



THE CONNECTICUT STATE UNIVERSITY

P.O. Box 2008 • New Britain, Connecticut 06050 • (203) 827-7700

RESOLUTION

concerning

LICENSURE APPLICATION

for

BACHELOR'S DEGREE

in

COMPUTER SCIENCE

at

Western Connecticut State University

July 22, 1983

RESOLVED,

That under the authority granted the Board of Trustees in Chapter 185b, Section 10a-87 and Chapter 185b, Section 10a-149 of the General Statutes, the Executive Director is authorized to seek licensure from the Board of Governors for a Bachelor's degree in Computer Science to be presented by Western Connecticut State University.

A Certified True Copy:

James A. Frost
Executive Director

Central Connecticut State University • New Britain
Eastern Connecticut State University • Willimantic

Southern Connecticut State University • New Haven
Western Connecticut State University • Danbury

CONNECTICUT BOARD OF HIGHER EDUCATION

PROGRAM SUMMARY

61 HOODLAND STREET
MIDDLETOWN, CONNECTICUT 06105

DESCRIPTION OF PROPOSED ACADEMIC PROGRAM OR DEGREE

PROGRAM NAME Major in Computer Science		DATE OF SUBMISSION TO BHE September 9, 1983
TITLE OF DEGREE (and abbreviation) Bachelor of Arts (B.A.)		
PROGRAM CODE NO : 1 : 0 : 1 : 0 : 1	CIP TITLE Computer Science	
DEPARTMENT AND SCHOOL OF COLLEGE School of Arts and Sciences, Mathematics/Computer Science Department		
APPLICANT INSTITUTION Western Connecticut State University		PROPOSED INITIATION DATE Fall, 1984
GEOGRAPHIC LOCATION OF PROGRAM Danbury		
INSTITUTIONAL LIAISON PERSON Philip J. Steinkrauss	TITLE Vice President for Academic Affairs	TELEPHONE 797-4230
BOARD OF TRUSTEES STAFF LIAISON (if applicable) Thomas A. Porter	Executive Officer for Academic and Student Affairs	827-7700

REMARKS (Describe the proposed academic program below and on a separate page if necessary.)

This proposal for a computer science degree program requires twenty-six semester hours of required courses and twelve hours of elective courses.

Because the theory and practice of computer science is advancing rapidly and will continue to do so, the purpose of the program is to give students a knowledge of the fundamentals of the discipline. It will:

- (1) provide students with a thorough grounding in the various components of computer science: hardware, software, theory and applications.
- (2) teach students to recognize what types of problems are amenable to computer solution and the various tools for solving such problems.
- (3) prepare students to enter upon a career, to pursue in-depth training on one or more application areas, and/or to continue into graduate study in computer science.

The students will have available a PE-3230 mainframe computer and representative microcomputers. Internships are available through the Career Development Center.

A concentration of highly qualified computer scientists will strengthen the current trend of corporate development which will make contributions to the region and to its economy.

<p>DO NOT FILL IN</p> <p>These items will be completed by the BHE staff.</p>	LICENSURE ACTION		ACCREDITATION ACTION	
	SCA	_____	SCA	_____
	PAAC	_____	PAAC	_____
	BHE	_____	BHE	_____

* Note: Code to be selected from the CLASSIFICATION OF INSTRUCTIONAL PROGRAMS (as provided by MEGIS).

Western Connecticut State University

B.A. Degree in Computer Science

1. PURPOSES AND OBJECTIVES (SEE 10-330-11)

- a. STATE THE PURPOSES AND OBJECTIVES OF THIS PROGRAM IN RELATION TO THE GOALS AND OBJECTIVES OF THE INSTITUTION (BE AS SPECIFIC AS POSSIBLE).

A portion of the University Mission Statement reads:

"The University is committed to (1) serve qualified and qualifiable students at both graduate and undergraduate levels in professional, pre-professional, semi-professional, para-professional and liberal arts degree programs regardless of the heterogeneity of the groups to which they belong; (2) prepare students qualified both to lead and to function effectively in a rapidly changing and expanding society."

A copy of the Mission statement is included in Appendix A. The proposed bachelor's degree program in computer science addresses these particular statements. The national need for persons trained in computer science has been documented by the Association for Computing Machinery (ACM), the Institute of Electrical and Electronic Engineers (IEEE), the Mathematical Association of America (MAA) as well as other professional organizations. The use of computers has become essential in industry, research, government and education. There is a need for computer scientists to function in all these areas. Appendix F contains federal studies relative to this need.

There is a particular shortage of well-educated computer scientists in western Connecticut. This is one of the most

rapidly developing areas in the country. Several corporate headquarters and technologically oriented companies have already located in this area, i.e. Perkin-Elmer, Consolidated Controls Corp., Barden Corp., Boehringer-Ingelheim Ltd., General DataComm Industries, Inc., Union Carbide, Schlumberger Doll, IBM Instruments, Unimation Inc., ITT, Exxon Research, and others. A concentration of highly qualified computer scientists will continue to attract further corporate development. Appendix B contains the results of a survey of area companies.

At this time, Western Connecticut State University is the only four-year, public institution serving the greater Danbury region and much of western Connecticut. Likewise, at this time there is no bachelor's degree program in computer science being offered within a 35 mile radius of Danbury, one of the fastest growing areas within the State. Besides the requirements of industries, the University is also committed to meet the needs of individuals, both traditional and non-traditional, who seek an undergraduate education relevant to today's and tomorrow's society. The potential clientele for this program will be persons beginning their college studies, transfer students from the community colleges and persons who wish to use the degree for job advancement or career change.

The purpose of the bachelor's degree in computer science is to prepare students to lead and to function effectively in the field of computer science. Cognizant that the field is rapidly changing and expanding, the objectives of the program are:

- (1) To provide students with a thorough grounding in the various components of computer science: hardware, software, theory and applications;
- (2) To teach students to recognize what types of problems are amenable to computer solution and the various tools for solving such problems;
- (3) To develop in students the skills and discipline needed to work cooperatively as a member of a team;
- (4) To demonstrate to students a synthesis of the theoretical and practical aspects of the discipline;
- (5) To give students an understanding of the social, philosophical and ethical considerations involved in applications; and,
- (6) To prepare students to enter upon a career, to pursue in-depth training in one or more application areas, and/or to continue into graduate study in computer science.

- b. STATE WHY THIS PROGRAM IS CONSIDERED TO BE AN APPROPRIATE OFFERING FOR THIS INSTITUTION AT THIS TIME. INCLUDE REFERENCE TO SUPPORTING INFORMATION SUCH AS AN INSTITUTIONAL MASTER PLAN.

A need does exist for an undergraduate degree program in computer science in western Connecticut. Persons must be prepared to meet the high technology requirements of institutions in the area. The reader is referred again to Appendix B. (The responses to Sections 13c and e also address the appropriateness of the proposed degree.)

Another important factor in choosing this time to propose the degree in computer science is that the hardware and software necessary to initiate the program is in place. In 1981 the Perkin-Elmer Corporation gave the University a PE 3230 Computer System for academic use. It became operational in 1982 and is housed in the Computing Center (donated by Perkin-Elmer Corp.) on the Westside campus. The system currently supports thirty-two terminals for academic use, and twelve more are projected for 1983-84. Monies have been requested for 1984-85 for a microcomputer center, for enhancing the mainframe and for an additional position in computer science. The process of determining long range goals and plans for the University is currently in process. In this procedure, academic departments identify their goals and plans. These are reviewed and prioritized by a committee in each School

of the University. The prioritized list and rationale are then forwarded to the Long Range Planning Council which makes University-wide recommendations to the University Planning Committee. The final list of goals and plans is sent to the President for his approval. In the Fall of 1982 the development, licensure and implementation of a bachelor's degree in computer science was given top priority. Pertinent parts of the report are included in Appendix C.

2. ADMINISTRATION (SEE 10-330-12)

- a. HOW WERE THE PROGRAM PLANS DEVELOPED AND APPROVED? GIVE DATES OF APPROVAL BY THE INSTITUTION AND THE GOVERNING BOARD.

Planning for the program was initiated by the Department of Mathematics and Computer Science in the Fall of 1982. It was approved by the department in December of 1982 and by the University Planning Committee in March of 1983. Approval was given by the University administration in May of 1983 and the proposal was forwarded to the Board of Trustees for the State University in June of 1983. After approval by this Board in July of 1983, it was forwarded to the Board of Governors for consideration in August of 1983.

- b. WHO IS DIRECTLY RESPONSIBLE FOR THE ADMINISTRATION OF THE PROGRAM AND SUPERVISION OF ITS FACULTY?

Under the University President, the Vice President for Academic Affairs has University-wide responsibility for

programs and faculty. These are subdivided into three schools. The program in Computer Science will be under the Dean of the School of Arts and Sciences. He in turn delegates and shares with the department chairperson some of these responsibilities, i.e. course projections, staffing, faculty evaluation and assessment. In anticipation of the development of this program the Department revised its by-laws to provide for an associate chairperson who will share administrative tasks with the chairperson. The University administration has granted the department additional administrative released time for this position beginning with the 1983-84 academic year.

c. LIST (1) ANY ACCREDITING AGENCIES WHICH ALREADY HAVE ACCREDITED THE INSTITUTION AND (2) ANY ACCREDITING AGENCY TO WHICH YOU PLAN TO APPLY FOR ACCREDITATION.

(1) The Connecticut Board of Governors for Higher Education, the New England Association of Schools & Colleges.

(2) None.

3. FINANCE (SEE 10-330-13)

a. DESCRIBE THE AMOUNT OF FINANCIAL SUPPORT COMMITTED TO THE PROGRAM BY THE ADMINISTRATION AND TRUSTEES. INDICATE THE DATE(S) THESE FUNDS WILL BE AVAILABLE.

Faculty resources of the Department of Mathematics and Computer Science will be used for this program as well the library holdings and computing equipment of the University.

It is anticipated that changes in enrollment as a result of the Computer Science major will justify reallocation of two faculty positions from elsewhere on the campus or from within the Connecticut State University system.

Plans to improve computer capability for instruction in a variety of disciplines including Business Administration, Education, Chemistry and Mathematics have already been developed. The marginal costs of adding the Computer Science major in terms of equipment over and above the cost of necessary upgrading of equipment for the existing mathematics major and computer science minor are \$43,200.00 in 1984-85 and \$15,800.00 in 1985-86. The marginal cost of upgrading library books and periodicals is \$2,000 in '84-85 and \$2,000 in '85-86.

- b. COMPLETE A FISCAL STATEMENT FORM PROVIDED AND MAKE IT AVAILABLE TO STAFF AND THE BOARD.

See the appended statement.

- c. USE OF FACULTY RESOURCES (IF PLANS INCLUDE THE USE OF CURRENT FACULTY AND RESOURCES, PLEASE EXPLAIN)

The Computer Science major will use some current course offerings and faculty from the Department of Mathematics and Computer Science. Approximately 2 ½ F.T.E. faculty will be used. See the appended statement. The academic computer facilities and the library will be integral parts of the program.

Proposed New Academic Program: B.A. in Computer Science

Institution: Western Connecticut State University

	Year 1 1984-85	Year 2 1985-86	First Year of Full Operation 1984-85
<u>Estimated New Expenditure (private institutions list expenditures on General Fund Lines)</u>			
Personnel (Faculty and Support) ¹			
* Full-Time positions			
Number	0	0	0
Salaries - General Fund	0	0	0
Salaries - Extension Fund	0	0	0
** Part-time positions			
Number	0	0	0
Salaries - General Fund	0	0	0
Salaries - Extension Fund	0	0	0
*** Other Expenses ²			
General Fund	10,600	10,300	10,600
Extension Fund	0	0	0
**** Equipment (incl. Library Books) ³			
General Fund	43,700	16,300	43,700
Extension Fund	0	0	0
TOTAL NEW EXPENDITURES	54,300	26,600	54,300
GENERAL FUND EXTENSION FUND	0	0	0

¹Faculty, professional, managerial, clerical, and other persons employed by the institution in support of the proposed new academic program.

²Compensation for services secured by contract with firms or individuals not employed by the institution and purchases of supplies, materials, and equipment not normally regarded as capital items.

³Items of equipment with a normal useful life of three years or more and a value of \$100 or more or, if the useful life is less than three years, a value of \$250 or more.

See p. 7a for notes

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Hartford, Connecticut 06105

- * see current resources, p. 8
- ** Salaries for part-time positions will be provided from existing adjunct faculty personal services budget.
- *** Includes costs for computer software and supplies (\$3,500 for 84-85; \$2,800 for 85-86); maintenance agreements for microcomputers (\$5,600 for 84-85; \$6,000 for for 85-86) and Periodicals (\$1,500 per year).
- **** Indicates department share of \$155,000 (84-85) and \$57,000 (85-86) required for equipment. Four other departments to share in costs for equipment. Also includes \$500 for books for 84-85, and \$500 for books for 85-86.

	Year 1 1984-85	Year 2 1985-86	First Year of Full Operation 1984-85
<u>Estimated Revenue and Enrollment</u>			
Projected Enrollment (Headcount)*			
Full-time Students	35*	58*	35
Part-time Students	0	0	0
Income from Students			
Tuition	17,460	29,100	17,460
Extension Fund Fees	--	--	--
Funds Available from Other Sources (Federal, Private, Corporate, Foundation, etc.)	0**	0	0

*Indicate what portion of projected enrollment, if any, represents students transferring from other programs. Tuition and fee revenue should be based upon new enrollments only. *includes approx. 5 transfers from other programs in 84-85, 8 in 85-86

**Donors and grant sources have been and will be approached; support is likely but not "in hand" at this time.

Use of Current Resources: Identify, describe, and estimate cost (prorated) of existing personnel and other resources which will be used in connection with this program. If existing personnel and resources are to be reallocated from other programs, indicate from where the resources will be diverted and what impact this action will have on any other activity within the institution.

- a) Existing faculty personnel in the Math/Computer Science department will be used as instructors for the proposed program at estimated prorated cost of \$61,000. (i.e., for F.T.E. = 2½).
- b) Two existing faculty lines will be reallocated at estimated cost of \$50,000 (see #3a). One position will be reallocated in 84-85 and one in 85-86.
- c) Existing Academic Computer will be used integrally in program at estimated prorated cost of \$53,000.
- d) Existing faculty and existing academic computer costs have been inflated by 5% for 1985-86.

	Year 1 1984-85	Year 2 1985-86	First Year of Full Operation 1984-85
<u>Cost Summary</u>			
New Expenditures	\$ 54,300	\$ 26,600	\$ 54,300
Cost of Existing Resources	139,000	31,950	139,000
Total Program Cost	193,300	58,550	193,300

Richard H. Sullivan
 Signature of Institutional Fiscal Officer

Acting
 V.P. Admin. Affairs
 Title

8-29-83
 Date

Antoinette M. Bassette
 Signature of Chief Fiscal Officer (for system, if different than above)

Executive Officer for
 Finance & Management
 Title

9/9/83
 Date

4. FACULTY

- A. LIST THE NAME, TITLE AND QUALIFICATIONS FOR EACH PERSON INVOLVED IN THE PROGRAM, INCLUDING DEGREES WITH AREAS OF SPECIALIZATION, INSTITUTIONS AT WHICH THE DEGREES WERE EARNED, PERTINENT EXPERIENCE, AND PROFESSIONAL PUBLICATIONS.

Vitae for the faculty listed below are included in Appendix D.

The following faculty have responsibilities primarily in the area of computer science:

RONA GURKEWITZ: Assistant Professor of Computer Science; M.A., Mathematics, University of California; M.S., Computer Science, Courant Institute, New York University. Has helped develop and has taught many of the upper level courses. Specialities: Artificial Intelligence, Compilers. Is currently working on a Ph.D. dissertation in Computer Science.

RICHARD JONES: Professor of Computer Science, Ph.D., Mathematics, Pennsylvania State University. Author of two programming texts, and experience in commercial computer systems. Has helped develop and has taught many of the upper level courses.

The following faculty have primary responsibilities in mathematics, but are involved in the computer science program to the degree indicated:

GLORIA E. BRUNELL: Professor of Mathematics, Ph.D., Mathematics, Yale University. Introduction to Computing.

JOSEF FRIEDMAN: Professor of Mathematics, Ph.D., Physics, Polytechnic Institute of Brooklyn. Introduction to Computing, Pascal, Operations Research, Computer Simulations.

JUDITH GRANDAHL: Associate Professor of Mathematics; Certificate of Advanced Study, Mathematics, Wesleyan University. Introduction to Computing, Discrete Mathematics.

ROBERT HOBURG: Associate Professor of Mathematics; M.S., Mathematics, Western Illinois University. Introduction to Computing, Numerical Analysis, Computers in the Elementary Schools.

BRUCE KING: Professor of Mathematics; EdD, Mathematics, Education, State University of New York at Albany. Introduction to Computing, Statistics.

WALLACE LEE: Associate Professor of Mathematics; M.S., Mathematics, Notre Dame University. Introduction to Computing.

EDWIN ROSENBERG: Associate Professor of Mathematics; M.B.A., New York University. Introduction to Computing.

JAMES WOHLEVER, Professor of Mathematics, Ph.D., Mathematics, Yeshiva University. Introduction to Computing, FORTRAN, Pascal, Numerical Analysis, Statistics, Discrete Mathematics.

- b. FOR EACH VACANT OR PROPOSED POSITION, PROVIDE TITLE, POSITION QUALIFICATIONS AND PROPOSED DATE OF APPOINTMENT.

Vacant: Assistant/Associate Professor of Computer Science
Ph. D. in Computer Science or equivalent experience.
Date of Appointment: Fall, 1983. (Samuel Levy, Ph. D., has indicated that he will accept the position pending Board of Trustee approval.)

Proposed: Assistant/Associate Professor of Computer Science. M. S. in Computer Science or equivalent.

lent experience. Speciality in Computer Architecture. Date of Appointment: Fall 1984.

Proposed: Assistant/Associate Professor of Computer Science. M.S. in Computer Science or equivalent experience. Speciality in Language Design and Implementation. Date of Appointment: Fall 1985.

5. CURRICULA AND INSTRUCTION (SEE 10-330-15) AND THE STATEMENT ON CREDITING EXPERIENTIAL LEARNING)

- a. (1) GIVE THE NUMBER, TITLE, AND A NARRATIVE DESCRIPTION FOR EACH COURSE IN THE PROPOSED PROGRAM, NOTING WHICH COURSES ARE NEW. INCLUDE SUFFICIENT DETAIL IN COURSE DESCRIPTIONS SO THAT CONTENT AND LEVEL ARE CLEAR, OR ATTACH APPROPRIATE AND REFERENCED EXCERPTS FROM THE CATALOG.

As a starting point in developing this program, the Department was guided by various reports on curriculum by professional societies, in particular, the Association of Computing Machinery (ACM) and their reports Curriculum '78 and Education Programs in Information Systems in 1981. The ACM Special Interest Group on Computer Science Education has also been active in proposing curriculum. The Department has kept abreast of these proposals through their bimonthly publications.

The proposed program consists of seven required courses (26 semester hours) and four elective courses (12 semester hours) which can be chosen from a pool of twelve courses. The courses which comprise this program are listed below:

first the required courses, then the elective courses. Most of the courses currently exist. Only six new courses are needed to complete the curriculum. A program sheet follows these course descriptions.

REQUIRED COURSES: 26 Semester Hours

CS 160 Computer Programming I (Existing course) 4 Sem.Hrs.

This course is designed to give the students a thorough knowledge of the language Pascal and fundamental programming principles. Top-down program development is stressed.

Prerequisite: None

CS 161 Computer Programming II (Existing course) 4 Sem.Hrs.

This course gives the student in-depth experience in using the language and programming principles learned in CS 160. The emphasis will be on gaining experience developing and writing relatively large programs using the top-down method. A number of topics presented in CS 160 will be covered in more depth here. Common applications will also be discussed.

Prerequisite: CS 160

CS/MAT 1XX Discrete Mathematics for Computer Science-
Combinatorics (New course) 3 Sem.Hrs.

Topics will include introduction to combinatorics, Boolean algebra, logic, and graph theory.

Prerequisite: None

CS 210 Data Structures (Existing course) 4 Sem.Hrs.

Introduction to data structures, their use, implementation and application. Topics include arrays, stacks, records, and linked structures such as queues, trees, and graphs, as well as analysis of algorithms.

Prerequisite: CS 240.

CS 240 Computer Organization
and Software (Existing course) 4 Sem.Hrs.

Assembly language concepts. Relationships among computer components, structures and systems. Hardware features, costs,

capabilities and selection.

Prerequisite: CS 150 or CS 160

CS 311 System Software (Existing course) 3 Sem.Hrs.

This course introduces the student to the design of the system software: primarily operating systems, assemblers, and loaders. The course emphasizes the dependence of high-level languages on the system software components.

Prerequisite: CS 240

CS 355 Programming Languages (Existing course) 4 Sem.Hrs.

Formal definition of programming languages, including specification of syntax and semantics. Types of languages and their uses. Organization of compilers illustrating compilation of simple expressions and statements.

Prerequisite: CS 240

ELECTIVE COURSES: Choice of 12 Semester Hours

CS 243 Software Engineering (Existing course) 4 Sem.Hrs.

This course focuses on the techniques of building large computer systems. The methods of specifying requirements and developing the system by successive refinements are studied. These techniques eventually lead to the creation of a data flow diagram, the definition of data structures, and a data dictionary. One or more team projects will be designed and implemented.

Prerequisite: CS 161 or CS 256 or CS 260

CS 258 Introduction to Database Management Systems (Existing course) 3 Sem.Hrs.

This is an introduction to the design and use of databases and database management systems. Topics include the design of databases, comparison of standard database models and an examination of some commercially available database management systems.

Prerequisite: CS 160 or CS 251 or CS 255

MAT 218 Introduction to Linear Algebra (Existing course) 3 Sem.Hrs.

Topics will be selected from: systems of linear equations, vector spaces, basic operations on matrices, determinants,

bilinear and quadratic functions and forms, linear transformations on a vector space and others.

Prerequisite: MAT 102

CS/MAT 320 Discrete Mathematics for Computer Science-
Algebraic (Revision of existing course) 3 Sem.Hrs.

Discrete mathematics used in the theory and application of computer science. Topics will include: formal languages, finite state machines, relations, machines and codes.

Prerequisites: MAT 101 and CS 160.

CS 310 Introduction to Digital Hardware
Design (Existing course) 4 Sem.Hrs.

This course presents the principles of digital hardware through lectures and laboratory experiments. Topics will include circuit components, logic, binary coding, and microprocessor components.

Prerequisite: CS 240

CS/MATH 356 Operations Research (Existing course) 4 Sem.Hrs.

This course includes topics in classical optimization, linear programming, probabilistic simulation, and network analysis. These techniques are applied to mathematical problems in business and society. Theoretical aspects of problems are considered, aided by computer use.

Prerequisites: MAT 102 and CS 150 or CS 160

Note: The following elective courses are new

CS 3XX The Theory of Computation (New course) 3 Sem.Hrs.

This course contains a diverse sampling of the areas of theoretical computer science and their hierarchical interconnections. Basic results relating to formal models of computation are introduced. Emphasis is given to the understanding of rigorous definitions in computing environments and in determining their logical consequences.

Prerequisite: CS 210

CS 4XX Artificial Intelligence (New course) 3 Sem.Hrs.

This course covers the basic concepts and techniques of artificial intelligence or "expert systems." Emphasis is

placed on representation as a central and necessary concept for work in intelligent systems. Strategies for choosing representations as well as notational systems and structures will be discussed. Pattern recognition and other systems will be considered.

Prerequisite: CS 355

CS 4XX Interpreter and Compiler Design (New course) 4 Sem.Hrs.

This course covers the concepts involved in designing and constructing interpreters and compilers. Emphasis will be placed on writing the major components of these systems.

Prerequisite: CS 355

CS 3XX Computer Graphics (New course) 3 Sem.Hrs.

This course is built around detailed language-independent algorithms for a graphics system that follows the standards proposed in the Graphics Standards Planning Committee's CORE system. Techniques for interactive input and output and three dimensional viewing are considered.

Prerequisites: CS 210 and MAT 218

MIS 3XX Fundamentals of Data Communications
(New course in MIS) 3 Sem.Hrs.

This course is intended for the student who has a basic understanding of MIS and the need to complement his/her background with a fundamental knowledge of data communications. The course focuses on understanding the alternatives in hardware, software and transmission facilities involved in data communications. It also considers the design and implementation of a cohesive data communications system.

Prerequisite: MIS 381

CS 3XX Special Topics in Computer Science
(New course) 3 Sem.Hrs.

Because of the rapidly changing field of computer science, this course will cover current topics of major importance such as robotics, local area networks and teletext.

Prerequisites: CS 310 and CS 355

CS 297 Cooperative Education 1-9 Sem.Hrs.

CS 298 Faculty Developed Study 1-4 Sem.Hrs.

CS 299 Student Developed Study 1-6 Sem.Hrs.

a. (2) DESCRIBE THE COURSE NUMBERING SYSTEMS

Courses on the 100 level are primarily freshman and sophomore level. Courses on the 200 level are for sophomores and juniors. Courses on the 300 and 400 levels are for juniors and seniors. 400-level courses are also open to graduate students who meet the prerequisites.

a. (3) INDICATE THE REQUIRED OR CORE COURSES AND THOSE COURSES FROM WHICH ELECTIVES MAY BE SELECTED. STIPULATE THE NUMBER OF COURSES OR HOURS AND THEIR DISTRIBUTION REQUIRED TO COMPLETE THE PROGRAM.

The required courses in the program are:

CS 160	Computer Programming I	4 sh
CS 161	Computer Programming II	4 sh
CS/MAT 1XX	Discrete Mathematics for Computer Science-Combinatorics	3 sh
CS 210	Data Structures	4 sh
CS 240	Computer Organization and Software	4 sh
CS 311	System Software	3 sh
CS 355	Programming Languages	4 sh
		<hr/>
		26 sh

Twelve credits of electives must be taken from the following list of courses.

CS/MAT 230	Discrete Mathematics for Computer Science-Algebraic	3 sh
CS 243	Software Engineering	4 sh
CS 2XX	Introduction to Database Management Systems	3 sh
CS 297	Cooperative Education	1-9 sh
CS 298	Faculty Developed Study	1-4 sh
CS 299	Student Developed Study	1-6 sh
CS 310	Introduction to Digital Hardware	4 sh
CS 3XX	Theory of Computation	3 sh
CS 3XX	Computer Graphics	3 sh
CS 3XX	Special Topics	3 sh
CS/MAT 356	Operations Research	4 sh
CS 4XX	Artificial Intelligence	3 sh

CS 4XX	Interpreter and Compiler Design	4 sh
MAT 218	Introduction to Linear Algebra	3 sh
MIS 3XX	Fundamentals of Data Communications	3 sh

b. HOW DO THE INSTITUTION'S POLICIES REGARDING TRANSFER OF CREDIT, CREDIT BY EXAMINATION, OR CREDITING EXPERIENTIAL LEARNING AND NONCOLLEGIATE SPONSORED INSTRUCTION APPLY TO THIS PROGRAM?

- (1) Corresponding courses may be transferred according to the University's policy; see page 10 of the University catalog. At least 20 credits of courses in the Computer Science major must be taken at Western Connecticut State University. During the academic year 1983-84 the Department will meet with counselors and Admissions personnel from feeder community and technical colleges to articulate the programs between the two year institutions and Western Connecticut State University. The preparation of students for and their possible placement in the Computer Science major will be explored.
- (2) Credit by examination will be considered when standardized tests become available.
- (3) Students may earn experiential credits by taking Cooperative Education CED 297 or CS 297.

c. INDICATE ANY REQUIREMENTS AND ARRANGEMENT FOR CLINICAL AFFILIATIONS, INTERNSHIPS, AND PRACTICAL OR WORK EXPERIENCE. DESCRIBE HOW THESE WILL BE ADMINISTERED AND FURNISH THE FOLLOWING ASSURANCE:

While there are no internship requirements, the Department

recognizes the educational value of internships for the computer science major in specific topic areas. Since there are a number of high technology industries in the area, internship programs and requirements will be pursued.

6. RESOURCE CENTER AND LIBRARIES (SEE 10-330-16)

- a. WHAT LIBRARY AND OTHER LEARNING RESOURCES ARE AVAILABLE AT THE INSTITUTION OR ELSEWHERE WHICH SUPPORT THE PROGRAM? DESCRIBE THE ACCOMMODATIONS IN TERMS OF STUDY SPACE, PROFESSIONAL ASSISTANCE AND TIME SCHEDULE OF AVAILABILITY.

The Ruth A. Haas Library on the midtown campus houses the main collection of print and non-print material of the university. This library is open eighty-three hours a week, has four hundred-seventy seats for library users, and a professional staff of one director and 9.5 FTE librarians.

The Robert S. Young Business Library on the Westside campus houses printed material in the areas of management, finance, and data processing. This library is open fifty-five hours each week, has seating for thirty-two persons and has one professional librarian in attendance.

For a description of the academic computing resources available to support the program see Section 9 of this document.

- b. REPORT AS ACCURATELY AS PRACTICABLE THE NUMBER OF VOLUMES, PERIODICALS AND OTHER MATERIALS, BY SUBJECT AREA, WHICH DIRECTLY SUPPORT THE PROGRAM.

The Ruth A. Haas Library holds all of the material related to computer science and the relevant mathematical sciences. The volumes number approximately six hundred and

there are ten periodicals to support the program. Related areas which provide resources are volumes and periodicals in mathematics, the sciences, and business.

The library has a computer database bibliographic service with information on eight million books, available through the library's OCLC terminal. Bibliographic services for periodical articles are available through a computer database terminal at the Danbury Public Library.

The library is a member of the New England Library Information Network and the Southwestern Connecticut Library Council, both of which permit exchange of material and services with other libraries.

The Robert S. Young Library on the Westside campus contains approximately 4000 volumes and 100 periodicals, many of which are related to computer science and data processing.

c. PROVIDE A REPRESENTATIVE LISTING OF PERIODICAL LITERATURE IN THE LIBRARY WHICH WILL SUPPORT THE PROGRAM.

- (1) Communications of the ACM
- (2) Datamation
- (3) Creative Computing
- (4) Interface Age
- (5) Computer World
- (6) Personal Computing
- (7) Byte
- (8) Computers and Electronics
- (9) Datapro Reports
- (10) Access

d. LIST ANY NEW LEARNING MATERIAL WHICH WILL BE ADDED FOR THE PROGRAM. INDICATE WHEN THEY WILL BE AVAILABLE FOR STUDENT AND FACULTY USE.

It is anticipated that five periodicals and 150 books

will be added for the new program in 1984-85 and 100 books in 1985-86.

7. ADMISSION, STUDENT PERSONNEL, AND GRADUATION POLICIES
(SEE 10-330-17)

- a. DESCRIBE THE ADMISSION REQUIREMENTS FOR THE PROGRAM, THE POLICIES AND REQUIREMENTS FOR ACADEMIC ACHIEVEMENT TO REMAIN ENROLLED IN GOOD STANDING AND THE REQUIREMENTS FOR GRADUATION. NOTE ANY DIFFERENCES FROM GENERAL INSTITUTIONAL POLICIES.

Students must meet the general admission, retention and graduation requirements for a B.A. degree at Western Connecticut State University.

- b. WHAT ACADEMIC AND CAREER COUNSELING OR OTHER SERVICE WILL BE PROVIDED FOR STUDENTS WHO MAY ENROLL IN THIS PROGRAM?

All students enrolled in the program will be assigned a faculty advisory from the Department of Mathematics and Computer Sciences.

The Career Development Center (CDC) is an innovative approach to providing career-related services to students and alumni at Western. Currently, there are three major career components which exist: 1) Career Planning and Placement designed to offer students help with job search, resume and interviewing strategies, 2) Cooperative Education and Internships designed to offer students practical work experience closely related to their academic major and 3) Career Development Workshop.

- c. HOW MANY STUDENTS ARE EXPECTED TO ENROLL IN THE PROGRAM?

LIST THE NUMBERS BY PART-TIME AND FULL-TIME.

Initially it is anticipated that all the students in the program will be full-time.

<u>Year</u>	<u>Estimated full-time students</u>
1984-85	30
1985-86	60
1986-87	90
1987-88	120
1988-89	120

8. STUDENT AND ALUMNI RECORDS (SEE 10-330-18)

1. HOW IS THE PROGRAM GOING TO BE EVALUATED INTERNALLY? WHAT CRITERIA HAVE BEEN ESTABLISHED? WHERE WILL THE PROGRAM RECORDS BE KEPT?

The program was developed using the ACM Curriculum '78: Recommendations for the Undergraduate Program in Computer Science as a major reference. The program will be updated as necessary.

Internal evaluation will include:

- a) Student evaluations at the end of each course.
- b) End of year faculty evaluations of the curriculum
- c) Alumni evaluations - one and three years after graduation
- d) Number of students enrolled
- e) Number of students completing the program
- f) Types of positions obtained by those graduating with the B.A. in Computer Science
- g) Number of alumni pursuing graduate studies

Program evaluation is the responsibility of the Department under the direction of the chairpersons consistent with the Department By-laws.

Student records are maintained and kept by the University Registrar. They are available to faculty for purposes of advisement.

9. PHYSICAL PLANT AND FACILITIES (SEE 10-330-19)

1. DESCRIBE THE PHYSICAL FACILITIES (CLASSROOMS, LABORATORIES, OFFICES) AND SPECIALIZED EQUIPMENT NOW AVAILABLE, OR WHICH WILL BE PROVIDED (INCLUDING SCHEDULE FOR ACQUISITION) TO INITIATE AND MAINTAIN THE PROGRAM.

The offices of the members of the Department of Mathematics and Computer Science are located in the academic building on the Westside campus. The offices of the chairperson and the secretary are on the second level, three faculty members' offices are on the third level, and the remaining faculty offices are on the first level as is the Perkin-Elmer Computing Center. The Center includes the offices of its director and his assistants, the computer room, a terminal room with thirteen CRT's and two DECwriters. On the second level is another terminal room with six CRT's and two DECwriters. From this room students can access the computer twenty four hours a day. One CRT and one DECwriter are housed in the chairperson's office.

Members of the Department also share a group of offices on the ground floor of Higgins Hall on the Midtown campus. Two CRT's and one DECwriter are housed in the Higgins Hall

ground floor terminal room and one is located on the third floor in the Chemistry offices, for their exclusive use.

The Ruth A. Haas Library on the Midtown campus has a terminal room on the second floor. It houses five CRT's and four DEC-writers. There is also in use a modem connection for accessing the computer by telephone. The mainframe is a Perkin-Elmer 3230 computer with three megabytes of main memory and 450 megabytes of on-line disk storage. Auxiliary devices include one tape drive, one card reader, one high-speed line printer, and a multiplex connection to the Midtown campus.

The University has recently completed a Five-Year Academic Computer Plan (1984-88) which details requirements necessary for educational, curriculum, equipment, and department/educational support goals.

10. CATALOG AND PUBLICATION (SEE 10-330-20)

LIST AND SUBMIT COPIES OF ANY CATALOG(S), BROCHURE(S), OR OTHER PUBLICATIONS IN WHICH THE PROGRAM IS LISTED OR DESCRIBED OR WILL BE LISTED OR DESCRIBED.

Enclosed is the most recent undergraduate catalog (1983-84). When the program is approved, it will be listed and

described in the catalog.

11. CERTIFICATION

1. PROVIDE CERTIFICATION THAT PROGRAM AND INSTITUTIONAL HIRING AND ADMISSION PRACTICES ARE IN COMPLIANCE WITH ALL APPLICABLE STATE AND FEDERAL LAWS, REGULATIONS, AND ORDERS; AND THAT THE INSTITUTION WILL OPERATE UNDER THE PROVISIONS OF APPROVED NONDISCRIMINATION PLANS INCLUDING CONSIDERATION FOR WOMEN AND MINORITIES AND ACCESSIBILITY FOR THE HANDICAPPED.

The following statement appears in the Western Connecticut State University undergraduate catalog on page one.

"Western Connecticut State University provides equal opportunity in its educational programs, activities, and employment without discrimination because of racial origin, color, religious beliefs or association, sex, age, native origin, disability, or marital status."

12. TIME SCHEDULE AND AUTHORIZATIONS

- a. INDICATE ANY SPECIALIZED APPROVAL, LICENSURE OR ACCREDITATION, BY ANY AGENCY OTHER THAN THE BOARD OF HIGHER EDUCATION, TO THE EXTENT THAT IT IS RELATED TO THIS PROGRAM.

None.

- b. INDICATE THE EARLIEST DATE ON WHICH STUDENTS MAY BE EXPECTED TO COMPLETE THE PROGRAM.

May 1987.

13. EDUCATIONAL PLANNING STATEMENT

THE BOARD WILL TAKE INTO ACCOUNT THAT THERE MAY BE A DIFFERENCE IN THE TYPES OF DATA AND JUSTIFICATION FOR DIFFERENT LEVELS OF PROGRAMS. PROVIDE THE FOLLOWING INFORMATION:

- a. THE RELATIONSHIP OF THE PROPOSED PROGRAM TO OTHER PROGRAM AND RESOURCES IN THE INSTITUTION, AND ANY INSTITUTION, AND ANY INSTITUTIONAL PLAN.

The proposed Computer Science major will complement some

existing programs already in place at Western Connecticut State University, (e.g. the B.A. Mathematics with Computer Science courses, the Computer Science minor and MIS concentration). The Math with Computer Science courses program combines mathematics and computer science with the intent of focusing on the interrelatedness of the two disciplines. The computer science minor gives the student the opportunity to combine a sequence of programming-oriented computer courses with a strong foundation in another discipline.

It is anticipated that many students in the various business disciplines, the sciences, education, and economics will be served by courses in the major.

Conversely, the Computer Science majors will be encouraged to obtain a minor in another discipline. Several of the responses in the industrial survey indicated the value of such an educational background.

Similarly, the computer facilities are, and will continue to be, used by a large segment of the University community. Already, a Laboratory Information Management System is in use by the Chemistry Department. A statistical package has been installed and is being accessed by a variety of students and faculty. It is assumed that the micro-computer laboratory will serve such diverse groups as Graphic Design, Business, and Elementary Education majors, as well as

students of Mathematics and Computer Science. As stated in Section 1b, in the long range planning for Western Connecticut State University, the bachelor's degree in computer science has top priority.

- b. DATA AND COMMENTARY TO INDICATE WHAT CONSIDERATION HAS BEEN GIVEN TO SIMILAR PROGRAMS IN THE GEOGRAPHIC AREA TO BE SERVED BY THE PROPOSED PROGRAM. IDENTIFY ANY SIMILAR EXISTING OR PROPOSED ACADEMIC PROGRAMS OR DEGREES IN CONNECTICUT IN PUBLIC, INDEPENDENT OR PROPRIETARY INSTITUTIONS.

In the Report and Recommendations of the Special Advisory Committee on Data Processing and Computer and Information Science Programs of the Board of Higher Education (March, 1983) the state is divided into five regions. Regions 3 and 4 combined form an area bounded by Massachusetts on the north, Long Island on the south, New York State on the west. The eastern boundary roughly parallels the New York line and runs east of Waterbury. A copy of the map follows this page. In these combined regions the only four year computer science programs are in Bridgeport and Fairfield.

In short, there is no public institution of higher education in western Connecticut which offers a bachelor's degree in Computer Science. There is no private institution less than 35 miles from the persons served by Western Connecticut State University. A list of all Computer Science Programs in Connecticut was compiled for the aforementioned committee and a copy follows. The entire

GEOGRAPHICAL DISTRIBUTION OF ACADEMIC PROGRAMS
IN THE COMPUTER DISCIPLINES
BY CONNECTICUT INSTITUTIONS OF HIGHER EDUCATION

	REGION 1 Eastern	REGION 2 South Central	REGION 3 Southwestern	REGION 4 Northwestern	REGION 5 North Central
TWO-YEAR PROGRAMS					
Certificate					
Data Processing	U. New Haven ¹ (Groton)	Gt. New Haven ¹ Tech. Coll.	Housatonic Comm. Coll.	Northwest Comm. Coll.	Asnuntuck Comm. Coll. Gt. Hartford Comm. Coll. Tunxis Comm. Coll.
Associate					
Data Processing	Thames Valley St. Tech	Gt. New Haven St. Tech. Middlesex Comm. Coll. South Central Comm. Coll. Quinnipiac College	Norwalk Comm. Coll. Norwalk St. Tech. Sacred Heart University	Northwest Comm. Coll. Waterbury St. Tech.	Asnuntuck Comm. Coll. Gt. Hartford Comm. Coll. Hartford St. Tech. Manchester Comm. Coll.
Computer Systems Technology			Norwalk St. Tech.		
FOUR-YEAR PROGRAMS					
Data Processing	U. New Haven (Groton)	University New Haven			
Computer and Information Science		Quinnipiac College	University of Bridgeport		Trinity ² College
Computer Science	E. Conn. St. University U. New Haven ³ (Groton) University of Connecticut	S. Conn. St. University Quinnipiac College University of ³ New Haven Yale University	Sacred Heart University University of Bridgeport ³ W. Conn. St. ³ University		C. Conn. St. University University of ⁴ Hartford
Management Infor. Systems			W. Conn. St. ⁵ University		C. Conn. St. ⁵ University
Computer Technology/ Industrial Engineering	U. New Haven (Groton)	University of New Haven			
Computer Engineering	University of Connecticut		University of Bridgeport		
MASTER'S PROGRAMS					
Computer and Information Science	U. New Haven (Groton)	University of New Haven Quinnipiac College	University of New Haven (Trumbull, Danbury)	University of New Haven (Waterbury)	
Management Infor. Systems	U. New Haven ⁶ (Groton)	University of ⁶ New Haven	University of Bridgeport ⁶ University of ⁶ New Haven (Trumbull, Danbury)	University of ⁶ New Haven (Waterbury)	
Computer Science	Hartford Grad. ⁷ Center University of Connecticut University of Connecticut			Hartford Grad. ⁷ Center	
Computer Engineering					
DOCTORAL PROGRAMS					
Computer Science	University of Connecticut	Yale University			
Computer Engineering	University of Connecticut				

¹ Offers certificates in Data Processing and Computer Technology.
² Offered as a Computer Coordinate Major.
³ Offered as a minor or option within the Department of Mathematics.
⁴ One-year certificate for students who have a B.S. in Engineering.
⁵ Offered as a minor or option within the Department of Business.
⁶ Graduate certificate program; also an option within the MBA program.
⁷ Program provides for options in Computer Engineering, Software Engineering and Information Science.

report is Appendix E.

c. DATA AND COMMENTARY REGARDING THE RELATIONSHIP OF THE PROGRAM TO FURTHER EDUCATIONAL OPPORTUNITIES AND CURRENT EMPLOYMENT TRENDS.

There is ample evidence (see Appendix F) that computers have become an integral part of the development of our society. As their usage increases the types of problems they will be used to solve will grow in complexity and difficulty. There is and will continue to be a need for persons whose knowledge of computers extends beyond the ability to program. These persons must be able to understand complex problems, plan solutions, work with and direct others in solving problems. They must also have a foundation which allows them to grow with the field. The proposed program will provide the students with a solid preparation for the above. They will be able to enter the job market, make contributions to the region and its economy, and keep abreast of their profession.

There are many people who are studying about and gaining some knowledge of computers. As this trend continues, employers will be able to be more selective in hiring and promoting. Students who are interested in this profession will need the degree and the knowledge it implies or face severe limitations on the kinds of positions they can apply for, and the levels they can attain.

d. A DESCRIPTION OF ANY EFFORTS MADE TO IDENTIFY STUDENT

DEMAND FOR THE PROGRAM AND AN ESTIMATE OF ENROLLMENTS FOR THE FIRST FIVE YEARS.

In the Spring of 1983 local high school guidance counselors were contacted and questioned about the need for, and support of, a degree program in computer science at Western. All felt that such a program was needed to serve their graduates and all indicated their support for a degree program. All of the area schools have courses in computer programming.

The counselors indicated that approximately 20% of their graduating seniors choose computer science as their preferred major. The high schools in the immediate area served by Western graduate in excess of 2000 students per year; therefore a pool of over 400 students each year exists. During the academic year 1983-84 the Department and Admissions staff of the University will meet with guidance counselors from area high schools in order to introduce the program and discuss the preparation required for students entering the program.

Appendix B summarizes interest by those in industry.

Some indication of the demand for a program involving computer science at Western can be gained from the fact that the major in Mathematics (with Computer Science courses) is only one year old and there are currently 40-45 students enrolled.

- e. A DESCRIPTION OF PROGRAM AND CAREER ARTICULATION NOTING CAREER OPPORTUNITIES AS APPLICABLE (LOCAL, REGIONAL, STATE AND/OR NATIONAL ESTIMATES), ACCORDING TO THE NATURE AND GOALS OF THE PROGRAM.

Local, regional and state sources indicate that the career opportunities will be especially bright for computer science graduates.

- This department made a survey of local businesses and organizations which suggested there was a strong need. See Appendix B for the results.
- Regionally, or state-wide, there have been a number of studies done which also indicate the need for computer science graduates. See Appendix E.
- Nationally, the Department of Labor has made estimates on the career opportunities of computer science graduates. Both the 1982-83 Edition of the "Occupations Outlook Handbook" and "Economic Projections to 1990" show that the need for programmers and analysts will grow faster than the average for all occupations. See Appendix F.

In sum, the demand for graduates in Computer Science will increase as many more processes are automated.

The computer science program proposed by Western Connecticut State University stresses the fundamental principles of computer science. It will train people to play an important role in the increasing computerization of our

state. This education will prepare them to enter the profession and will create a firm basis for future specialized education.

APPENDIX A

College Mission

Over the past several years Western Connecticut State College has been involved in the clarification of the mission of the college and the role, current and potential, of each department and division of the college in carrying out that mission. All faculty and staff were involved through departmental representation in developing the following mission statement.

Western Connecticut State College, functioning within the structure of public higher education, offers liberal arts and professional programs at both the baccalaureate and post-baccalaureate levels. The college is committed:

1. To serve qualified or qualifiable students at both undergraduate and graduate levels in professional, pre-professional, semi-professional, para-professional and liberal arts degree programs, regardless of the heterogeneity of the groups to which they belong.
2. To prepare students qualified both to lead and to function effectively in a rapidly changing and expanding society.
3. To provide a campus climate (physical, social, philosophical and intellectual) conducive to high quality learning and to the development of human values and social responsibility and to development of a personal philosophy.
4. To provide the academic community with the optimum resources necessary for high quality teaching, experimentation and research appropriate to the educational role of the College.
5. To provide leadership and service to public education in the region.
6. To cooperate in community endeavors for the welfare of the public good within the limitations of available college resources and purposes.
7. To cooperate in academic consortia wherever appropriate with other public institutions of higher education.

APPENDIX B

During the summer of 1982 the attached letter and questionnaire were sent to fifty area companies. Thirty-seven responded as indicated on the questionnaire. Some of their comments are included here:

- Very important to us. Need to have scientific systems people, not just business systems. Should know science-related languages.
- Program should be geared toward having a distinct minor concentration. We would hire people with a C.S. degree and chemistry minor, for example, before hiring a straight C.S.
- Our interest lies primarily in finding people for our technical R&D staff who have a thorough understanding of equipment architecture (i.e. computer engineering) and who can, therefore do technical programming - what we call software engineers.
- The program should be geared towards a more practical approach. It should include instruction on scientific and industrial systems.
- Offering computer science as a major would only prove to be an asset to Western Connecticut State University. The needs of the future will require more and more people trained in software engineering.
- We are currently using a computer service but certainly because of our size are definitely researching the cost of a completely computerized system. Training for our personnel will be a must in this area.
- Should include both assembler languages and structured languages.
- By all means keep in touch with the corporate sector to insure proper marketable training.
- We feel it's a great idea and would be worthwhile not only to students but to the area as a whole.



STATE OF CONNECTICUT

WESTERN CONNECTICUT STATE COLLEGE

181 WHITE STREET - DANBURY CONNECTICUT 06810



Department of Mathematics
and Computer Science
797-4221

The Department of Mathematics and Computer Science at Western Connecticut State College is planning to offer a major in computer science. Before we can develop this major we need to obtain permission from the College, the Board of Trustees for the Connecticut State Colleges, and the Board of Higher Education. One area we need to address is the need for this type of program for the companies and schools in the community. We are asking your aid in determining this need.

Included with this letter is a brief questionnaire which will help us assess the need in this area for persons trained in computer science (beyond a few programming courses). We will appreciate your filling out the questionnaire and returning it as soon as possible.

This questionnaire focuses on the question of present and future needs for personnel trained in the computer sciences. If we receive permission to offer a major, we will be seeking additional input from the business community. If you would be willing to give us additional aid, a note to that effect on the bottom of the questionnaire would be appreciated.

There is an address label on the reverse side of the questionnaire. When you are finished fold, seal, and stamp the form and mail it to us. If you want any further information, please call.

Thank you for your help.

Sincerely,

A handwritten signature in black ink that reads "Robert L. Hoburg".

Robert L. Hoburg, Chairman
Department of Mathematics
and Computer Science

Results of the
COMPUTER SCIENCE INFORMATION QUESTIONNAIRE

50 were sent, 37 returned

1. Does your company have staff programmers and/or system analysts?

Yes 30

No 7

If yes, the size of your staff would be helpful.

2. In the near future (5-10 years), what changes do you anticipate in your computer center staff?

a. Will start one 6

b. Will increase 24

c. Will decrease 1

d. No change 6

3. Are some of your computer needs (accounting, planning, etc.) performed by a computer service company?

Yes 20

No 17

4. In the near future (5-10 years) what changes do you anticipate in your dealing with service companies?

	Yes to #3	No to #3
a. Will start using them	<u>1</u>	0
b. Will increase work to them	<u>6</u>	0
c. Will decrease work to them	<u>10</u>	2
d. No change	<u>4</u>	13

5. How does your company view a computer science major being offered at WestConn?

a. Valuable to the area 33

b. Unnecessary to the area 0

c. No effect in our view 4

6. Do you expect your computer needs to be met by
- a. Standard size (large, medium, mini) 17
 - b. Micro-computers 1
 - c. Combination of a. and b. 18
 - d. Do not need a computer 0

No response on one return for this question.

In our attempt to keep the questionnaire short, we may have missed something you feel is important. If so, and you wish to make any comments concerning the issue of expanding the computer services at the College, we will welcome them.

COMMENTS:

APPENDIX C

WESTERN CONNECTICUT STATE UNIVERSITY

EDUCATION PLAN

1983-1986

Planning Goals for Western Connecticut State University 1983-1986

The following planning goals will guide Western's planning document during the next three years: 1983-86

- 1) Support and strengthen the School of Arts and Sciences by developing key programs and activities in this area.
- 2) Support and strengthen the School of Professional Studies by developing key programs and activities in this area.
- 3) Support and strengthen the Ansell School of Business by developing key programs and activities in this area.
- 4) Support and integrate programs offered through Extension Services in conjunction with planning goals identified in 1-3 above.
- 5) Support and strengthen the Graduate School by developing key programs and activities in this area in conjunction with planning goals identified above.
- 6) Support and strengthen the Division of Student Affairs to better meet the needs of students.
- 7) Support and strengthen Educational Services to better meet the mission of the University.
- 8) Enhance the University's curriculum and co-curricular programs in the Visual, Fine, and Performing Arts.
- 9) Continue to develop programs offered through the Division of Extended Programs which serve the regional needs of individuals, business and community organizations.
- 10) Continue to maintain enrollments while seeking more qualified students in all programs.
- 11) Explore and identify the concept of "University" during and after the transition to University status.
- 12) Identify and describe priorities for the renovation of the Mid-Town campus.
- 13) Further develop and maintain equitable personnel policies and programs for faculty, administration and staff which encourage a high level of performance as well as commitment to the University and its mission.
- 14) Review statewide changes in the organization of Higher Education and Board of Governors which may impact current planning document.
- 15) Ensure support of long range planning through comprehensive and responsible fiscal planning.
- 16) Continue the University's program of institutional advancement while broadening the base of alumni support.

I. Academic Program Objectives (Instructional Programs)

II. Resource Objectives (Personnel, Space, Equipment other than those required for columns I & III)**

III. Other Objectives (General Program Activities, Faculty Development, Public Relations, Research Activity)

983-84

- 1) To gain final state approval for a B.A. in Computer Science
- 2) To enhance the existing Writing Skills Program
- 3) To gain accreditation for Social Welfare Program
- 4) Evaluate growth of Urban Studies Center
- 5) Consideration of Applied Social Science Programs.

1) Plan to hire Lab Technician/Stockroom Mgr.

1) To begin implementation of new plan for student advisement services

2) Initiate Honors Program in A & S

- 1) Present a feasibility study for the implementation of a B.F.A. and Arts Management Program
- 2) To offer expanded course offerings in German
- 3) Promote Honors Program in A & S as possible University-Wide Model

(See School-Wide Issues

Planning Goals 6,7,15,16)

Graduate Goals

- 1) Develop plan to improve advisement services for students.
- 2) Develop plan to make registration easier for students
- 3) Plan to offer off-campus courses, CMSA core courses in Waterbury
- 4) Develop a plan for making more people aware of available programs

Extension Service Goals

- 1) Develop plan to improve advisement services for students
- 2) Develop plan to make the registration process easier for students
- 3) Develop a plan for making more people aware of available programs

984-85

985- beyond

- 1) (Media Theory Offerings?)
- 2) Masters Program in Computer Science
- 3) Masters Program in Psychology
- 4) Meteorology
- 5) Statistics Minor
- 6) Religious Studies Program

(See School-Wide Issues

Planning Goals 6,7,15,16)

**NOTE: ADDITIONAL RESOURCES NEEDED FOR I & III WILL BE NOTED IN ACTION PLANS

GLORIA F. BRUNELL

Rank: Professor

Education: Albertus Magnus College, BA Mathematics (1947)
Fordham University, MA Mathematics (1957)
Yale University, PhD Mathematics (1964)

Experience: Western Connecticut State University, 14 years
Albertus Magnus College, 10 years
secondary teaching in Ohio, New York, Connecticut,
10 years

Professional memberships:

National Council of Teachers of Mathematics
Association of Teachers of Mathematics in New England
Associated Teachers of Mathematics in Connecticut

Credit-bearing responsibilities, 1982-83:

CE 150 Introduction to Computing
MAT 101 Calculus I
MAT 102 Calculus II
MAT 112 Basic Algebra
MAT 133 Precalculus
MAT 205 Ordinary Differential Equations
MAT 298 Faculty-Developed Study: Intermediate Algebra
MAT 316 Abstract Algebra
MAT 529 Historical Development of Mathematics
Coordinator, High-School Coop Program

JOSEF FRIEDMAN

Rank: Professor

Education: Polytechnic Institute of Brooklyn, BS Physics (1958),
MS Physics (1960), PhD Physics (1970)

Experience: Western Connecticut State University, **14** years
Polytechnic Institute of Brooklyn, 7 years
Industrial research, 3 years

Professional memberships:

Sigma Xi
Mathematical Association of America

Credit-bearing responsibilities, 1982-88:

CS 150 Introduction to Computing
MAT 102 Calculus I
MAT 110 Modern Concepts of Mathematics
MAT 201 Calculus III
MAT 205 Ordinary Differential Equations

JUDITH A. GRANDAHL

Rank: Associate Professor

Education: Bates College, BS Physics and Mathematics (1960)
Smith College, MA Mathematics (1961)
Wesleyan University, Certificate of Advanced Study (1975)

Experience: Western Connecticut State University, 15 years
Southbury High School, 5 years
U.S. Navy Underwater Sound Laboratory, 1 year

Professional memberships:

National Council of Teachers of Mathematics
American Cryptogram Association

Credit-bearing responsibilities, 1982-83:

CS 150 Introduction to Computing
MAT 101 Calculus I
MAT 102 Calculus II
MAT 133 Precalculus
MAT 218 Introduction to Linear Algebra

RONA GURKEWITZ

Rank: Assistant Professor

Education: University of California at Los Angeles, BA Mathematics (1968), MA Mathematics (1970)
Courant Institute, New York University, MS Computer Science (1975), further graduate work in computer science

Experience: Western Connecticut State University, 10 years
University of California at Los Angeles, 1 year
New York University, 1 year
various programming assignments, 3 years

Professional memberships:

Association for Computing Machinery
National Council of Teachers of Mathematics

Credit-bearing responsibilities, 1982-83:

CS 150 Introduction to Computing
CS 240 Computer Organization and Software
CS 255 FORTRAN Programming
CS 256 Computer Applications with FORTRAN
CS 355 Programming Languages

ROBERT L. HOBURG

Rank: Associate Professor

Education: Western Illinois University, BS Physics and Mathematics (1955), MS Mathematics (1956)
further graduate work in mathematics and computer science, Ohio State University, New York University

Experience: Western Connecticut State University, 20 years
Ohio State University, 2 years
secondary teaching, 4 years
Madison Project summer staff, 2 summers

Professional memberships:

Mathematical Association of America
Kappa Delta Pi
Mathematical Association of Two Year Colleges in Connecticut
National Council of Teachers of Mathematics
Associated Teachers of Mathematics in Connecticut
Association of Teachers of Mathematics in New England
American Association of University Professors

Credit-bearing responsibilities, 1982-83:

CS 150 Introduction to Computing
MAT 120 Elementary Statistics
MAT 133 Precalculus
MAT 342 Topics in Geometry
MAD 555 Computers in the Elementary School
Chairman, Department of Mathematics and Computer Science

RICHARD M. JONES

Rank: Professor

Education: Brown University, AB Mathematics (1964)
Pennsylvania State University, MA Mathematics (1966),
PhD (1974)

Experience: Western Connecticut State University, 12 years
Partner, Business Microcomputers, Inc.

Professional memberships:
Association of Computing Machinery

Recent publications: Introduction to Computer Applications Using BASIC,
Allyn & Bacon, 1981
Introduction to Pascal Programming and Computer
Applications, Allyn & Bacon, 1983

Credit-bearing responsibilities, 1982-83:

CS 150 Introduction to Computing
CS 160 Computer Programming I
CS 241 Computer-Based Systems Analysis
CS 251 COBOL Programming
CS 260 Advanced COBOL Programming

BRUCE KING

Rank: Professor

Education: State University of New York at Albany, BS Mathematics (1956), EdD Mathematics Education (1978)
Syracuse University, MS (NSF Academic Year Institute, 1962)
State University of New York at Buffalo, MA Mathematics (1966)
further graduate work in statistics, Union College

Experience: Western Connecticut State University, 5 years
Schenectady County Community College, 6 years
State University of New York at Albany, 1 year
Adirondack Community College, 2 years
secondary teaching, 9 years

Professional memberships:

Mathematical Association of America
American Statistical Association
School Science and Mathematics Association
National Council of Teachers of Mathematics
Association of Mathematics Teachers of New York State
Associated Teachers of Mathematics in Connecticut
Association of Teachers of Mathematics in New England
New York State Mathematics Association of Two-Year Colleges
The Mathematical Association (U.K.)

Credit-bearing responsibilities, 1982-83:

CS 150 Introduction to Computing
ED 342 Student Teaching--Secondary Majors
ED 352 Seminar on Teaching--Secondary Majors
MAT 115 Introduction to Biostatistics
MAT 599 Faculty-Developed Study: Non-Standard Analysis I, II
Director, Mathematics Clinic

Recent

Publications: The Pace of Life: An Introduction to Empirical Model-Fitting, The UMCP Journal, 3 (Summer 1982).

WALLACE LEE

Rank: Associate Professor

Education: Central Connecticut State University, BS Mathematics
(1955)
University of Notre Dame, MS (1962)

Experience: Western Connecticut State University, 16 years
Westchester Community College, 3 years
Radford College, 2 years
secondary teaching, 5 years

Credit-bearing responsibilities, 1962-83:

CS 150 Introduction to Computing
BAS 185 Mathematics I
MAT 110 Modern Concepts of Mathematics
MAT 120 Elementary Statistics
MAT 160 Technical Mathematics
MAT 188 Precalculus

JAMES R. WOHLEVER

Rank: Professor

Education: St. John's University, BS Mathematics (1960)
Yeshiva University, PhD Mathematics (1974)

Experience: Western Connecticut State University, 16 years
Yona College, 3 years
programming, Naval Civil Engineering Laboratory,
2 summers

Professional memberships:
Mathematical Association of America

Credit-bearing responsibilities, 1982-88:

CS 150 Introduction to Computing
CS 255 FORTRAN Programming
CS 256 Computer Applications with FORTRAN
MAT 101 Calculus I
MAT 115 Introduction to Biostatistics
MAT 201 Calculus III
MAT 880,881 Numerical Analysis I,II