resolution #13, 1983-84

TO: President John E. Van de Wetering

FROM: The Faculty Senate

RE: __ X I. Formal Resolution (Act of Determination)

II. Recommendation (Urging the fitness of)

III. Other (Notice, Request, Report, etc.)

SUBJECT: Computer Literacy Program Implementation Proposal

(see attached)

Signed __________________ Date Sept. 2/1/84

(For the Senate)  Morris J. Perry, President, Faculty Senate

TO: The Faculty Senate

FROM: President John E. Van de Wetering

RE: I. Decision and Action Taken on Formal Resolution

a. Accepted. Effective Date FALL 84

b. Deferred for discussion with the Faculty Senate on

c. Unacceptable for the reasons contained in the attached explanation:

II, III. a. Received and acknowledged

b. Comment:

DISTRIBUTION: Vice Presidents: Kline, Zeller, Murphy, Kelly

Others: ___________________________

Distribution Date: 2/1/84 Signed: ___________

(President of the College)

Date Received by the Senate: ___________
COMPUTER LITERACY PROGRAM IMPLEMENTATION PROPOSAL

December 14, 1983

RESPONSIBILITY

Responsibility for implementation of the computer literacy requirement shall be vested in the Subcommittee on Computer Literacy (SCL) of the General Education Coordinating Committee (GECC). Membership of this subcommittee shall include:

a. One representative of the GECC who shall chair the subcommittee
b. One representative of the Department of Mathematics and Computer Science
c. One representative from each of the Schools of the College
d. Additional members-at-large as needed to carry out its mandated functions

Membership on the SCL shall nominally be for three years to ensure a measure of continuity.

IMPLEMENTATION SCHEDULE

Phase I - All students entering the College in the Fall of 1984 or thereafter must meet a minimum of four (4) of the computer literacy objectives, including Objective 10 (hands-on experience).

Phase II - All students entering the College in the Fall of 1987 or thereafter must meet a minimum of eight (8) of the computer literacy objectives, including Objective 10 (hands-on experience).

SETTING THE OBJECTIVES

Students may meet the computer literacy requirement in a variety of ways:

1) By successful completion of a course which has been reviewed by the SCL and approved as meeting the minimum number of computer literacy objectives. Such courses shall be designated by the suffix "T" on the course schedule and on the student transcript.

2) By successful completion of a sequence of courses which have been reviewed by the SCL and approved as collectively meeting the minimum number of computer literacy objectives. In such cases, the final course in the sequence shall carry the suffix "T" on the course schedule and on the student transcript.

3) By passing a waiver examination, to be developed and administered by the SCL. This examination would include both a practical hands-on component and a written component in which the minimum number of computer literacy objectives must be addressed by the student.
By transfer credit. Students who transfer into the College during Phase I shall be deemed to have met the computer literacy requirement if they receive transfer credit for a course such as "Introduction to Computers" or an equivalent. Students who transfer into the College during Phase II shall be deemed to have met the computer literacy requirement if they receive transfer credit for two courses, including both an introduction to computers course and a course on "Computers and Society" or equivalent. Programming language courses will not generally be considered as meeting this requirement.

5) By submitting outlines of courses from other colleges or universities to the SCL, which shall determine whether the minimum number of objectives have been met within the submitted courses. This option is intended primarily for those transfer students whose records do not seem to meet the requirements of option 4 above.

REVIEW OF COURSES

Review of courses and program by the SCL for the Fall of 1984 will be carried out according to the following schedule:

1) Preliminary Review - All courses and programs submitted to the SCL on or before February 28, 1984 will be reviewed for approval as meeting the minimum number of computer literacy objectives. Feedback to departments will be returned by April 1, 1984, indicating either approval or reservations of the SCL about the course or program.

2) Final Review - All courses and programs submitted to the SCL on or before April 15, 1984 will be reviewed for approval as meeting the minimum number of computer literacy objectives. Feedback to departments will be made, but there will be no guarantee that a subsequent review by the SCL will be possible in time for Fall, 1984 registration.

TYPES OF COURSES

Two types of individual "T" courses will be considered by the SCL:

a) Courses which are designed solely to address the computer literacy requirements. These courses will be expected to meet the Phase II minimums (i.e., Objective 10 plus seven (7) of the first nine objectives).

b) Courses which have one or more computer literacy instructional units totalling at least three (3) weeks in duration, and which also address objectives other than those of computer literacy. These courses will be expected to meet the minimum number of objectives specified for each Phase of implementation. Such courses may be limited to majors in a particular discipline.
RESOURCES

The College already has ten (10) microcomputers dedicated to computer literacy use. These are at present available in the microcomputer lab in Edwards. In addition, Special Computer Access Funds have been allocated to acquire 24 additional microcomputers together with a Corvus hard disk unit from the 1983/84 budget, and 24 more microcomputers with two Corvus hard disk units from the 1984/85 budget. All of this equipment is justified and designated for use in computer literacy courses.

Beyond these facilities, many academic departments have microcomputers which are already being used within their curricula and for research purposes. These units may be expected to find some use in the implementation of computer literacy objectives, especially through the programmatic approach to meeting the objectives.

OBJECTIVES ON COMPUTER LITERACY

Objective 1: Students will understand the conceptual and mechanical basis of computers. Students will recognize that the computer is a device for storing and manipulating information in the form of a program.

Objective 2: Students will understand the process of computing as a means of problem solving. The computer does not solve the problem, but rather, assembles raw data into a usable format called information. It serves as a model system that moves simple to very complex.

Objective 3: Students will understand the history of computers. This aspect of computers provides a clear model for students to understand the relationships between pure and applied scientific research and technology. Students will recognize the computer as a stage in the evolution of technology and appreciate that such a recognition tends to diminish the "future shock" syndrome.

Objective 4: Students will understand the broadest applications of computers. Students will be introduced to the emerging applications and implications of computer technology in the humanities, fine arts, social sciences and natural sciences.

Objective 5: Students will understand the effects of computer technology on the structure of the economy. It is important for students to deal with the questions of technological unemployment, altered standards of living and the rise of multi-national corporations that, in large part, grow out of the increasing dominance of computers and other high technology.
Objective 6: Students will understand the potential abuses of information generated by computers. The invasion of privacy, uncontrolled access to data and the manipulations of public opinion and the associated ethical, legal and political issues are essential connections that students must make to fully appreciate the role of computers in society.

Objective 7: Students will understand the limitations of computers and be aware of the contexts in which their use is appropriate. Students will need to recognize that there are implicit human values and judgments in software that might distort their perception of a problem or a solution.

Objective 8: Students will understand the ways in which computers might alter decision-making. Computer technology may contribute to a confusion of responsibility in so far that it, rather than human programmers, is seen as sources of decisions. Further, this technology may contribute to circumstances where the general public relinquishes its role in decision-making to so-called "experts".

Objective 9: Students will understand the life-style consequences of computer technology. There are many specific practical implications of computer technology and while it is not desirable to examine all conceivable consequences, students should confront some of the more significant implications for their work, leisure and home life.

Objective 10: Students will learn to use computers. This objective does not aim to produce computer programmers. Yet, a hands-on experience is necessary.
EXAMPLES OF WAYS TO MEET COMPUTER LITERACY OBJECTIVES

The following are some ways in which the objectives of computer literacy might be met. These are not intended to represent the only ways; no limitation on creativity is intended.

Objective I - Conceptual and Mechanical Basis. Two lectures, one introducing hardware concepts and definitions, one introducing software concepts and definitions. Include definitions/discussion of typical terminology (e.g., I/O, CPU, peripherals, systems, file creation, storage, retrieval and characteristics of various programming languages). Perhaps quiz on content.

Objective II - Problem Solving. Two or three lectures on algorithmic problem solving and concepts. Discussion highlights different levels of specificity that are possible. Class solves simple problems (e.g., selecting tallest in class) and produces a "flow chart" to show the algorithm.

Objective III - History of Computer. One lecture, or films (BBC TV Series, "The Computer Programme", available on campus as ten 30-minute videotapes), or audio-visual module "From Pebbles to Computers" using slides and recorded sound. Perhaps quiz on content, or short essay comparing the computer revolution to the industrial revolution.

Objective IV - Applications to Humanities, Fine Arts, Social Sciences and Natural Sciences. Demonstration of application software from each area. Students might work further using the software of a chosen area. Possibly supplement with guest lectures and field trips. Potential outcome: short essay on how selected discipline or area is being affected by computer applications.

Objective V - Effects on the Economy. Students review employment trends and predictions using BLS data. Review of news items concerning robotization of industry (e.g., compare Japan's auto industry with U.S.). Discuss training required for future jobs, effect of computer mail on information flow. Perhaps result in a research paper using recent periodical information.

Objective VI - Potential Abuses. Discussion of computer piracy, "hacking", possible invasion of privacy (e.g., FBI, Social Security, credit cards, insurance files), data protection. Explore developing law (e.g., see professional journals). Discuss norms and ethics. View and discuss films such as "War Games". Potential outcome: a research paper.

Objective VII - Limitations of Computers. Readings on artificial intelligence (Turing, Chemin, Hofstadter, Searle) and discussion. Demonstration of at least three software packages to illustrate limitations and bias. Reading appropriate science-fiction (e.g., Pohl, Man Plus, or Crichton, Terminal Man) demonstration of a robot, or viewing "The Wonderful World of Robots" (an Asimov-narrated film on robotics) to stimulate discussion. Possible outcomes: short essay on discussion topic or actual solutions of a problem using three different software packages.

Objective VIII - Effects on Decision-making. Using a simulation, students would "solve" a problem in business, politics or science working in two separate groups: one group assuming access to computers, the other having no access. Discussion of the similarities and differences of procedure used by each group.
Objective IX - Life-style Consequences. Discussion of computerized gaming, teleconferencing, hobbies, home economy uses (e.g., tax, budget balancing), uses in stores (e.g., check-out procedures in supermarkets). Discussion of potential future effects on sports, work, home life, relationships between generations, relationships between the "haves" and "have-nots." Possible outcome: thought essay.

Objective X - Hands-on Experience. Minimally, students would demonstrate the ability to use a microcomputer and/or minicomputer. MICROCOMPUTER - Student would understand disk storage, safety precautions and file concept. Student would be capable of booting a disk, entering information using the keyboard, initialize a diskette and recover from most errors. MINICOMPUTER - Student would be able to logon and logoff, access necessary software, enter information at a terminal, generate printed output and recover from most errors.