduate career you must participate in teaching within the Department, either as an assigned instructor or by special arrangement.
- 3f. You are expected to participate in the professional activities of the Department. You must attend seminars and colloquia offered by the Department and by the professional societies within the Departments.
4. SPECIFIC REQUIREMENTS FOR THE PHD DEGREE
- 4a. Upon admission to the PhD program, you are assigned an *academic advisor*, who remains your supervisor until you obtain your *major professor* (see Section 4d). You and your advisor complete a *Declaration of Intent* form and give it to the departmental secretary. You must also consult with your advisor to formulate an initial research paper (see Paragraph 4b), a plan of study and an agreement with a research advisor (see Paragraph 4d).
- 4b. During your first year in the program, your academic advisor will assign you an *initial research paper* on some topic of the advisor's choosing. The paper you write must display sound organization, clear exposition, evidence of background research, and conceptual understanding of the topic. The paper does not need to be a research proposal or a new research result. The paper might relate to or be supported by a course you are taking. It should represent from 1 to 3 credit hours of work. (In some cases, you can receive CMFSC999 credit for your work.) The paper must not be edited or organized by any member of the faculty.
- 4c. The initial research paper will be evaluated by your academic advisor in consultation with the Graduate Studies Committee. *You will not be allowed to proceed to the second year of your PhD studies if your initial research paper is not accepted by your academic advisor and the Graduate Studies Committee.*
- 4d. At the end of your first year of PhD studies, you should seek a *research advisor*, also known as your *major professor*. Your research advisor must be a member of the Graduate Faculty. (See the "Kansas State University General Catalog" for further information.) Since the research advisor organizes and directs your research, you should choose an advisor carefully. How do you find an advisor? Talk to faculty members. Take some of the 800-level or 900-level research-oriented courses. Read current survey and research papers in computer science journals and magazines. *It is your responsibility to obtain a research advisor.*
- 4e. In consultation with your research advisor, you must compose a *supervisory committee*. The supervisory committee must include three members of the Graduate Faculty in the Computing and Information Sciences Department. Another member must be from the graduate faculty of the Computer Science Department at the University of Kansas. Another member must be a Kansas State University Graduate Faculty member from a department other than Computing and Information Sciences. All committee members must be chosen for their appropriateness to your planned research topic. In addition, the Graduate School will appoint an examination chairperson from outside of the Computing and Information Sciences Department.
- 4f. You must consult regularly with your research advisor.
- 4.1. The Program of Study
- 4.1a. You must meet with the members of your supervisory committee and formulate a *Program of Study*. (Obtain the Program of Study forms from the Graduate School.)
- 4.1b. The Program of Study contains the following information:
- 4.1b.i. major professor (that is, the research advisor)
- 4.1b.ii. members of the supervisory committee
- 4.1b.iii. general area of research
- 4.1b.iv. three preliminary examination areas (See Paragraph 4.2c.)
- 4.1b.v. all graduate course credits (at least 90 hours)
- 4.1c. The graduate course credits must include the following:
- 4.1c.i. The Core Courses stated in Paragraph 2d. Equivalent courses taken at another institution are acceptable. The Graduate Studies Committee reserves the right to determine equivalency. Alternatively, Core Courses can be omitted if you elect to take and pass the comprehensive exam. (See Paragraph 4.2b.)
- 4.1c.ii. At least 24 hours of course credit at Kansas State University beyond the Master's degree.
- 4.1c.iii. At least 30 hours of PhD research.
- 4.1c.iv. At least 9 hours of CMFSC900-level courses.
- 4.1c.v. One or more courses in theoretical or foundational topics that support your chosen direction of research. The supervisory committee approves the choice of courses for this requirement.
- 4.1c.vi. Any additional requirements instituted by your supervisory committee. (An example: English 516, "Written Communication for Scientists," is sometimes required for additional writing experience.)
- 4.2. The Preliminary Exams
- 4.2a. You must also pass preliminary exams. The exams consist of 4 written exams and one oral exam. *By the end of your second year of studies, you must have passed the preliminary exams.*
- 4.2b. The first preliminary exam is a *comprehensive exam* over the Core Courses (see Paragraph 2d). *This exam is waived if you complete the Core Courses (either at Kansas State University or at your previous school) with at least a "B" in each course and with a grade point average of 3.50 or greater for all of the courses.* There is no reading list for the comprehensive exam. The exam covers

ers the content of of the core courses. Syllabi for the Core Courses are available from the department's Graduate Studies secretary. By the end of your second year of studies, you must have passed the comprehensive exam or satisfied the core course requirements.

4.2c. You must pass one exam from each of the following three areas:

Software Systems:

Compilers & Interpreters,
Distributed Systems,
Operating Systems,
Software Engineering,
Knowledge and Information Systems:
Artificial Intelligence,
Data Base Systems,
Office Automation

Theory:

Analysis of Algorithms,
Automata & Computability,
Programming Language Semantics,
Specification & Verification

4.2d. The exam areas are defined by reading lists. (See paragraph 4.2e.) You must prepare for the topics specified in the reading lists. The general scope of each area will align with a primary graduate course in each area; however, the reading lists will include some items that go beyond the primary graduate course.

4.2e. Preliminary examinations can be scheduled for either September or January. The reading lists will be available from the Graduate Studies Secretary the preceding April 1st or October 1st. You must make a written request to the Graduate Studies Committee by April 15th or October 15th to schedule your exams for the next September or January.

4.2f. The Graduate Studies Committee specifies the exam formats. Usually, the preliminary exams are 4 hours each, scheduled for 3 successive Saturday mornings. (The comprehensive exam is a five hour, closed-book exam.)

4.2g. The preliminary exams are graded by the respective faculty members who prepared them. An exam may be graded as "pass," "fail," or "conditional pass" subject to further work. If exactly one of the three exams is graded "fail," you must retake and pass that exam the next time that exams are offered. If two or more of the exams are graded "fail," you must retake and pass exams in the same three areas the next time that exams are offered. You are allowed only one retake of an exam. If you fail an exam twice, you must leave the PhD program. (The comprehensive exam can be retaken only once. If the comprehensive exam is failed twice, you must leave the PhD program.)

4.2h. The final phase of the preliminary exams is the oral exam. The oral exam occurs about a month after your written exams are graded. The format of the oral exam is set by your supervisory committee. The oral exam might cover questions of general knowledge in computer science, specific questions from your written exams, or topics in your field of research. The result of your exam is decided by the supervisory committee, who can vote "pass" or "fail." The committee may also decide that you must retake the oral exam a second time. You must pass the oral exam by the second try, or you must leave the PhD program.

4.2i. The Graduate School must be informed of the outcome of the preliminary exams. When you

have completed two-thirds of your PhD coursework and have taken (or will soon take) your preliminary exams, ask the Graduate School to issue the ballot for the preliminary exams. The Graduate School will send the ballot to the Department, which then reports the results to the Graduate School. Upon passing the preliminary examinations you are admitted to candidacy for the PhD degree.

4.1. The Dissertation Research

4.1a. Once you pass the preliminary exams, you must write a research proposal of your dissertation research. Your proposal must present background concepts and literature, it should define the topic and goal of your research, and it should identify how you will evaluate successful completion of the goal. You must meet with your supervisory committee and present your proposal. The committee must approve your proposal.

4.1b. You must work closely with your advisor on your research, and you must write a dissertation.

4.1c. You must successfully defend your dissertation, subject to the following conditions:

4.1c.i. You must have been a candidate for the PhD degree for at least seven months.

4.1c.ii. You must obtain a dissertation approval form from the Graduate School. You must give each member of the supervisory committee, including the appointed Chairperson of your final examination, a copy of your dissertation and have each member sign the form.

4.1c.iii. You must allow the committee at least two weeks to read your dissertation prior to your final examination. (See Paragraph 4.3c.iv.)

4.1c.iv. You must schedule your oral presentation and defense of your dissertation (also called the final examination) with the Graduate School. (After you give the Graduate School the signed dissertation approval form, they will issue a ballot to the Chairperson of your final exam.)

4.1c.v. You must arrange with the Department secretary to schedule a room and to make public announcement of the time, place, and title of your presentation.

4.1c.vi. You must present the dissertation to your supervisory committee in an open seminar, and the committee votes to "pass" the dissertation. If the committee votes to "fail," then you are allowed one retake of the defense.

4.1c.vii. If you pass the defense, you must submit the required dissertation copies, fees, and address information to the Graduate School.

4.1d. Finally, you must submit for publication at least one paper based upon your research. You must present the paper to the Computing and Information Sciences Department in an open seminar.

5. Unresolved Issues

5a. Any issues not covered in this document will be resolved by the Graduate Studies Committee and the Computing and Information Sciences Faculty.

