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New Track In Computer Science (CSC) Major in the Area of Information Systems (IS) and New Computer Information Systems (CIS) Minor

The College at Brockport, College Senate

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FACULTY SENATE

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Resolution #20
1997-98

TO: Dr. Paul Yu, College President

FROM: The Faculty Senate Meeting on: **May 11, 1998**

RE: I. Formal Resolution (Act of Determination)
 II. Recommendation (Urging the fitness of)
 III. Other (Notice, Request, Report, etc.)
For your information

SUBJ: **New Track In Computer Science (CSC) Major in the Area of Information Systems (IS) and New Computer Information Systems (CIS) Minor**

Signed: Anne H. Parsons Date Sent: 5/11/98
(Anne H. Parsons, Faculty Senate President)



TO: The Faculty Senate

FROM: Dr. Paul Yu, College President

RE: I. **Decision and Action Taken on Formal Resolution**
a. Accepted. Effective Date: 9/1/98
b. Deferred for discussion with the Faculty Senate on 1/1
c. Unacceptable for the reasons contained in the attached explanation

II, III.
a. Received and acknowledged
b. Comment: _____

DISTRIBUTION: to Administrative Group - Full Resolution available in Faculty Senate Office

Distribution Date: 5/20/98 Signed: Paul Yu
(President of the College)

Resolution Disk:9798-20.RES::ayk

**Department of Computer Science
Spring 1998**

**Two Proposals to the
Faculty Senate,
SUNY College at Brockport**

**Proposal 1: to establish a new track in CSC Major in
the area of Information Systems (IS)**

**Proposal 2: to establish a new Computer Information
Systems (CIS) Minor**

Proposal 1: To Establish a new IS Track in CSC major

Some Background

The CSC Major currently has two tracks: The CS (Computer Science Track) and the CSIS (Computer Science and Information Systems) tracks. The CS track is accredited by the Computer Science Accreditation Commission (CSAC) since 1994. The enrollment in both tracks is about even at this time.

The CSIS track, despite the presence of 'IS' in the name does not have very much Information Systems content in its requirements. The area of information systems is currently identified as a separate discipline and there is an increased demand for IS professionals in the industry and academia. To address these needs, the Department is proposing to establish a new IS track in our major.

What is Computer Information Systems (CIS)?

Computer Information Systems is the study of the use of computers for systematic organization of data that supports efficient and accurate collection, processing, analysis and retrieval of information.

How is the proposed new track different from existing ones?

Computer Science is the study of the theory and practice of computation. For a computer scientist, the computer itself is an object of study. The computer scientist is interested in creating new software and hardware that is cheaper, more reliable, faster, etc. Computer Information Systems, on the other hand focuses on the application of computers. An information technologist tries to apply the existing technology to solve real world problems. Graduates of an IS program are expected to build and maintain corporate web sites, manage the network and the intranet, build and provide access to complex databases, set up security measures, etc. An AC-track (Advanced Computing – old name: CS track) or an SD-track (Software Development – old name: CSIS track) major student learns how to develop software, but an IS-track student learns how to integrate it with business considerations.

Is there a demand for such skills?

A recent article in Enterprise Developer (online magazine, January 1998, available at <http://www.ne-dev.com>, *Ready to get your degree in IS?*, by Holly Blumenthal) says that "one IS position remains unfilled for every 10 IS workers at large and midsize US companies." *Computing Research News* (May 1997) reports: "According to a new report by the Information Technology Association of America (ITAA), 190,000 IT jobs nationwide remain unfilled, and demand is increasing." As the computer technology improves, both hardware and software become faster, cheaper, and easier to use. This can only help to expand the computer applications and fuel the need for information technology professionals. We feel that there is a significant demand for IS graduates at present, and this demand will only increase in the foreseeable future.

Potential Clientele, competition with Rochester-area colleges and the uniqueness of our program

A survey of the college web sites in the Rochester area reveals that the University of Rochester, Nazareth College, St. John Fisher and SUNY Geneseo do not offer major programs in IS at this time. The only institution that offers such an undergraduate program is RIT (Two undergraduate degree programs: Information Systems and Information Technology.)

The IS track may be attractive to a variety of students. It is attractive to adult students who have a degree in some other discipline, but want to enhance their job potential with a degree in IS. (This may be especially true in the immediate future, because of job layoffs in our area.) It may also be an attractive second major to mathematics, business and other majors. Two-year colleges in the area, MCC, GCC and FLCC offer AS degree programs CIS. These students are potential transfers for the proposed program. There is also potential that it will attract new freshman students to the College who are interested in IS.

The requirements for the proposed IS track are based on the curriculum proposed in the IS '97 document (IS '97, Model Curriculum and Guidelines for Undergraduate Programs in Information Systems, recommended by a consortium of professional organizations: Association for Computing Machinery (ACM), Association for Information Systems (AIS) and Association of Information Technology Professionals (AITP – formerly DPMA)).

The uniqueness of our program is that it is consistent with the IS '97 recommendations and fits nicely in the liberal arts curriculum of our College. Its availability at a public institution of higher learning adds to its uniqueness.

Course requirements for the proposed IS Track

A. Prerequisites (12 Credits)

The track will require a fair amount of programming expertise (at least at the level of CSC 205). Thus all courses that are prerequisites for CSC 205 will be prerequisites for this track.

CSC 104:	Computers in the Business World (3)
CSC 120:	Introduction to Computer Science (3)
MTH 121:	College Algebra (3)
MTH 122:	Precalculus (3)

B. Required Courses (11+21+3+6 = 41 Credits)

CSC 203:	Fundamentals of Computer Science I (4)
CSC 205:	Fundamentals of Computer Science II (4)
CSC 486:	Junior/Senior Seminar (3)

CIS 202:	Fundamentals of Information Systems (3)
CIS 303:	Information Technology Hardware and Software (3)
CIS 304:	Computers and Office Productivity (or BUS 317) (3)
CIS 317:	Analysis and Logical Design of IS (or BUS 417) (3)
CIS 419:	Computer Networks and Internet Applications (3)
CIS 422:	Physical Design and Implementation with DBMS (3)
CIS 427:	Project Management and Practice (3)

ACC 280:	Introduction to Accounting (3)
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MTH 243:	Elementary Statistics (or ECN 204) (3)
MTH 281:	Discrete Mathematics I (3)

C. Elective Courses (6 Credits)

CIS 334:	Decision Support and Expert Systems (3)
CIS 404:	Multimedia Applications (3)
MTH 441:	Statistical Methods I (3)
MTH 442:	Statistical Methods I (3)
MTH 461:	Math Models for Dec Making I (3)
MTH 462:	Math Models for Dec Making I (3)
BUS 361:	Production and Operations Management (3)
BUS 464:	Electronic Commerce and Entrepreneurship (3)
CSC 3XX	(or CSC 4XX) See list below for possible electives.
CIS 492/495/499:	Internship/Topics/Independent Study (1-3)

Restrictions on Credits in the Major – IS Track

1. The grade for each of CSC 203, CSC 205, CIS 202, and CIS 303 must be C or better.
2. At most three credits from the following group of courses can be counted towards the major elective requirement: MTH 441, 442, 461, 462, BUS 361, 464, and any CIS course numbered 490 or above.
3. The following CSC courses are NOT allowed as CIS electives: All 100-200-level CSC courses, CSC 303, 304, 311, 411, 419, 422, 427, 434, 490 and above.
4. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at SUNY Brockport.
5. A maximum of six credits can be earned by "credit by portfolio assessment," and a maximum of six credits can be earned by "departmental credit by examination."

Does the CS department have the resources?

The IS track, as seen above, draws courses from several disciplines

Mathematics

Prerequisite

MTH 121 College Algebra
MTH 122 Precalculus

Required

MTH 243 Elementary Statistics
MTH 281 Discrete Mathematics I

Elective

MTH 441 Statistical Methods I
MTH 442 Statistical Methods II
MTH 461 Mathematical Models for Decision Making I
MTH 462 Mathematical Models for Decision Making II

Computer Science

Prerequisite

CSC 104 Computers in the Business World
CSC 120 Introduction to Computer Science

Required

CSC 203 Fundamentals of Computer Science I
CSC 205 Fundamentals of Computer Science II
CSC 486 Junior/Senior Seminar

Elective

CSC 3XX/4XX (See Restrictions)

Business

Required

ACC 280 Introduction to Accounting

Alternatives

ECN 204 Introduction to Statistics (for MTH 243)
BUS 317 Intro. to Management Info. Systems (for CIS 304)
BUS 417 Systems Analysis and Design (for CIS 317)

Elective

BUS 361 Production and Operations Management
BUS 464 Electronic Commerce and Entrepreneurship

It also defines **SEVEN** new required courses and **TWO** new electives in the CIS discipline:

Required Courses

CIS 202	Fundamentals of IS
CIS 303	Information Technology Hardware and Software
CIS 304	Computers and Office Productivity
CIS 317	Analysis and Logical Design of Information Systems
CIS 419	Computer Networks and Internet Applications
CIS 422	Physical Design and Implementation with DBMS
CIS 427	Project Management and Practice

Elective Courses

CIS 334	Decision Support and Expert Systems
CIS 404	Multimedia Applications

Scheduling Courses for IS Track

The courses from other disciplines are all regularly offered and it may be possible to accommodate the IS track students into these courses without much additional resources - at least to start with. However, the CS department does not have the faculty resources at this time to offer the CIS courses. Sample program schedules, for a traditional 4-year student and 2-year transfer student, are presented to analyze the faculty needs for the proposed program.

Sample 4-year program

Semester 1 MTH 121 College Algebra CSC 104 Computers in Business GEP 100 Acad Plan Seminar Composition and Quant Skills Fine Arts 1	Semester 2 MTH 122 Precalculus CSC 120 Intro to CS CIS 202 Fundamentals of Info Sys Fine Arts2 Humanities1
Semester 3 ACC 280 Intro to Accounting CSC 203 Fundamentals of CS I (Satisfies Natural Sciences 1) CIS 304 Computers & Office Prod MTH 281 Discrete Math I Social Sciences 1	Semester 4 CSC 205 Fundamentals of CS II MTH 243 Elementary Stat Humanities 2 Social Sciences 2 Natural Sciences 2
Semester 5 Perspectives on Women CIS 303 Information Tech HW/SW CIS 317 Analysis & Logical Des of IS Free Elective Free Elective	Semester 6 Contemporary Issues CIS 427 Proj Management & Pract CSC 319 Unix Programming (elective) Free Elective Free Elective
Semester 7 CIS 419 Networks & Internet Appl CIS 422 Phy. Des. Impl. DBMS CSC 486 Junior/Senior Seminar Free Elective Free Elective	Semester 8 CIS 334 Dec Sup & Exp Syst (elective) Free Elective Free Elective Free Elective Free Elective

Sample 2-year program

If the student comes in with an AS degree in CIS, all the general education requirements (except W and I requirements) would be satisfied. It is reasonable to assume that the students would have: College Algebra (MTH 121), Precalculus (MTH 122), Computers in the Business World (CSC 104), and Introduction to Computer Science (CSC 120).

Semester 1	Semester 2
CIS 202 Intro to CIS CIS 304 Computers & Office Prod CSC 203 Fundamentals of CS I ACC 280 Intro to Accounting MTH 281 Discrete Math I	Contemporary Issues CIS 303 Information Tech. HW/SW CIS 317 Analysis & Logical Des of IS CSC 205 Fundamentals of CS II MTH 243 Elementary Stat

Semester 3	Semester 4
Perspectives on Women CIS 422 Phy. Des. Impl. DBMS 319 Unix Prog. (elective) CSC 486 Junior/Senior Seminar Free Elective	CIS 334 Dec Sup & Exp Syst (elective) CIS 419 Networks & Internet ApplCSC CIS 427 Proj Management & Pract Free Elective Free Elective

Faculty Needs

To estimate the faculty needs we observe the following:

- Some of the existing CSCmajors may have all the prerequisites for the IS track and may wish to switch to the IS track. This may be true for students in some other majors such as Math, Business, etc.
- The courses CIS 202 (Fundamentals of Information Systems) and CIS 304 (Computers and Office Productivity) can be offered from the very first semester after the track's creation. The courses CIS 303 (Information Technology Hardware and Software) and CIS 317 (Systems Analysis and Design of Information Systems) can be offered from the second semester.
- The current practice in the CS Department is to offer all required courses every semester and most elective courses once a year. This would mean that for full implementation of the track, about 16 sections of CIS courses (7 required x 2 + 2 elective) must be offered every year.
- A faculty member will teach 3 courses a semester. Faculty members have specializations and everyone will not be able to teach every course.

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- There will be a need for additional sections at the lower level CIS and CSC courses

Thus, we project the additional faculty needs as follows:

First year:	Two new full-time CIS faculty
Second Year:	One more new full-time CIS faculty

We are confident that three new faculty members will be able to support the program for the foreseeable future.

Computing Facilities

It is perhaps possible to accommodate the proposed track with the existing computing facilities at the ACS, in the first year of the program. The proposed program has seven required and two elective CIS courses. When the track is fully implemented, it will certainly increase the usage of the ACS facilities. Additional personnel, hardware and software will be necessary to support such a program. At least one more full-time technical support person may be required at the ACS to handle the increased usage.

**Proposal 2: Establishment of a New Minor in
Computer Information Systems (CIS)**

CIS Minor Requirements

1. Prerequisites (12 Credits)

CSC 104:	Computers in the Business World (3)
CSC 120:	Introduction to Computer Science (3)
MTH 121:	College Algebra (3)
MTH 122:	Precalculus (3)

2. Required Courses (4+9 = 13 Credits)

CSC 203:	Fundamentals of Computer Science I (4)
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CIS 202:	Fundamentals of Information Systems (3)
CIS 304:	Computers and Office Productivity (or BUS 317) (3)
CIS 317:	Analysis and Logical Design of IS (or BUS 417) (3)

3. Elective Courses (6 Credits)

Any 300 or higher level CIS course
CSC 205
Any elective CSC course allowed for IS track majors

Restrictions on Credits in the CIS Minor

1. At most 3 credits from courses numbered CIS 490-499 may be counted towards the minor elective requirement.
2. As per college policy, at least 50% of the credits used to satisfy the core or elective requirements in the minor must be earned at SUNY Brockport.

IS Track Course Graph

