1985

University of Central Florida 1985 self study Southern Association of Colleges and Schools : Department of Computer Science self study report

University of Central Florida. Department of Computer Science

UNIVERSITY OF CENTRAL FLORIDA

1985
Self Study

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS

DEPARTMENT OF COMPUTER SCIENCE

SELF STUDY REPORT

COMPUTER SCIENCE REPORT

1978-1983

1. Philosophy

1.1 Role in the University and the Community

The Department of Computer Science at the University of Central Florida (UCF) has a goal of becoming the outstanding program in the Southeast and acquiring a national reputation for excellence. The The subgoals deemed necessary to accomplish this goal include (1) a curriculum designed foremost to prepare students to meet the needs of industry and government at the B.S., M.S., and Ph.D. levels, (2) a strong, research-oriented faculty who are centered on the theoretical/applied continuum and who have the ability to contribute to the forefront of the technology, and (3) laboratory facilities and resources that include "state of the art" technology available for instruction of students as well as research activities.

1.2 Evaluation and Projections

As a Center of Excellence in Computer Science, UCF will enhance its capability for providing solutions to important State problems dealing with the applications of computers in industry and government. Enhancement will take the form of increased faculty contributions to the forefront of technology and an increased number of graduates to meet the rapidly expanding market. The utilization of this program by employers and other people in the State through consulting with faculty, hiring of graduates, and solving State problems will be a true measure of the quality of the program.

2. Organization

2.1 Duties and Staffing

The Department of Computer Science is structured around the academic, administrative and technical functions within its charge. From an academic perspective, the department utilizes two faculty committees, the Undergraduate Committee and the Graduate Committee, in conjunction with the Chairman to plan, organize and carry out teaching, research and service functions. These endeavors are supported by three full time technical staff, six full time clerical staff and many part time student assistants.

As the result of a high demand by students for Computer Science which in turn is based upon marketplace needs that suggest through 1990 the United States can only produce one person for every seven needed in the field, the Department of Computer Science has ongoing needs for faculty, staff and student support that far exceeds the available resources.

2.2 Support and Communications

The College of Arts and Sciences has provided an interface between the department and Academic Affairs. Because of its size and complexity the department does not rely on the College for specialized support functions. Given the range of diversity in the College of Arts and Sciences, and the need for greater visability of Computer Science both locally and nationally, there is merit to considering division status for Computer Science.

Departmental communication with students, the University and all external areas to the University can be improved by acquiring more faculty and support staff.

2.3 Projections

In addition to increasing the number of personnel, the department chair needs the support of two other twelve month associates and/or assistants. Several Computer Science programs of lesser size and community impact already have considerably more administrative support than exists here.

The overall planning by the Department of Computer Science has identified several areas for development in the pursuit of a Center of Excellence for Computer Science. These areas include additional faculty, significant support for graduate assistants, state of the art departmental computing facilities, support for a Distinguished Vistors Program, the establishment of an Endowed Chair and necessary support personnel and resources. This planning is designed around a major thrust to reach a critical mass of resources of all types with continuation plans to include cyclical updates over ten-year periods.

There is a strong commitment to quality teaching along with responsible service to the State of Florida. However, a primary emphasis must be in the area of research contributions since a national reputation for excellence in Computer Science will only be achieved if the faculty are recognized as major contributors to the discipline as evidenced through scholarly publications and research activities. In particular, the latter will be reflected in an increased level of funded activities of the "research grant" type for original ideas as opposed to the "contract" type of implementing the ideas of others.

3. Educational Program

3.1 Correlation of Program and Objectives

The Department of Computer Sciences offers instruction leading to a Bachelor of Science with five possible areas of specialization. These areas include programming systems and languages, scientific applications programming, business

applications programming, architecture, and a graduate preparation option. For those wishing to continue their formal education in this field, the department also offers a Master of Science degree and a Doctor of Philosophy degree in Computer Science.

Students seeking the M.S. degree in computer science may choose from among three options. These options include broad training in the discipline at the graduate level as well as depth in various areas of specialization. The general option affords specialization in hardware, software, applications and theory. In addition, there are specialized programs for software engineering and management information systems.

The objective of the doctoral program is to provide professionals trained at the highest possible academic level in theory and practice, and with proven abilities for innovation, research and instruction in computer science. Our goal is to produce individuals with expertise most suitable for positions in industry, government, and academia, particularly within the State of Florida and more generally, the Southeast and nationally. Also, the department provides a service to those individuals desiring to expand their knowledge beyond the Master's level in an attempt to stay abreast of recent advances and technology in computer science, but not necessarily seeking a doctoral degree.

A student successfully completing this program will be able to exhibit breadth as well as depth of capability involving both theoretical aspects of computer science and practical considerations of computing. The program demands of a student breadth of knowledge in the fundamentals of computer science, depth in an area of specialty in the discipline, and the creativity necessary to produce a dissertation extending or adding to this body of knowledge.

The Computer Science Department, in conjunction with the College of Business Administration has developed a minor in computer science for the business major. The minor is designed for a specific goal, namely, to enable the business major to more knowledgeably communicate with data processing personnel that he may normally deal with in the course of his business career. It is not the intent of the minor to train business applications programmers, since this latter program already exists as one of the options in the computer science major.

In addition, there is a general minor in Computer Science. The course work in this minor is very close to that of the core for majors. The intent of this minor is to provide the student with a broad base of technical exposure without specific depth in an area of specialization.

Among the missions of the Brevard Campus is the support of high tech industries in their need for Computer Science education. As result, the Department of Computer Science is expected to offer advanced undergraduate courses enabling students at Brevard to specialize in one of the options. Qualified faculty, which is a serious national problem,

has and will continue to be a serious detriment to this program. A similar need is perceived at the Daytona Beach Campus. While a parallel effort to that for Brevard will undoubtedly be undertaken, the staffing difficulty will continue to impede development.

3.2 Admissions

Undergraduate Program

The Board of Regents of the State University System has declared the undergraduate program in computer science at UCF a Limited Access Program. The number of undergraduate majors in the computer science program is limited to 1200 students. Minimum standards and the process by which students will be selected are detailed in A, B and C as follows:

A. Beginning freshman and all transfer students without an A.A. degree from a Florida community college or state university or a Bachelor's degree.

Initial admission as a major

General university admission and a minimum of 1000 on the SAT (or equivalent, e.g., 24 on ACT) and Minimum GPA of 2.75/4.0 from secondary school and all college credit if applicable.

Continuation as a major

Approved for entry into an area of specialization of computer science.

Satisfactory progress for each semester.

B. Students with an A.A. degree from a Florida community college or state university or Bachelor's degree.

Initial admission as a major

General university admission and
Overall minimum college GPA of 2.75/4.0 and
Approved for entry into an area of specialization in computer science

Continuation as a major

Satisfactory progress for each semester.

C. Selection Process

All students applying to the University and planning to major in Computer Science prior to published deadline dates will constitute the applicant pool for admission. All students who meet or exceed minimum standards will be considered for admission on a space available basis. The Department of Computer Science will review all eligible, completed applications

from the applicant pool for admission, in accordance with the published standards, and recommended appropriate actions to the Chairman. Completed applications will be processed sequentially until the number of qualified applicants exceeds available billets. Then, preference will be given to students with higher performance indicators (for example, standard test scores, grade point average, letters of reference, etc.

For department admission purposes, a completed application is defined as follows:

University admission, and

SAT (ACT) scores (for students without an A.A. degree from a Florida community college or a Bachelor's degree), or

Proof of completion of Computer Science core courses (for students with an A.A. degree from a Florida community college or a Bachelor's degree)

Optional letters of recommendation or other proofs of qualification may be offered.

Application Deadlines:

In order to be considered, Applications must be complete by the following dates:

For Fall Semester - July 1
For Spring Semester - November 1
For Summer Semester - April 1

Applications not completed until after these dates will be held for consideration for the subsequent semester.

Eligibility to apply to the Department of Computer Science is defined as follows:

Students with an A.A. degree from a Florida community college or a Bachelor's degree may apply during the semester when they expect to complete the core or any time thereafter. Acceptance during the last semester of the core is tentative based on successful completion with minimum GPA's.

Students without an A.A. degree from a Florida community college or a Bachelor's degree must plan to begin attending classes at UCF within one year of application.

Notification of acceptance or denial of admission to the Computer Science program will proceed as expeditiously as possible until available enrollment billets are filled.

Limited provisional admissions will be allowed in order to address EEO and exceptional cases as determined by the Chairman of the department. Provisional admissions may not exceed ten-percent of the maximum.

Graduate Status in Computer Science

University Admission Requirements:

Possession of a baccalaureate degree from an accredited institution and one of the following:

A grade point average (GPA) of at least 3.0 in the last two years of undergraduate work; or

A combined score of at least 1000 points on the Quantitative - Verbal sections of the Graduate Record Exam (GRE); or

Possessing of a Master's Degree from an accredited institution.

Note that the regular GRE is a University requirement.

Department Admission Requirements:

In addition to satisfying the regular University requirements, each student is required to submit a score on the Advanced Graduate Record Examination that is not more than two years old at the time of admission to regular graduate status. International students must obtain a minimum score of 550 on the the TOEFL exam.

An undergraduate degree in computer science is desirable, but not required. Applicants without a strong undergraduate background in computer science will be required to demonstrate an understanding of the material covered in the following courses:

CDA 4102 Introduction to Computer Architecture
CNM 4110 Numerical Calculus
COT 4001 Discrete Computational Structures
COP 4550 Programming Languages I
COP 4620 Programming Systems

A student without this background would normally be required to successfully complete at least two of the courses listed; the remaining courses may then be taken after admission to regular graduate status, but may not be used on the graduate plan of study. Alternately, the student may choose to demonstrate the knowledge of these courses by

scoring well on the Advanced GRE in Computer Science. It is estimated that more than 85% of this exam deals directly with the material covered in these courses.

Admission to the Doctoral Program

Admission to the Ph.D. program in Computer Science is formalized by the University upon the recommendation of the Computer Science Graduate Committee. In addition to satisfying the regular University requirements, the Department requires the applicant to have passed the Ph.D. Qualifying Examination and have obtained a qualified faculty member in Computer Science willing to chair the student's advisory committee.

All students planning to apply for the doctoral program must take the following required courses, and receive an A or B grade in each:

CDA 5106	Advanced Computer Architecture I
CIS 5012	Information and File System Analysis
COP 5613	Operating System Design Principles
COT 5127	Formal Languages
COT 5314	Computational Complexity

The qualifying examination is taken only when the student has obtained regular graduate status in computer science and has completed no more than 27 semester hours of course work including the courses required for the examination as listed below. The purpose of this examination is to determine the breadth of knowledge of the student in the four important areas of specialization and to do research. Each exam will require the student to answer a set of questions directly relating to the content of the 5000-level courses, one for each area, and a set of questions which require no further preparation beyond the 5000-level courses, but which may cast concepts in new molds, require more creative thought, etc. Some questions may relate to more than one of the above areas.

3.3 Enrollment

Year	78-79	79-80	80-81	81-82	82-83
No. of Majors	330	471	669	822	1105
No. of Minors	10	24	27	38	51
Degrees Awarded	59*	58*	87*	76*	131*

*Years totals

3.4 Curriculum

Curriculum History

	1978-79 courses	1978-79 SCH	1979-80 courses	1979-80 SCH	1980-81 courses	1980-81 SCH	1981-82 courses	1981-82 SCH	1982-83 courses	1982-83 SCH
Lower Division	4	3006.7	4	3813.6	4	4306.7	4	4708.3	4	7017.4
Lower Division	21	6965.2	25	8878.3	26	10958.7	26	11241.4	26	13819.4
Graduate	25	524.6	26	608.0	26	644.4	41	612.7	43	1184.3

Bachelors Degree

Computer Science majors must satisfy the University General Education requirements, the requirements of the College of Arts & Sciences and the Computer Science Core requirements. In addition, the Computer Science major must complete one of five available options: general option, programming and systems option, scientific applications option, business applications option, or computer architecture option. Courses in an option may not be taken prior to completion of the Computer Science core.

The following standards are required by the department for graduation:

A minimum GPA of 2.00 in all non-Computer Science courses used to satisfy the requirements for the major in Computer Science.

A minimum GPA of 2.50 in Computer Science courses used to satisfy the requirements for the major in Computer Science.

The above requirements apply not only to the overall program, but to the courses taken at UCF.

Computer Science Core:

All Computer Science majors must take the core requirements.

Computer Science	Semester hours
COP 2510 Programming I	3
COP 2511 Programming II	3
COP 3402C Assembly Language Programming	3
COP 3404 Computer Systems Concepts/ Programming	3
COT 3000 Introduction to Discrete Structures	3
COP 3530 Data Structures	3

Mathematics and Statistics		
MAC 3311	Calculus with Analytic Geometry I	4
MAC 3312	Calculus with Analytic Geometry II	4
STA 3023	Statistical Methods I	3
Physics and Engineering		
PHY 3048	Physics for Engineers and Scientists I	3
PHY 3049	Physics for Engineers and Scientists II	3
Phy 3049L	Physics for Engineers and Scientist Laboratory II	1
EEL 3341C	Introduction to Digital Circuits	3
English		
ENC 3241	Professional Report Writing II	3
TOTAL		42

Computer Science Major - General Option

The general option is strongly recommended for those students planning to attend graduate school in computer science. It is designed to provide a broad exposure to computers and the complex phenomena surrounding them. Students who elect this option and then decide not to attend graduate school would likely be employed by government or industry in systems and/or applications programming. In addition to the University General Education, The College of Arts and Sciences and the Computer Science Core requirements, students who select the general option must complete a minimum of twenty-eight (28) hours as follows:

Group A (All courses listed)		Semester hours
CDA 4102	Introduction to Computer Architecture	3
CNM 4110	Numerical Calculus	3
COP 4550	Programming Languages I	3
COP 4620	Programming Systems	3
COT 4001	Discrete Computational Structures	3
Group B	(A minimum of 9 hours with at least one course taught by the Department of Computer Science.)	
CAP 5722	Computer Graphics Systems	3
CDA 4142	Microprocessor Fundamentals	3
CIS 4112	Databases	3
COP 4124	COBOL Environment	3
COP 5554	Programming Languages II	3
MAC 3313	Calculus with Analytic Geometry III	4
MAP 3302	Differential Equations I	3
MAS 3113	Matrics	4

MHF 3104	Boolean Algebra	3
STA 4163	Statistical Methods II	3
STA 4164	Statistical Methods III	3

Group C (Courses taught by the Department of Computer Science numbered 4000 or higher.)

Computer Science Major - Programming and Systems Option

The systems and programming option includes such topics as operating systems, programming languages, and large-scale applications systems. A student who elects this option would be apt to be employed as a systems programmer, systems analyst, or in software design engineering in industry or government. In addition to the University General Education, the College of Arts and Sciences and the Computer Science Core requirements, students who select the programming and systems option must complete a minimum of twenty-eight (28) hours as follows:

Group A (All courses listed)		Semester hours
CDA 4102	Introduction to Computer Architecture	3
COP 4620	Programming Systems	3
COT 4001	Discrete Computational Structures	3

Group B (A minimum of 9 hours with at least one course taught by the Department of Computer Science.)

CAP 5722	Computer Graphics Systems	3
CDA 4142	Microprocessor Fundamentals	3
CDA 4161	Prog. for Large Scale Digital Systems	3
COP 4124	COBOL Environment	3
COP 5554	Programming Languages II	3
COP 5613	Operating System Design Principles	3
MAC 3313	Calculus with Analytic Geometry III	4
MAS 3113	Matrics	4
STA 4102	Computer Processing of Statistical Data	3
STA 4163	Statistical Methods II	3
STA 4164	Statistical Mehtods III	3

Computer Science Major - Scientific Applications Option

The scientific applications option should be selected by students interested in computer solutions to scientific and/or engineering problems. Students are encouraged to take several courses in another discipline of interest (e.g., biology, chemistry, etc.). Opportunities for employment exist in the aerospace industry, scientific

research laboratories, and government. In addition to the University General Education, the College of Arts and Sciences and the Computer Science Core requirements, students who select the scientific applications option must complete a minimum of twenty-eight (28) hours as follows:

Group A (All courses listed)		Semester hours
CNM 4110	Numerical Calculus	3
COT 4001	Discrete Computational Structures	3
MAC 3313	Calculus with Analytic Geometry III	4
MAP 3302	Differential Equations	3
MAS 3113	Matrices	4
	or	
MAS 3103	Linear Algebra	4

Group B (A minimum of 9 hours with at least one course taught by the Department of Computer Science.)

CAP 5722	Computer Graphics Systems	3
CDA 4102	Introduction to Computer Architecture	3
CDA 4142	Microprocessor Fundamentals	3
CNM 5142	Computational Methods/Linear Systems	3
COP 4550	Programming Languages	3
COP 4620	Programming Systems	3
MHF 3104	Boolean Algebra	3
STA 4163	Statistical Methods II	3
STA 4164	Statistical Methods III	3

Group C Courses taught by the Department of Computer Science numbered 4000 or higher.

Computer Science Major - Business Applications Option

The business applications option provides skills in programming, systems techinques (computer, accounting, financial) and modeling for job opportunities in the commercial data processing area. Students who elect this option are likely to be employed by business, service organizations, or government, working in business applications analysis, business applications programming, and data processing marketing. In addition to the University General Education, the College of Arts and Sciences, and the Computer Science Core requirements, students who select the business applications option must complete a minimum of twenty-eight (28) hours as follows:

Group A (All courses listed)		Semester hours
CIS 4112	Databases	3
CIS 4323	Data Processing Sys. Analysis & Design	3

	CIS 4324	Data Processing System Implementation	3
	COP 4124	COBOL Environment	3

Group B (A minimum of 15 hours with at least 3 courses selected from [1] one of which must be taught by the Department of Computer Science and at least 2 courses from [2].)

[1]	CDA 4102	Introduction to Computer Architecture	3
	CDA 4142	Microprocessor Fundamentals	3
	COP 4550	Programming Languages	3
	COP 4620	Programming Systems	3
	COP 5554	Programming Languages II	3
	MAS 3113	Matrices	4
	STA 4102	Computer Processing of Statistical Data	3
	STA 4163	Statistical Methods II	3
	STA 4164	Statistical Methods III	3
[2]	ACC 3003	Principles of Accounting I & II	6
	BUL 3111	Legal Environment of Business	3
	FIN 3403	Business Finance	3
	MAN 3010	Management of Organizations	3
	MAN 3301	Personnel Management	3
	MAR 3023	Marketing	3

Group C (Courses taught by the Department of Computer Science numbered 4000 or higher.)

Computer Science Major - Computer Architecture Option

Computer architecture deals with the structure of computers which can be examined at several progressive levels from different orientations. Structures at one level become the components of a higher level. Because computer science majors have strong interests in software, the logic level will normally be the starting point. Microcomputers represent the primary class of machines to be studied in the computer architecture option. Graduates with this option would normally find positions in all aspects of the computing industry, particularly where hardware design, development, and selection are involved. In addition to the University General Education, the College of Arts and Sciences, and the Computer Science Core requirements, students who select the computer architecture option must complete a minimum of twenty-eight (28) hours as follows:

Group A (All courses listed)		Semester hours
CDA 4102	Introduction to Computer Architecture	3
CDA 4142	Microprocessor Fundamentals	3
CDA 4143	Microprocessor Interface	3

CDA 4144	Microprocessor Applications	3
COP 4620	Programming Systems	3

Group B (A minimum of 9 hours with at least one course taught by the Department of Computer Science.)

CAP 5722	Computer Graphics Systems I	3
CDA 5106	Advanced Computer Architecture I	3
CIS 4112	Databases	3
COP 4550	Programming Languages I	3
COT 4001	Discrete Computational Structures	3
EEL 4701C	Digital Systems Organization	4
MAC 3313	Calculus with Analytic Geometry III	4
	or	
MAS 3113	Matrices	4
MHF 3104	Boolean Algebra	3
STA 4163	Statistical Methods II	3
STA 4164	Statistical Methods III	3

Group C (Courses taught by the Department of Computer Science numbered 4000 or higher.)

Master's Degree Options

Students seeking the M.S. degree in Computer Science may choose from among three options. The requirements for each of the options are given below:

General Option

Required Courses (12 hours) (Students must receive an A or B grade in these four courses)

CDA 5106	Advanced Computer Architecture I
CIS 5012	Info. & File Systems Analysis
CNM 5142	Computational Methods/Linear Systems
	or
COT 5314	Computational Complexity
COP 5554	Programming Languages II
	or
COP 5613	Operating System Design Principles

Research Project (3 hours)

Restricted Electives (15 hours)

Must include two 6000 - level Computer Science courses within a single area of specialization. (May include approved 4000-level CS courses and graduate courses outside CS up to 6 hrs.)

Total : 30 hours

Software Engineering Option

Required Courses (15 hours)

CDA 5106	Advanced Computer Architecture I
COP 5554	Programming Languages II
COP 5613	Operating System Design Principles
COP 5632	Software Engineering
COP 5682	Software Tools

Research Project (3 hours)

Restricted Electives (6 - 12 hours)

Must include at least two of the following courses:

COP 6555	Software Science
COP 6582	Th. Programming Lang. Semantics
COP 6614	Operating Systems
COP 6672	Program Correctness and Verification
COP 6642	Intro. to Th. of Translation

Approved Electives (0 - 6 hours)
(May include graduate courses outside CS.)

Total : 30 hours

MIS Option

Required Courses (15 hours)

CIS 5012	Info. & File Systems Analysis
CIS 5041	Info. Organization & Retrieval
CIS 5234	Comp. Techniques in MIS
CIS 6122	Data Base Management Systems
COP 5662	Software Engineering

Research Project (3 hours)

Restricted Electives (12 hours)

Group A (two, at least one 6000-level)

CIS 6124	Data Base Management Sys. Th.
COP 5554	Programming Languages II
COP 5613	Operating System Design Principles
COP 6555	Software Science
CRM 5115	Economics of Computers
CRM 5131	Managing the Computer Professional

Group B (two)

EIN 5117 Management Information Systems I
MAN 5051 Management Concepts
MAN 5830 Introduction to MIS
MAN 6814 Quant. Analysis for Business Decisions

Total : 30 hours

Ph.D Degree

Following admission to the Ph.D. program, the student, in conjunction with his major advisor and his committee, will formulate a plan of study. The plan will consist of a minimum of seventy-two (72) semester hours of graduate credit, including eighteen (18) semester hours for the required six courses used for the Ph.D. Qualifying Examination. The remainder of the credits must include a minimum of twenty-four (24) semester hours of advanced (6000 - level) graduate level courses with a special emphasis on the doctoral area of specialization and an adequate treatment of other major areas of computer science and related disciplines. Each plan of study must contain a minimum of six (6) semester hours of coursework in related disciplines taught outside the department. A partial list of support courses is given on page 16. The student must maintain a GPA of 3.5 in all the advanced graduate level courses. No more than twelve (12) semester hours of independent study may be included in the plan of study. The plan of study must include the method used to satisfy special degree requirements (See 'Special Degree Requirements'). Finally, the plan of study must include a minimum of eighteen (18) semester hours of Ph.D. research credits.

The formation of a research committee should occur as soon as the student has identified a potential research area. This committee will consist of at most five faculty members, three of which must be computer science graduate faculty and at least one from outside the college. The list of graduate faculty is maitained by the Office of Graduate Studies and is available to the student on request from the Chairman of the Department. The student must work in close cooperation with the Research Committee chairperson to formulate research problem for his candidacy examination.

Faculty

Members of the Department of Computer Science faculty are listed below. Teaching expertise for each faculty is indicated by use of the following codes beside their name:

S - Service courses
C - Undergraduate core courses
GE - Selected courses in the general option
PL - Selected courses in the programming/systems option
SA - Selected course in the scientific application programming option

BA - Selected courses in the business application programming option
CA - Selected courses in the computer architecture option
G - Selected graduate courses

Mostara A. Bassiouni, Assistant Professor of Computer Science; Ph.D. in Computer Science, Pennsylvania State University, 1981; Operating Systems and Data Base. (C, GE, PL, BA, G)

Robert C. Brigham, Associate Professor of Mathematics and Computer Science; Ph.D. in Mathematics, New York University, 1970; Graph Theory, Computational Complexty. (C, GE, PL, SA, G)

Larry K. Cottrell, Associate Professor of Computer Science and Assistant Chairman of the Department; Ph.D. in Science Education, Purdue University, 1976; Computer-Based Education Systems, Programming Languages. (C, PL, G)

James R. Driscoll, Associate Professor Computer Science; Ph.D. in Computer Science, University of Kansas, 1977; Microcomputer Data Base Systems, File and Data Base Techniques, Microprocessor System Design and Development, and Analysis of Algorithms. (C, BA, G)

Ronald D. Dutton, Associate Professor of Computer Science; Ph.D. in Computer Science, Washington State University, 1972; Numerical Methods, Computational Complexity, Design and Analysis of Algorithms, Graph Theory. (C, GE, SA, PL, G)

Terry J. Frederick, Chairman of the Department of Computer Science and Professor of Computer Science; Ph.D. in Intelligent Systems, University of Wisconsin, 1969; Mathematical Modeling for Intelligent Systems, Learning Systems, Computer Vision. (C, GE, PL, SA, G)

Homer C. Gerber, Associate Professor of Computer Science; Ph.D. in Mathematics Education, Florida State University, 1972; Computer-Assisted Instruction, Computer Science Education. (S)

Fernando Gomez, Assistant Professor of Computer Science; Ph.D. in Computer Science, Ohio State University, 1981, Artificial Intelligence (Natural Language Processing and knowledge-based systems), Programming Languages, Compiler Construction. (C, GE, PL, G)

Ratan K. Guha, Associate Professor of Computer Science; Ph.D. in Computer Science, University of Texas, 1970; Computer Architecture, Microprocessors, Microprogramming, Computer Networks. (C, CA, G)

Charles E. Hughes, Professor of Computer Science and

Chairman of the Graduate Committee; Ph.D. in Computer Science, Pennsylvania State University, 1970; Software Tools, Programming Environments, Logic and Computability. (C, GE, PL, SA, G)

Dale Isner, Associate Professor of Computer Science and Chairman of the Undergraduate Committee; Ph.D. in Philosophy, University of Pittsburgh, 1975; Software Engineering, Office Automation, Artificial Intelligence. (C, BA, G)

Sheau-Dong Lang, Assistant Professor of Computer Science; Ph.D. in Mathematics, Pennsylvania State University, 1979, analysis of Algorithms, Concurrent Programming, Operating Systems. (C, GE, PL, SA, G)

John Leeson, Assistant Professor of Computer Science, Ph.D. in Mathematics, University of Miami, 1974; Computer Graphics, Universal Algebra. (C, GE, PL, SA, G)

Amar Mukherjee, Professor of Computer Science; Ph.D. in Computer Science, University of Calcutta, 1963; VLSI Design Tools and Hardware Algorithms, Computer Architecture, Parallel Processing, Cellular Logic, Switching Theory. (C, CA, G)

David J. Noll, Instructor in Computer Science; M.A.R., Emmanuel, 1979. (S)

Janet Shalhoop, Instructor in Computer Science; B.S. in Mathematics, Auburn University, 1970; M.S. in Computer Science, University of Alabama in Birmingham, 1978. (S, BA)

H.N. Srinidhi, Assistant Professor of Computer Science; Ph.D. in Computer Science, Southern Medthodist University, 1982; Database Machine Architecture, Computer Architecture, Multiprocessing, Microprocessors. (C, CA, BA, G)

David A. Workman, Associate Professor of Computer Science; Ph.D. in Computer Science, University of Iowa, 1973; Theory of Formal Languages and its Application of Parsing; Formal Models for Specifying the Semantics of Programming Languages. (C, GE, PL, SA, G)

3.5 Instruction

Due to the extreme shortage of qualified faculty both locally and nationally, the Department of Computer Science must necessarily supplement the regular faculty with other means of instruction. Initially this was done primarily with adjunct faculty from the community. As a result of the growth of the graduate programs, there has been a sharp increase in the number of graduate teaching assistants and a steady decrease in the number of adjunct faculty employed.

The Department of Computer Science has not solved the problem of measuring the effectiveness of instruction. It has, however inserted some quality control procedures with respect to multiple section courses. These include the use of faculty supervisors, regular meetings of all instructors of each given course, and faculty wide approval of textbooks, etc.

GRADES ASSIGNED IN SELECTED COURSES

CLASS		A	B	C	D	F	W	I
CDA 4102	F83	15%	20%	26%	22%	2%	15%	0%
	F82	15%	23%	33%	13%	4%	10%	1%
	F81	36%	36%	12%	2%	7%	5%	3%
CIS 4112	F83	69%	15%	5%	3%	3%	5%	0%
	F82	14%	41%	33%	0%	8%	4%	0%
	F81	89%	7%	0%	0%	0%	4%	0%
CNM 4110	F83	21%	49%	6%	4%	4%	15%	0%
	F82	31%	39%	11%	6%	6%	8%	0%
	F81	17%	26%	26%	9%	7%	15%	0%
COP 4550	F83	31%	38%	12%	5%	5%	10%	0%
	F82	13%	13%	17%	17%	28%	11%	0%
	F81	49%	17%	17%	5%	3%	7%	2%
COP 4620	F83	11%	26%	25%	7%	7%	26%	0%
	F82	14%	31%	25%	6%	6%	19%	0%
	F81	19%	26%	33%	4%	0%	15%	4%
COT 4001	F83	20%	18%	27%	7%	2%	27%	0%
	F82	*** NOT TAUGHT ***						
	F81	*** NOT TAUGHT ***						
COC 1100	F83	29%	43%	10%	4%	7%	6%	1%
	F82	62%	18%	9%	2%	6%	2%	1%
	F81	25%	27%	20%	10%	9%	8%	1%

3.6 Other Activities

Since the Fall Semester 1982, there have been 161 students graduate with the B.S. degree in Computer Science. Slightly more than half of these students (84) have SAT scores on file and the average of these scores 1092. From this and other data, the department has chosen to require a minimum SAT score of 1000 to enter the limited access program in Computer Science.

The Department of Computer Science sponsors a student chapter of the Association of Computing Machinery. This chapter is very active and invites nationally

known speakers in almost weekly. Also numerous trips to various industries and participation in technical conferences are supported by the chapter.

The Department of Computer Science provides both laboratory and course assistants who help not only with the use of facilities but also with coursework requirements.

3.7 Projections (5 years and 10 years).

Plans for Computer Science over the next several years can be stated as follows:

continue to implement limited access at the undergraduate level

continue to allow the graduate program to grow as much as possible given the resourses

continue to hire as many faculty as possible (probably not more than two or three a year is possible)

continue to update the curriculum to keep as current as discipline development and resources will permit.

4. Financial Resources

The Department of Computer Science constantly seeks outside funding for equipment, general enhancements of the department and for carrying out research activities. While the latter is normal procedure particularly as a part of graduate programs, the former is necessary because adequate resources are not available through the University as a part of state funding. Failure to have external funding would result in serious deteriation of the quality of the the programs if not the actual destruction. With regard to equipment in the last couple years approximately $250,000 has been awarded by NSF and another $200,000 has come from various industries. During the same period less than $60,000 for OCO has been provided by the University budget.

The Department of Computer Science has no auxiliary enterprises. It has over long standing requested auxiliary status as a means of charging the many outside VAX users. From this, money could be accumulated for VAX upgrades and replacement. This request has always been opposed by budget administrators.

4.1 Budgets

Only during the past two years, has the Department of Computer Science been asked to submit budget requests and then

only under guidelines relative to previous funding. Since funds are allocated on a proportional basis to the Bolte model, the basic principle seems to insure inadequate funding uniformly.

4.2 Equipment

The Department of Computer Science as a result of earlier quality improvement funding is able to meet is current obligations with its expense budget. The OCO allocation is so minimal that the department cannot replace inoperable equipment let alone provide upgrades or expand.

5. Faculty

5.1 Recruitment and Selection

As mentioned earlier there are over 650 openings for Computer Science faculty in academic institutions around the country and only 80 or so new Ph.D.'s graduating in Computer Science who seek academic positions. Any search that produces four or five qualified people expressing interest and one or two actual candidates is two actual candidates is successful.

5.2 Organization, Preparation and Growth

The Department of Computer Science is organized into two faculty committees each with particular areas of responsibility. These include the undergraduate committee and the graduate committee. All faculty at the professonial ranks must have earned doctorates in computer science or a closely related discipline. While the types of faculty positions range across a continum of more to less research, all must contribute to the discipline or its use and must have the support of their peers nationally (and internationally as appropriate) for advancement. The department's primary responsibility in this context is to provide the best possible environment for the faculty to be creative.

5.3 Salaries

Extreme national shortages and the marketplace value have driven salaries for Computer Science faculty far beyond their colleagues in most other disciplines. For 1983/84 the average academic year salaries at institutions with competitive programs with UCF are as follows:

	CS FACULTY	NAT'L AVERAGES ALL DISCIPLINES
new Ph.D. hires	$30,481	----
assistant professors	$30,930	$23,328
associate professors	$36,345	$28,011
professors	$46,349	$35,630

5.4 Teaching Loads

Teaching loads range from three courses to none depending upon research and student supervision expectations. All undergraduate class sizes are room capacity, usually around 75. Graduate courses vary from 5 to 55 students depending upon the course.

5.5 Evaluation, Security and Promotion

Promotion and tenure is based on local and national peer support relative to the expectations of the individual faculty member. Good teaching and service are required. Research is critical to both promotion and tenure. Promotion to the rank of Associate requires that national peers in the research field of interest recognize the potential of the individual contributions. Promotion to full professor requires peer support of the magnitude and quality of contribution to the discipline. The Department of Computer Science does not recognize assistant professor as a terminal rank.

5.6 Working Conditions

The quality of office space for the Department of Computer Science is adequate. The shortage of office space is a serious problem which will get worse over time as the program expands. Laboratory space is completely saturated and is rapidly becoming a serious problem. The current level of equipment for faculty research is somewhat less than adequate and for graduate students it is clearly inadequate. Since there does not appear to be any forthcoming OCO money, it is apparent that equipment problems will also become serious.

5.7 Projections

Ten year projected needs for faculty, space, equipment and support personnel were made by Computer Science when the Ph.D. program and Center of Excellence were approved. Particularly in the area of OCO and EXP, the plans have had no impact on department budgets.

6. Library

6.1 Collections

The present holdings of the library for the various subdisciplines within Computer Science can be broken down into the following categories:

	BOOKS	SERIALS
Computer Science	1825	25
Engineering	1219	23
General related topics		16
Management Information	456	
Math and Logic	1512	17
Probability and Statics	638	

These figures are for titles and serials which are in some way related to the programs and studies in the discipline of Computer Science.

6.2 Coordination

The department coordinates with the library staff for planning and development of library collections to meet departmental objectives through a process established for all departments. The department has an appointed Faculty Library Representative to work with the Subject Librarian Liaison to ensure that the parts of the library collection supporting Computer Science are defined, analyzed, and developed. The objectives of the Faculty Library Representative are to participate in development and/or updating of a collection development policy for the subject area, arrange for the collection of the title recommendations from colleagues and the delivery of the requests to the Librarian Liaison, participate in the development of a profile for an approval plan, examine and select subject area titles received on approval, and examine and select subject area titles received as gifts.

6.3 Services and Facilities

In addition to the holdings described in 6.1, which more directly address the need of the department, the library collection numbers 400,000 volumes and approximately 4,000 serial publications. All normal library services are available for student, faculty, and staff use along with a number of extraordinary services available for the handicapped.

Services provided for the Daytona and South Orlando campuses include collections numbering around 2,000, tne content of which varies depending on the courses being taught during a given semester. Courier service for specific selections is available at these campuses along with the Brevard campus through the Brevard Community College library.

7. Student Development

7.1 Student Mix

Departmental Majors
Fall 1983

	White		Black		Hispanic		Other		International	
	M	F	M	F	M	F	M	F	M	F
Lower Division	266	142	9	12	12	3	0	0	10	7
Upper Division	467	289	7	11	15	18	1	0	32	20
Graduate	73	22	0	2	3	1	0	0	25	10

7.2 Advising

The Department of Computer Science has an undergraduate advising office supervised by a faculty and staffed by graduate students and advanced undergraduates. This office is open forty hours per week and advises all new undergraduate fstudents and transfers. Upon completion of COP 3530 Data Structures, each student normally assigned to the advising office is reassigned to an individual full time faculty member. Consequently a student making normal progress would have an individual faculty advisor for the last half of their major course work.

7.3 Organization

The only organization sponsored by the Department of Computer Science is the Student Chapter of Association of Computing Machinery. Funding is self-generated and membership is by dues.

7.4 Discipline and Records

The Department of Computer Science supported the ACM Student Chapter is its efforts to develop and publish a "Code of

Ethics" for Computer Science majors. Each faculty member sets and enforces his/her policy concerning cheating associated with course work. Right of appeal to normal channels is assumed.
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Records are maintained under management of the office supervisor and the appropriate faculty chairman (graduate or undergraduate committee) through the support of the graduate and undergraduate secretaries.

7.5 Financial Aid and Alumni

The Department of Computer Science actively seeks financial aid from various industries in order to award scholarships to students. Follow-up on graduates is not done on individual basis but more globally through employers to determine the success of the graduates and the program.

8. Physical Facilities

8.1 Facilities

Currently the department maintains seven (7) computer laboratories and within weeks that number will grow to nine (9). Even at a total of nine (9) laboratories we would not be able to provide the desired levels of student/equipment ratios. The laboratories that currently exists are as follows:

VLSI Computer Design
VAX 11/780 Minicomputer
Electronics
Faculty/Graduate Research
Student Terminal
Microprocessor
Micro Computer

Laboratories to be added shortly:

Artificial Intelligence
Data Base

We currently need facility modifications to start two new laboratories. Approximately $300,000.00 are needed to bring the current building up to acceptable standards. Though there are loading/storage facilities incorporated into the existing building, we are denied the use of them. This problem needs to be corrected immediately.

The existing electrical facilities in the New Computer Building are supplied by 150 KVA Transformer (Room 139)

that feed panel MLP, two (2) 480 volt feeders fed from circuit breakers located in switchboard "CDHI" in the existing Computer Building. One feeder services an existing 480 to 120/208 volt and one feeder services existing Power Panel "MPP" with a 277/480 volt service. The existing load in the New Computer Building is 282 KVA. Existing Switchboard "CDHI" which is located in the existing Computer Building, second floor (Room 220) is fed from the existing Main Switchgear in the Engineering Building. The total load of both Computer Buildings (New and Existing) are presently supplied by the Engineering Building Main Switchgear (DHI Switchboard-Section A). This condition has loaded the electrical incoming service of the Engineering Building to the maximum available capacity. Therefore, any additional load that is required for the expansion of the new Computer Center will require new Electrical Incoming Service directly to the new Computer Center from the utility company. This expansion requires an additional electrical load of approximately 150,000 watts.

The present building air conditioning system does not have the capacity and the controls to deliver the required cooling for the existing facility. The proposed computers and terminal additions to this building will require 66 additional tons of cooling. Some existing computer rooms operate 24 hours, requiring low chilled water temperature all the time, forcing the central plant to operate chillers at night very inefficiently.

Within the next five/ten years our needs for physical facilities (including research) will more than double. These projections are based on current usage and deficiencies. We will need to either expand the existing building or construct a new building.

At the end of the five year period, formal plans and proposals will be presented for expanding the current facility or constructing a new facility. The plans and proposals will allow for the inclusion of a computer science auditorium and lecture hall.

8.2 Provisions

9. Special Activities

9.1 Type of Special Activities

none

9.2 Organization and Funding

n/a

9.3 Academics

n/a

10. Graduate Programs

10.1 History and Needs

The graduate program in the Department of Computer Science developed because the academic leadership of the University wanted a Ph.D. program in Computer Science and a department with a strong national image. The success of the program is measured in part by the acceptance of our graduates and by our Computer Science peers throughout the country particularly those at the other strong programs.

10.2 Faculty

Faculty are selected to particpate in the graduate program based upon their research credentials and their own ability to contribute to the discipline.

10.3 Students

Graduate students are actively recruited on the basis of their academic performance and predicted ability to do graduate work. Students are not assigned but the natural selection process is used whereby students and faculty are matched for research endeavors. The same natural selection process is used to establish faculty committees. Plans of study are worked out within the approved department guidelines for the programs described earlier.

Because of the dearth of graduate students and the highly competitive nature of recruiting, finanical support for good graduate students is a must. Graduate assistants are used to teach courses, grade papers, supervise laboratories, provide technical software and/or hardware support, advise students and work with faculty on research projects.

10.4 Instruction

No special techniques.

10.5 Library

The existing library resources are marginally adequate to support a Ph.D. program in Computer Science.

10.6 Financial Resources

Of the total OPS allocation to the Department of Computer Science for the academic year 55% is allocated to graduate student support. It is expected that this percentage will continue to increase over time. Approximately 70% of the effort of the full time professional ranked faculty is devoted to activities of direct benefit to the graduate program. The OCO allocation for 1983-84 is extremely small but approximately 80% is allocated to benefit of the graduate program.

10.7 Graduate Enrollment

Graduate Enrollment and Degrees Awarded

	1978-79		1979-80		1980-81		1981-82		1982-83	
	M.S.	Ph.D.	M.S.	Ph.D.	M.S.	Ph.D.	M.S.	Ph.D.	M.S.	Ph.D.
Enrollment	23		26		32		38		60	
Degrees	4	0	7	0	7	1	8	1	10	1

11. Research

11.1 Administration

Department of Computer Science provides released time for research for professonial ranked faculty. The amount is variable depending upon the interest, ability and expectations for each faculty member. External funding can also be used to buy additional released time. Within the resources available, the department makes every effort to provide the appropriate environment conducive to research. Research is evaluated by traditional measures, namely contract and grant funding, scholarly publications, graduate student performance and peer review. Faculty members in Computer Science are hired with varying expectations of research and as such good evaluations are essential tenure, promotion and merit salary criteria. The chairman takes an active role in producing the best possible environment conducive for research, helps raise external funding for research equipment, works with junior faculty in particular to establish researh areas and acquire support facilities.

11.2 Funding

OCO funding from the University has gone almost exclusively for research. The amount available from the University has been so small that purchases for any use have been insignificant. Within the last couple years, grants from NSF and industry have brought in equipment valued at $250,000.

Approximately 70 percent of the normal University EXP budget is used to support equipment that is used primarily in research activities.

Approximately 30 per cent of the normal University OPS budget is used to provide support for research activities.

The above percentage will not change over the next 5 - 10 years unless there is significant increase in funding. Should this happen, it is expected that proportional increases would occurs.

11.3 Space

The Department of Computer Science has a total of approximately 1560 square feet of laboratory space used primarily for research functions. There is 1337 square feet of seminar space and laboratory support space shared between teaching and research functions. All of the above is shared by both faculty and students.

The Department of Computer Science needs to have three times the current available research space in the next five years. Should that actually occur then within ten years it is expected that five times the current available research space would be needed.

11.4 Future Development

12. Summer Terms

12.1 Courses

Because of the large number of majors, nearly all of the undergraduate major courses are offered every term. It is difficult to plan on the availability of Computer Science faculty for the Summer, and as a result minimal graduate course offerings exist. Service courses for high volume areas such as the College of Business and for the general education program are also offered during the Summer as well as during the academic year.

12.2 Faculty

Summer faculty are selected by the following algorithm of priorty:

1) all new assistant professors where a commitment was made as part of the recruiting process.

2) those faculty who are uniquely qualified to teach courses that must be offered.

3) all remaining faculty in the professorial ranks.

4) faculty not in the professorial ranks.

12.3 Funding

The Department of Computer Science has the philosophy that faculty activities for the Summer semester should be the same as that during the regular academic year. However, available funding in recent years has not allowed this philosophy to be implemented.

12.4 Schedule

The courses selected for the Summer term are described above. Computer Science always teaches C term only. Service courses are distributed over all day and some evenings. Major courses are offered primarily on the afternoon and evening. No Computer Science courses are offered in a single session although most advanced major course are taught in two sessions per week.

12.5 Students

Student mix for the Summer is nearly identical to that during the academic terms.

13. Computers

13.1 Computers (Impact and Needs)

This department depends heavily upon the utilization of computers for computer science research, student instruction and administrative tasks. Without the use of computers the department would be unable to function.

The department owns several minicomputers, development systems, and an assortment of micro computers. The minicomputers are used primarily for research by faculty and graduate students in the areas of VLSI Computer Design, Programming Languages, Microprogramming, Artificial Intelligence, and Simulations. Due to the complexity in these areas of research it is necessary to not only have access to computer systems, but to have full control (both from a

standpoint of security and management of resources). The minicomputers are networked in such a manner as to provide access to the computer science community throughout the United States and Canada. The network access is very essential in facilitating communications with professors, scientists, and comuter professionals located at other universities, private research facilities, and in industry.

In addition to research, the department utilizes computers for undergraduate and graduate instruction. The computers are required to run programming assignments that are best understood when written, tested and executed by the students.

The impact that computers have made in the accomplishment of administrative tasks has been very profound. The department has realized greater throughput and less turn- around time concerning repetitive tasks and routine functions. The availibility of historical information, and the modification of same, is necessary and would prove time consuming and exhaustive without computers. But with the computers these insurmountable tasks become quick and easy accomplishments. The man hours and resources that it would require to perform budgetary computations and produce reports in a timely fashion would increase tremendously without computers. The preparation and production of semester schedules (computer science courses) are also made more convenient.

In five (5) years our current needs for minicomputers are expected to more than double for computing (processors) and quadruple for mass storage (disks). These projections are based on current usage and deficiencies. Supplemental equipment will also need to be acquired:

CAD/CAM and high resolution printers/plotters/work stations.

Graphics terminals and software.

Micro computers will be replaced with newer equipment, hopefully in increased numbers. The current micros are old, over worked and too few in numbers (high student/equipment ratios). Faster and more durable micros are available and are necessary.

Development systems and facilities will be expanded to accommodate the increase of computer architecture majors. We expect to have facilities to test computers and integrated circuits that are developed in computer design and micro development disciplines.

Within the next five years we will establish a local area network so that minicomputers, micro computers, microprocessors and development systems can all interact with each other. We also expect to have the capability of tying into other computers on this campus and other campuses within the State University System.

Future needs for the next ten (10) years should be a continuation of the above. Noting that as technology advances and newer applications of technology are realized we will stay at the leading edge with the latest equipment. Within ten (10) years all terminals should be replaced with personal computers.

From an office and clerical perspective, word processors should be equipped with hardcopy scanners (for input). Typewriters should be replaced by smart terminals and letter quality printers.

Five Year Equipment Acquisitions

January 1984 - June 1984

Research Computers

	CPU	Quantity	Cost
1)	PDP 11/44	1	56.6K
2)	PDP 11/40	1	48 K
3)	PDP 11/34	1	20 K

Configurations:	Memory	Disk	Terminal/Lines
1) PDP 11/44	512K	2-RL02	8 - (1DZ11)
2) PDP 11/40	128K	2-RP02	16 - (2DZ11's)
3) PDP 11/34 (CPU only)	-	-	-

Instructional Computers

none

Peripherals:

	Description	Quantity	Cost
1)	TS-11 CA Tape Drive	1	20K
2)	IBM or equivalent	2	5K each

Communications Equipment

none

Technical/Support Staff

none

July 1984 - June 1985

Research Computers

none

Instructional Computers:

	CPU	Quantitive	Cost
1)	Tektronix 8540	2	19K each
2)	IBM or Equivalent	24	5K each

Configuration:	Memory	Disk	Terminal/Lines
1) Textronix 8540	128K each	N/A	1 each
2) IBM or Equivalent	128K each	2 - 320KB each	1 each

Peripherals:

	Description	Quantity	Cost
1)	Tektronix 8300E26 Emulator (68K)	2	5.2K each
2)	Tektronix 8300P26 Probe & Emulator (68K)	2	3.4K each
3)	Tektronix 8300E20 Z8001/2 Emulator	2	4.4K each
4)	Tektronix 8300P20 Z8001 Probe & Emulator	2	2.3K each

5)	Tektronix 8300E04 Z80 Emulator	2	2.8K each
6)	Tektronix 8300P04 Z80 Prototype Probe	2	1.5K each
7)	Versatec 8242F 42 in. Electrographic Plotter	1	60 K
8)	Ramtek Graphics Sta. (RM9455)	5	29 K each
9)	2 - RP07 Disk Drives	2	44 K

Communications Equipment:

	Description	Quantity	Cost
1)	Tektronix ICOM40 Integrated Comm. Sys.	2	3K each
2)	Racal Vadic 34xx Modems Answer/Originate	6	1K each
3)	Micom 600/2	1	29.5K

Technical/Support Staff

1. Software Support Staff

July 1985 - June 1986

Research Computer

none

Instructional Computer:

	CPU	Quantitive	Cost
1)	VAX 11/750 (750XA-AE)	1	200K
2)	IBM or Equivalent	24	5K each

Configurations:	Memory	Disk	Tape	Terminal/Lines
1) VAX 11/750	2 MB	1-RA81 1-RM05	T480	16
2) IBM or Equivalent	128K each	2-320DB each		1 each

Peripherals:

Description	Quantity	Cost
Ramtek Graphics Station RM9455	5	29K each

Communications Equipment

none

Technical/Support Staff

1) Hardware Support Staff — July 1986 - June 1987

Research Computers:

CPU	Quantity	Cost
VAX 11/780 (780XA-AE)	1	400K

Configuration:	Memory	Disk	Tape/Printer	Terminal/Lines
	4 MB	2-RA81 1-RM05	1-TU80 (Tape) 1-LP11GA (Printer)	32

Instructional Computers:

CPU	Quantity	Cost
1) IBM or Equivalent	40	5K each

Configurations:	Memory	Disk	Terminal/Lines
	128K each	2-320KB	1 each

Peripherals:

Description	Quantity	Cost
1) Versatec 8236F 36 in. Electrographic Plotter	1	45K

Communications Equipment:

Description	Quantity	Cost
1) Racal Vadic 34xx Modems Answer/Originate	6	1K each

Technical/Support Staff

1) Software Support Staff

14. The Brevard, Daytona and South Orlando Centers

14.1 Courses

At Daytona, the only course offered has been CAP 3001 which is requested by the College of Business. At SOC, the director has from time to time requested CAP 3001 and other service courses such as COC 1100 and COC 3024. At Brevard, the University has made a commitment to offer a B.S. in Computer Science.

14.2 Faculty

To date the only source of faculty has been adjuncts or graduate assistants. Office hours are available before and after class meetings.

14.3 Funding

Funding is per regulations.

14.4 Facilities and Library

Facilities are generally adequate. Library needs are minimal. Computing facilities are not adequate at South Orlando and Daytona Beach for any expanded offerings.

15. Media

Department of Computer Science makes very litte use of traditional media.