

# **Request for Authorization to Implement a New Academic Program**

University of Wisconsin–Parkside

21 September 2000

## **1 Program Identification**

### **1.1 Title of Proposed Program**

*Master of Science in Computer and Information Systems (MSCIS)*

### **1.2 Department or Functional Equivalent**

*Department of Computer Science*

### **1.3 College, School, or Functional Equivalent**

*School of Business and Technology*

### **1.4 Timetable for Initiation**

- **Fall 2000:**

- develop marketing plan
- design program review process and specify information gathering requirements
- prepare and submit curriculum materials and catalog copy for faculty governance review and approval
- prepare and submit request for authorization to recruit faculty lines in support of the program (see section 4.2.5)
- implement recruitment plan for faculty lines
- prepare admissions documents and design admissions review process
- receive authorization to implement
- implement marketing plan

- **Spring 2001:**

- establish plan for continuing program development and improvement
  - schedule appropriate classes for Fall 2001
  - invite applications for admissions into the program
  - evaluate applications for the faculty positions and carry out candidate interviews
  - review student applications and admit eligible students into the program’s inaugural class
  - complete faculty recruitment process
  - initiate development of course materials for Fall 2001 offerings
- **Summer 2001:**
    - complete development and implementation of course materials for Fall 2001 offerings
    - initiate development of course materials for Spring 2002 offerings
- **Fall 2001:**
    - schedule appropriate classes for Spring 2002
    - complete development and implementation of course materials for Spring 2002 offerings
- **Spring 2002:**
    - complete review process for first year of the program
    - evaluate progress towards achieving program development and improvement goals

## 2 Context

### 2.1 History of Program

The MSCIS program is being developed by faculty members in UW–Parkside’s Department of Computer Science (CS) and by Management Information Systems (MIS) faculty members in the Department of Business.

The CS program started in 1979. Based on input from a business community focus group, the CS program underwent a curriculum revision in 1999. Several upper-level undergraduate CS courses will serve as the basis for offering foundation material and electives for MSCIS students.

The MIS program is a concentration in the Business major. A small number of graduate-level MIS courses already serve students in the MBA program at UW–Parkside. These courses will also contribute to the MSCIS degree program.

## 2.2 Instructional Setting of Program

The MSCIS degree program will be administratively housed in the Department of Computer Science. Computer Science faculty, staff, and laboratory resources will support the program, along with Management Information Systems faculty from the Department of Business.

Responsibility for initiating MSCIS program changes will rest with a Steering Committee consisting of faculty from both CS and MIS. The curricular recommendations of the Steering Committee will be subject to Department of CS Faculty approval as well as to approvals by other faculty governance committees and administrative units as appropriate.

The Dean of the School of Business will appoint a member of the Steering Committee, at the Steering Committee's recommendation, to act as Coordinator for the program. The Steering Committee will normally delegate responsibilities to the Coordinator to act on its behalf concerning routine activities relating to recruitment, admissions, advising, course substitutions and waivers, and assessment.

Some existing upper-level CS and MIS courses will serve as the basis for lower-level Master's courses. A course in mathematics may be required of MSCIS students who have deficiencies in this area.

## 2.3 Relation to Mission Statement and Academic Plan

UW–Parkside's mission expresses a commitment

*to high quality educational programs, creative and scholarly activities, and services responsive to its diverse student population, and its local, national, and global communities.*

The MSCIS degree program is designed to be a high quality educational program serving its local (regional) community.

The UW–Parkside mission further identifies the following objectives that pertain directly to the proposed CIS Master's degree program:

1. *Offer liberal arts, professional and pre-professional programs of high quality and actively seek their continual improvement*

The proposed MSCIS degree program would be a high quality professional program. It will build on UW–Parkside's successful undergraduate CS and MIS programs, it will follow professional curricular recommendations, and it will be taught by qualified and talented staff.

2. *Attract and retain a diverse and multicultural population of students, faculty, and staff*

The proposed MSCIS degree program will actively recruit a diverse student population and will employ strategies such as mentoring and peer groups to maximize the success of all students in the program.

3. *Foster a teaching and learning community that provides opportunities for collaborative faculty, student, and staff interaction in support of excellence*

The proposed MSCIS program will employ peer groups, collaborative learning activities, and team projects involving students, faculty, and the business community that will contribute to developing a learning community and to achieving academic excellence.

4. *Prepare graduates to be successful in their professional and civic lives*

The proposed MSCIS program would prepare graduates for successful professional careers in information technology.

5. *Provide programs that meet the needs of people throughout their lives*

The proposed MSCIS program will serve the needs of those who wish to continue their professional development in information technology fields beyond the baccalaureate degree.

Three complimentary committees at UW–Parkside have planning roles. The Committee on Academic Planning (CAP) is a faculty committee that reviews new program initiatives and major program changes, advises the administration on allocation of faculty and academic staff lines, and oversees the academic program review process. The original request for Entitlement to Plan the MSCIS program was reviewed and approved by the CAP as well as by the UW–Parkside Faculty Senate.

The Graduate Studies Committee (GST) is a faculty committee responsible for reviewing and approving graduate programs and curricula. This Request for Authorization to Implement was subject to further review by the GST and approval by the UW–Parkside Faculty Senate prior to submission to the University of Wisconsin System.

A third committee, the University Planning Committee (UPC), has representatives drawn from all major campus constituencies. It has been responsible for establishing our current mission statement, developing a campus-wide strategic plan for addressing the objectives of our mission, and overseeing the implementation of the plan. One of the strategies in this plan is to implement

*... strategies for recruiting ... non-traditional students in the region ... Potential new populations of students ... who are not currently attracted to UW–Parkside, should also be [recruited].*<sup>1</sup>

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<sup>1</sup><http://www.uwp.edu/admin/academic.affairs/strategies.html>

The MSCIS program is specifically designed to be accessible to non-traditional students in our region. All classes will be offered in the evenings beginning at 6:00pm or later, normally arranged so that students need to attend classes only two days a week. Since UW–Parkside has not offered a postgraduate degree program leading to credentials in CIS areas, the MSCIS program will attract a new population of students.

In 1997, the UPC and then-Acting Chancellor Lamb set about to study how the University was meeting – and was perceived to be meeting – the needs of the region it serves. The resulting study, funded by local business interests and conducted by Stamats Communications (the “Stamats study”), expressed a high-priority need for CIS professionals. UW–Parkside’s planning and implementation of the MSCIS program is a direct outcome of the Stamats study.

## 3 Need

### 3.1 Comparable Programs in Wisconsin

- **Master of Science in Computer Science**

- UW–Madison
- UW–Milwaukee

These programs have a theoretical emphasis that is targeted in part to students who wish to pursue a Ph.D. in computer science. The UW–Parkside MSCIS program is intended to be a terminal degree.

- **Master of Software Engineering (MSE)**

- UW–LaCrosse

UW–LaCrosse is inaccessible to part-time students in the UW–Parkside service area. Software engineering is a part of UW–Parkside’s MSCIS program, but to a lesser extent than its dominant role in the MSE program at UW–LaCrosse.

- **Master of Science in Management, MIS concentration (MSM/MIS)**

- UW–Milwaukee

UW–Milwaukee’s MSM/MIS program generally requires entering students to have taken management foundation courses or to have completed a business degree in an AACSB accredited program, whereas students may enter UW–Parkside’s MSCIS program with technical experience or aptitude but with no background in management. Students in UW–Milwaukee’s MSM/MIS program take all their courses in business, whereas UW–Parkside’s MSCIS requirements include at least three courses in computer science. In short, the UW–Parkside MSCIS program requires less business and

more computer science. Moreover, students in UW–Parkside’s regional service area find UWM’s campus to be less accessible – particularly those who live and work near the Wisconsin-Illinois border.

- **Master of Library and Information Science (MLIS)**

- UW–Milwaukee

The MLIS program at UW–Milwaukee has a 12-credit core of library science requirements that would not be appropriate to meet the goals of UW–Parkside’s MSCIS program.

- **Master of Science in Information Systems (MSIS)**

- UW–Oshkosh

UW–Oshkosh is inaccessible to part-time students in the UW–Parkside service area. Whereas UW–Oshkosh MSIS program is similar in scope and purpose to UW–Parkside’s MSCIS program, the UW–Oshkosh program has a business curriculum as its primary context, and the UW–Parkside MSCIS program has computer science as its primary context. Unlike the UW–Oshkosh MSIS program, the UW–Parkside MSCIS degree requires at least three computer science courses and is not designed to be accredited by AACSB.

- **Master of Science in Management Computer Systems (MCS)**

- UW–Whitewater

The MCS program at UW–Whitewater targets

*information systems professionals who already possess a strong base of technical knowledge and either need more advanced technical material and/or need to understand the managerial issues associated with technology they are developing and using.*<sup>2</sup>

The UW–Parkside MSCIS program has such students as its secondary audience, but the primary focus of the MSCIS program is to *develop* a strong base of technical knowledge for students who have technical aptitude but little formal technical education or experience. Moreover, UW–Whitewater’s MCS classes are offered in Waukesha. For part-time students, the service areas of these two programs do not significantly overlap.

### 3.2 Comparable Programs Outside Wisconsin

Comparable Master’s programs in CIS or IS are available outside Wisconsin, but for part-time students, their service areas generally do not overlap that of UW–Parkside.

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<sup>2</sup><http://www.uww.edu/gradstudies/catalog2000/mcs.htm>

DePaul University has a large graduate population in their School of Computer Science, Telecommunications, and Information Systems (CTI) and offers several graduate programs in technical areas. Residents of southeastern Wisconsin and the Lake County area of Illinois find it more convenient to take classes at UW–Parkside than to commute to downtown Chicago for classes at DePaul. DePaul offers a small number of their CTI courses at non-loop campuses. In particular, DePaul’s Lake Forest and Waukegan satellite campuses are accessible to students in the UW–Parkside service area, but few DePaul courses in the CTI school are offered at these campuses that would transfer into UW–Parkside’s MSCIS program, and it appears that it would be impossible to complete a Master’s degree comparable to the MSCIS degree at these satellite campuses.

### 3.3 Regional, State and National Needs

The Stamats study, referred to earlier, gives regional credence to the growing need for computer and information systems professionals. The number of graduates from the existing Wisconsin programs listed in section 3.1 is growing, but all institutions report that the demand in the foreseeable future will exceed the number of graduates of these programs nationally.

The Stamats study reported that, in telephone interviews with 400 adults, the availability of a Master’s degree was the top degree need (53%). These 400 adults also identified *Computer and Information Systems* as their top degree choice.

According to the United States Bureau of Labor Statistics (BLS), information technology specialists – including database administrators, computer support specialists, computer engineers, and systems analysts – has the *fastest projected national employment growth rate among all employment categories* in the period from 1998 to 2008<sup>3</sup>.

*Employment of programmers is expected to grow faster than the average for all occupations through 2008. Jobs for both systems and applications programmers should be plentiful in data processing service firms, software houses, and computer consulting businesses.*<sup>4</sup>

The BLS goes on to project that

*employers will continue to need programmers with strong technical skills who understand an employer’s business and its programming needs. Given the importance of networking and the expansion of client/server environments, organizations will look for programmers who can support data communications and help implement electronic commerce and intranet strategies. Prospects should be best*

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<sup>3</sup><http://stats.bls.gov/news.release/ecopro.t03.htm>

<sup>4</sup><http://stats.bls.gov/oco/ocos110.htm>

*for college graduates with knowledge of, and experience working with, a variety of programming languages and tools—including C++ and other object-oriented languages like Visual Basic and Java, as well as newer, domain-specific languages that apply to computer networking, data base management, and Internet application development. Because demand fluctuates with employers' needs, job seekers should keep up to date with the latest skills and technologies.*

### 3.4 Student Demand—Future Enrollment

At least half of the requests for information the Department of CS receives come from prospective students who already have a bachelor's degree and who wish to retrain in information technology. Many of these prospective students also have little or no technical preparation, and the vast majority of them work full time. They are looking for an academic program that is available to them as part-time students and that will lead them to gaining professional credentials in information technology. Such students are prime candidates for our MSCIS program. They can gain appropriate background through accelerated prerequisite courses and can complete all degree requirements in three years as part-time students taking classes in the evening. Those who have some technical background can complete the requirements in two years.

Assuming a full implementation beginning Fall 2001, we *conservatively* estimate the following enrollments and number of degrees granted for five years. We predict a 25% attrition rate from year one to year two, and a 10% attrition rate from year two to graduation.

<b>Academic Year</b>	<b>Entering</b>	<b>Total</b>	<b>Graduating</b>
2001-2002	12	12	0
2002-2003	16	24	8
2003-2004	18	30	11
2004-2005	20	34	12
2005-2006	20	35	13

These tables do not reflect enrollments in prerequisite classes for students who need such preparation.

### 3.5 Collaborative or Alternative Program Exploration

We are collaborating with UW–Whitewater to explore ways in which we can contribute to each other's graduate offerings and to improve our combined ability to offer flexible and high-quality graduate programming.

## 4 Program Description and Evaluation

### 4.1 Objectives

The objectives of the MSCIS program are to increase the supply of high quality information technology professionals in the region and to contribute to the professional advancement of our region's information technology workforce.

The MSCIS program targets two populations of prospective students:

- those who have undergraduate degrees in non-technical fields and who wish to gain credentials as information technology professionals, and
- those who have undergraduate degrees with preparation in technical fields – including those with degrees in CS or MIS – and who wish to advance themselves technically and professionally

### 4.2 Curriculum

A joint committee of the Association for Computing Machinery and the Association for Information Systems recently designed a model curriculum for a Master of Science in Information Systems, **MSIS2000**. Our MSCIS program broadly succeeds in meeting the curricular building blocks of MSIS2000. In particular, our program includes the *foundations* of mathematics and programming necessary to be successful in the curriculum. It has a *core* of primary courses, including data management; analysis, modeling, and design; data communications and networking; project and change management; and Information Systems policy and strategy. It *integrates* core concepts through project courses and an enterprise viewpoint. Our chosen *career track* emphasizes technical applications including web programming and technical electives.

#### 4.2.1 Curriculum snapshot

The MSCIS program will consist of 30 credits, plus additional credits necessary to cover prerequisite requirements. A GPA of 3.0 in all non-prerequisite courses will be required for graduation. The following courses will comprise the MSCIS curriculum. Summary course descriptions appear following this snapshot.

- **Prerequisites (0–15 credits, depending on background):**
  - MATH 142 – Calculus with Business and Social Science Applications, or  
MATH 221 – Calculus and Analytical Geometry

- CSCI 547 – Programming and Data Structures
- CSCI 548 – Algorithms and Programming Languages
- **Foundations (9 credits):**
  - CSCI 675 – Software Engineering Principles and Practice, or  
MIS 525 – Systems Analysis and Design
  - CSCI 580 – Files and Databases, or  
MIS 528 – Database Management Systems
  - CSCI 677 – Computer Communications and Networks, or  
MIS 624 – Business Data Communications
- **CIS Core (18 credits):**
  - MIS 710 – Enterprise Computing
  - CSCI 790 – Special Topics in CIS
  - CSCI 780 – Advanced Databases
  - MIS 735 – Information Systems Policy and Strategy
  - CSCI 745 – Web Programming
  - MIS 775 – Software Engineering/Project Management
- **Elective (3–4 credits) – One course from the following:**
  - CSCI 605 – Artificial Intelligence
  - CSCI 609 – Introduction to Human-Computer Interfaces
  - CSCI 640 – Compiler Design and Implementation
  - CSCI 644 – Event-Driven Programming
  - MIS 655 – Information Technology in Business Process Improvement

Students who do not have an undergraduate CS or MIS degree must complete at least one CSCI course and one MIS course in the Foundations section.

A student with an undergraduate CS degree must complete all three MIS courses in the Foundations section, and a student with an undergraduate MIS degree must complete all three CSCI courses in the Foundations section. Such students may, at the discretion of the Steering Committee, substitute one Foundations course with a technical elective.

#### 4.2.2 Course Descriptions

*Prerequisite courses:*

- **CSCI 547 – Programming and Data Structures – 5 cr. (*New course*)**

Essentials of programming in a high-level object-oriented language, including data management and control structures, inheritance and polymorphism, elementary data structures, sorting and searching, introduction to algorithm analysis. Laboratory work included.

*Prereq: MATH 142 or MATH 221*

- **CSCI 548 – Algorithms and Programming Languages – 5 cr. (*New course*)**

Nonlinear data structures and search strategies, concurrent programming, design patterns, language taxonomy, name-value bindings and scoping. Laboratory work included.

*Prereq: CSCI 547*

### *Foundations:*

- **CSCI 675 – Software Engineering Principles and Practice – 3 cr. (*concurrent with CSCI 475*)**

Software development as an engineering discipline; project management, verification and validation, software engineering models, measurements, cost estimation, formal methods.

*Prereq: CSCI 548 or cons. instr.*

- **MIS 525 – Systems Analysis and Design – 3 cr. (*concurrent with MIS 425*)**

System development using the life cycle, rapid application development, prototyping, software acquisition, structured and object-oriented techniques and project management

*Prereq: CSCI 548 or cons. instr.*

- **CSCI 580 – Files and Databases – 4 cr. (*concurrent with CSCI 380*)**

The relational model, database design, SQL, non-relational database models, operational considerations, distributed and object-oriented databases

*Prereq: CSCI 548 or cons. instr.*

- **MIS 528 – Database Management Systems – 3 cr. (*concurrent with MIS 328*)**

Data modeling techniques, including object-oriented modeling, database systems concepts, use of structured query language for information processing, client/server architecture, distributed databases

*Prereq: CSCI 548 or cons. instr.*

- **CSCI 677 – Computer Communications and Networks 3 cr. (*concurrent with CSCI 477*)**

Transmission protocols, layered network protocols, network topology, message routing, performance analysis, security, case studies.

*Prereq: cons. instr.*

- **MIS 624 – Business Data Communications – 3 cr. (*concurrent with MIS 424*)**

Fundamental principles of data communication, analysis and design of computer communication networks ranging from LAN to global networks, state-of-the-art communication technology, network monitoring and management, network security and audit, legal and human side of data communication

*Prereq: CSCI 548 or cons. instr.*

### *CIS Core*

- **MIS 710 – Enterprise Computing – 3 cr. (*New course*)**

Introduction to distributed component architectures, integrating diverse applications within distributed heterogeneous environments, and mechanisms for inter-process communication in distributed systems. This course will involve significant project work.

*Prereq: CSCI 548 or cons. instr.*

- **CSCI 790 – Special Topics in CIS – 3 cr. (*New course*)**

In-depth study of new and/or special-interest subject areas within the discipline. Subject selection will vary from offering to offering.

*Prereq: cons. instr.*

- **CSCI 780 – Advanced Databases – 3 cr. (*New course*)**

Study of database operations and applications. Topics may include: physical database design, data warehousing and mining, transactions, concurrency control, recovery, decision support systems, query optimization, data security, and parallel/distributed system architectures.

*Prereq: CSCI 580 or MIS 528*

- **MIS 735 – Information Systems Policy and Strategy – 3 cr. (*New course*)**

The management of Information Technology (IT) and Information Systems (IS) from the perspective of upper management and the Chief Information Officer, covering IT strategic planning, IS organizational structures, human resource planning, and control structures. Includes lectures, cases, executive presentations, and student projects.

*Prereq: cons. instr.*

- **CSCI 745 – Web Programming – 3 cr. (*New course*)**

The essentials of developing client/server applications for the web, including designing and programming applications client-side markup languages and scripting, applets, client/server communication, server-side applications, distributed components, and database connectivity.

*Prereq: CSCI 548 or cons. instr.*

- **MIS 775 – Software Engineering/Project Management – 3 cr. (*New course*)**

Aspects of software development from an engineering perspective, including software development models, team organization and management, implementation strategies, software testing and verification, and project cost estimation. Students experience design and development strategies through implementation of a significant team-based project.

*Prereq: CSCI 675 or MIS 525*

### *Electives*

The following is a representative list of electives. An MSCIS student will be required to take one elective to satisfy degree requirements. Electives will be added to this list as they are developed.

- **CSCI 605 – Artificial Intelligence – 3 cr. (*concurrent with CSCI 405*)**

Background on AI and AI techniques including search, game playing, and knowledge representation. Specific sub-disciplines of AI, including natural language processing and robotics

*Prereq: cons. instr.*

- **CSCI 609 – Introduction to Human-Computer Interfaces 3 cr. (*concurrent with CSCI 409*)**

An introduction to the field of human-computer interaction including the user interface development process, human memory, perception, and motor abilities as they relate to user interface design. Qualitative overview of descriptive and inferential statistics. Students design a low-tech prototype of a user interface (user and task analysis, design, and evaluation)

*Prereq: cons. instr.*

- **CSCI 640 – Compiler Design and Implementation 3 cr. (*concurrent with CSCI 440*)**

Theory, design and implementation of compilers and other syntax-directed systems. Applies techniques of finite state machines, lexical analysis, symbol tables, parsing, storage allocation and code generation to the development of a compiler. Laboratory work included.

*Prereq: cons. instr.*

- **CSCI 644 – Event-Driven Programming 3 cr. (*concurrent with CSCI 444*)**

Origins of events; the event-driven programming model; interrupt processing as event handling; client-server architectures; windowing environments and GUI programming; development support software: case studies; student project

*Prereq: cons. instr.*

- **MIS 655 – Information Technology in Business Process Improvement 3 cr. (*New course*)**

Cost reduction, service improvements, supply chain management, and time-to-product speedups through information technology; business process improvement (BPI) methodologies; analysis, modeling, and redesign of a system;

### 4.2.3 Entrance Requirements

Admission into the MSCIS program will be based on meeting all of the following criteria:

- Bachelor of Arts or Bachelor of Science from an accredited institution
- Minimum undergraduate grade point average (UGPA) of 3.0 on a 4.0 scale.
- Completion of the prerequisite courses (or their equivalents): MATH 142 or 221, CSCI 547, CSCI 548. Students with an undergraduate degree in CS or MIS are waived from this requirement.
- Submission of GMAT (Graduate Management Admission Test) or GRE (Graduate Record Examination) exam scores. The GMAT score +  $200 \times \text{UGPA}$  must exceed 1000, or the GRE General Aptitude score must exceed 800.
- Submission of a letter of application outlining professional goals.
- Receipt of three letters of recommendation indicating promise for success in graduate studies and the information technology profession.

A student with minor deficiencies in any of these areas may be granted conditional acceptance into the program at the discretion of the Steering Committee. In particular, the Steering Committee will encourage conditional acceptance of promising minority/disadvantaged students who have minor deficiencies but who show a strong motivation to succeed.

#### 4.2.4 Frequency of Offering and Time to Degree

Students will normally enter the MSCIS program in Fall Semester and can complete the degree requirements in two years of part-time study. They will progress through the program in lock-step peer groups consisting of those who begin the program together. Students needing prerequisite courses will need up to one additional year of part-time study, depending on the entering level of preparation, before formally entering the program.

All courses required in the MSCIS program will be offered in the evening, after 6:00pm.

The six CIS core courses will be offered in rotation over a two-year period, as indicated here:

MIS 710    Fall 2001, 2003, 2005, ...  
 CSCI 790   Spring 2002, 2004, 2006, ...  
 CSCI 780   Summer 2002, 2004, 2006, ...  
 MIS 735    Fall 2002, 2004, 2006, ...  
 CSCI 745   Spring 2003, 2005, 2007, ...  
 MIS 775    Summer 2003, 2005, 2007, ...

A proposed schedule of class offerings through Summer 2006 appears as follows:

Semester	F01	S02	SS	F02	S03	SS	F03	S04	SS	F04	S05	SS	F05	S06	SS
MTH 142 <sup>5</sup>	B			C			D			E			F		
CS 547		B			C			D			E			F	
CS 548			B			C			D			E			F
CS 580 <sup>5</sup>	A						BC						DE		
CS 677 <sup>5</sup>		A			B			C			D			E	
CS 675 <sup>5</sup>				AB						CD					
MIS 710	A						BC						DE		
CS 790		A						BC						DE	
CS 780			A						BC						DE
MIS 735				AB						CD					
CS 745					AB						CD				
MIS 775						AB						CD			
Elective					A			B			C			D	

Each letter in the above table represents a peer group of students going through the program. For example, in the first academic year the “A” peer group takes CS 580 and MIS 710 in Fall 2001, CS 677 and CS 790 in Spring 2002, and CS 780 in Summer 2002. In the second academic year the “A” peer group takes CS 675 and MIS 735 in Fall 2002, CS 745 and an elective in Spring 2003, and finally MIS 775 in Summer 2003.

The “B” peer group is illustrated taking prerequisite courses in Fall 2001 through Summer 2002 and then starting the foundation and core program in Fall 2002. Students in this peer group who do not need prerequisite courses would start their foundation and core program in Fall 2002.

<sup>5</sup>See section 4.2.1 for alternative courses that meet the same requirement

#### 4.2.5 Staffing Requirements

In steady-state, the additional resources necessary to staff this program are one 3-credit course in Fall Semesters, one 5-credit (6 contact hours) and one 3-credit course in Spring Semesters, and one 5-credit (6 contact hours) and one 3-credit course in Summer Semesters. Assuming a teaching load of 9 hours for graduate faculty, this amounts to a full-time equivalent of 21 hours, or 1.17 FTE.

The program Coordinator will have further responsibility for recruitment, admissions, advising, and assessment, which amounts to an additional 0.33 FTE.

In sum, the additional faculty needed to staff the program will be 1.5 FTE.

### 4.3 Interrelationship with Other Curricula

Core and elective courses in the MSCIS curriculum will meet concurrently with upper-level undergraduate courses in CS and MIS at UW–Parkside. Graduate students in these courses will be expected to complete written and project work in addition to the work expected of undergraduate students in the same courses. These courses are indicated in section 4.2.2.

### 4.4 Method of Assessment or Evaluation

The Steering Committee will meet annually to assess the success of the MSCIS program in meeting its objectives and to establish strategies for program improvement using the following sources of information and feedback:

- **Student Evaluations** will be conducted at the end of each course, using standard evaluation forms along with additional questions appropriate to courses in the MSCIS program. We will use these evaluations to determine if there are weaknesses that we can address quickly and to identify strengths that we can capitalize on.
- **Advisory Panel** input will be obtained during annual meetings with the department. We will distribute MSCIS program statistics such as curriculum information, number of graduates, and employment data to Advisory Panel members for their review and feedback. We will ask for detailed assessments from those Advisory Panel members who hire our MSCIS graduates.
- **Exit Interviews** will be conducted for all students who leave the program. We seek to determine factors that contribute to a student leaving the program prior to finishing a degree and to address these factors towards maximizing our students' likelihood of success. For those who finish the degree, we seek to determine how the MSCIS program

meets their expectations and contributes to achieving their professional goals. Non-MSGIS faculty will conduct the exit interviews to ensure candor on the part of the interviewees.

- **Alumni Surveys** will be sent to MISCIS degree recipients one and two years after graduation. These surveys will measure longer term satisfaction with the degree program and the extent to which the degree prepares graduates for successful careers in information technology.

## 4.5 Accreditation Requirement

This program will not be subject to accreditation review.

## 4.6 Strengths or Unique Features

- The MISCIS program will accept students having strong technical aptitude but with undergraduate degrees in non-technical areas. Special prerequisite courses will give them the necessary background to complete the MISCIS degree requirements and to become productive information technology professionals.
- The MISCIS program will produce graduates who have strong technical knowledge, practical hands-on experience, the ability to work collaboratively and effectively, and a proven commitment to their success as information technology professionals.
- All MISCIS requirements can be met through part-time study, with courses offered in the evening.
- MISCIS students will take classes as peer groups, with the same student population taking courses together throughout an academic year. Peer groups will help to develop a community of learning that contributes to a sense of common purpose and facilitates problem solving.
- UW–Parkside is located geographically in the center of a major business and industrial corridor that has significant demand for employees in information technology. The proximity of the business community to UW–Parkside affords excellent opportunities for collaboration on information technology projects of mutual interest.
- A high proportion of UW–Parkside CS and MIS graduates work in our service region. They are enthusiastic ambassadors for our programs and a good source of inside tracks to employment in information technology.
- The Department of Computer Science has an energetic and supportive Advisory Panel that will help to promote and evaluate the MISCIS program.

- The faculty participating in the MSCIS program have strong ties to the business community in our region. These ties will make it possible for our MSCIS students to undertake projects that are practical and that make use of current technology. A specific example of business/university involvement is our Information Technology Practice Center partnership with Harley-Davidson, Johnson Wax Professional, and Snap-on Tools.
- The CS department has obtained significant federal funding to support its efforts to attract and retain women in CS. The MSCIS program will build upon these successes to recruit and retain a diverse student body.
- The MSCIS program has the strong support of the UW–Parkside faculty and administration and strong interest by prospective students.
- The required **Special Topics in CIS** course will give students and faculty the opportunity to study late-breaking information technology innovations and practices that would not ordinarily be included in other, more structured courses.
- The MSCIS Steering Committee, in consultation with the CS Advisory Panel and ITPC business partners, will conduct yearly reviews and revisions of its curriculum to ensure that the curriculum is consistent with current practices and that it contributes to meeting the needs of the business community.

## 4.7 Career Advising

The UW–Parkside Career Center is actively involved with the department in identifying and advertising employment opportunities, setting up on-campus employer interview schedules, acting as a clearinghouse for internships and other part-time opportunities, and helping students to prepare effective resumes.

## 4.8 Outreach

MSCIS faculty will continue to collaborate with the business community in our region on projects of mutual interest and value, especially those which involve students in the MSCIS program.

UW–Parkside is a partner in the **Information Technology Practice Center** (ITPC), a joint venture with Harley-Davidson, Johnson Wax Professional, and Snap-on Tools. This partnership affords opportunities for MSCIS students and faculty to work on special projects that have immediate applicability and that have long-term importance to our ITPC partners.

The UW–Parkside Center for Community Based Learning (CBL) serves to facilitate faculty and student participation in community based projects. Capitalizing on CS and MIS faculty and undergraduate involvement in such projects in the past, the MSCIS program will work

with the CBL to identify community based projects that can benefit from involvement by MSCIS students and faculty.

## **4.9 Integration of Technology**

Since this program will produce information technology professionals, technology will be integrated throughout.

### **4.10 Distance Education**

Students may meet program requirements by taking appropriate distance education courses offered by other institutions. These courses are available in a variety of formats, from videotape to compressed video.

The Steering Committee will identify and evaluate acceptable distance education courses that can meet MSCIS program requirements, and will accept up to six credits of distance education courses for this purpose.

Many of our MSCIS courses will involve significant project work to be carried out in teams and which will involve face-to-face contacts with personnel in a client company in our service area. Such projects are difficult to carry out in a distance education format.

### **4.11 Diversity**

The Department of CS has a proven commitment to recruiting and retaining a diverse student body. We have successfully obtained National Science Foundation funding for two major projects relating to increasing the percentage of women who complete the CS degree and achieve successful careers in information technology.

One project, completed in 1999, resulted in building our CS Laboratory. The purpose of this project was to develop a safe and comfortable working environment that promotes collaboration and teamwork and that gives realistic and attainable role models to women in our program. Our project goals, which this laboratory has helped us to achieve, are to attract women into our program, to retain them as CS majors, and to see them through graduation to obtain successful professional careers.

A second funded project, just underway, is a research study on the barriers to women pursuing information technology careers. We hope that the results of this study will give us additional insights into how to develop strategies that can minimize these barriers and increase the percentage of women who achieve successful careers in information technology. We believe that many of these strategies will help to increase the overall diversity of our student population.

These two projects indicate our department's commitment to promoting the participation of women in information technology, a significantly underrepresented population. We will further target other underrepresented populations, particularly racial/ethnic groups, for attention in our undergraduate and MSCIS programs. In particular, we will undertake appropriate initiatives in UW–Parkside's Plan 2008 to “close the gap in educational achievement” by

- developing strategies such as structured advising to improve the retention and graduation rates of students of color;
- capitalizing on our peer groups and formalizing a mentoring program using UW–Parkside racial/ethnic faculty and staff;
- participating in graduate and professional school recruitment fairs conducted by the Career Center; and
- working with the Advising Center, the Career Center, and the Office of Multicultural Affairs as they develop strategies to assist students of color in making major/career decisions, and incorporating these strategies into our own strategic plan.

UW–Parkside has renewed Housing and Urban Development (HUD) grant funding that forges university/neighborhood alliances to improve the employment prospects of racial/ethnic groups. We will work with the directors of the HUD project to promote our MSCIS program in targeted neighborhoods and to enhance the likelihood of success of those we recruit.

## 5 Personnel

### 5.1 Faculty Participating Directly in the Program

Faculty directly involved in the MSCIS program will consist of:

- **Computer Science Faculty:**
  - Timothy Fossum, Professor and department chair
  - Susan Haller, Associate Professor
  - Stuart Hansen, Associate Professor
  - Lester McCann, Associate Professor
- **Management Information Systems Faculty:**
  - Dirk Baldwin, Associate Professor
  - Stephen Hawk, Associate Professor

## **5.2 Advisory Faculty**

Sue Norton, the chair of the Department of Business, will have a role in scheduling arrangements between the Departments of Business and Computer Science.

## **5.3 Additional Faculty Requirements**

An additional 1.5 faculty FTE will be required to staff the additional courses required in the program, to recruit students, to process admissions, to carry out graduate student advising, and to coordinate assessment activities.

## **5.4 Academic Staff**

The Department of Computer Science has a full-time system administrator to maintain faculty and laboratory computing and network resources. This individual will need support for attending workshops and training on software necessary to support the MSCIS program.

## **5.5 Classified Staff**

The Department of Computer Science and the Department of Business have classified staff sufficient to support the MSCIS program.

# **6 Academic Support Services**

## **6.1 Library Resources**

Information Services provides library resources and computing infrastructure to support campus programs. We do not anticipate a need for significant additional resources from them.

## **6.2 Additional Support Services**

Information Services also provides the campus distance education infrastructure. When distance education delivery and/or reception is required, these facilities will be available.

## **7 Facilities and Equipment**

### **7.1 Capital Resources**

Each faculty member in the MSCIS program has a desktop PC. Additional software on faculty systems will be required to support MSCIS-related instruction and projects.

The Computer Science Laboratory has 20 PCs and two servers for undergraduate student use. These systems will also serve the prerequisite MSCIS courses as well as some of the core courses and electives.

A laboratory of twelve PCs and two servers dedicated to use by MSCIS students will be required to provide special-purpose software and servers in support of courses and project work in the MSCIS curriculum. Space in Molinaro Hall will be needed to house these systems and servers, with connectivity to CS and campus networks. Miscellaneous other CS and MIS computing resources will be used as appropriate to support the curriculum. We will seek contributions from the business community in our region to support this laboratory and to provide other hardware and software resources specific to MSCIS-related projects undertaken with them.

### **7.2 Capital Budget Needs**

No additional capital resources are requested for this program.

### **7.3 Clinical Facilities**

No clinical facilities are required in this program.

## **8 Finance**

### **8.1 Operating Budget Requirements**

### **8.2 Operating Budget – Supplies and Expense Requirements**

### **8.3 Operating Budget Reallocation**

### **8.4 Extramural Research Support**

No extramural research funding is expected in support of this program.