PROPOSAL TO CHANGE THE ACADEMIC MASTER PLAN

Proposed Name of Degree: Master of Science in Computer Science

Faculty Proposing New Program: William Wolfe, Peter Smith, Ivona Grzegorczyk, Jorge Garcia, Jesse Elliot, Geoff Dougherty

Review and Approval:

Date of Proposal: ___Nov 1,03__(Updated 9/27/04)_____

Date of Faculty Meeting: ___Spring 04_____

Date of Consultation with Academic Affairs: _____Spring 04_____

1. Curriculum Committee Approval:

Curriculum Chair: _____ Date: _____

2. Academic Senate Approval:

Chair, Academic Senate: _____ Date: _____

3. Administration Approval:

President (or designee): _____ Date: _____

1. Definition of the Proposed Degree Major Program

a. Name of the proposed degree major program, and academic year of intended implementation.

California State University Channel Islands

Master of Science in Computer Science

Sponsored by the Office of Extended Education, Academic Affairs.

Intended Implementation: Fall 2005.

Note: This Masters Program in Computer Science is intended to be tightly coordinated with the Masters Program in Mathematics currently being proposed. The Computer Science and Mathematics faculty view a comprehensive mix of mathematics and computer science courses to be beneficial to the graduate students in these areas and consistent with CSUCI's interdisciplinary mission. Students will be encouraged to select from several courses in both mathematics and computer science, with the guidance of an advisor in their area of specialization.

b. Name of the department, departments, division or other unit of the campus that would offer the proposed degree major program. Identify the unit that will have primary responsibility.

Computer Science Program.

c. Name, title, and rank of the individual(s) primarily responsible for drafting the proposed degree major program.

William Wolfe, Professor of Computer Science
Peter Smith, Professor of Computer Science
Ivona Grzegorczyk, Professor of Mathematics
Jorge Garcia, Assistant Professor of Mathematics
Jesse Elliot, Assistant Professor of Mathematics
Geoff Dougherty. Professor of Physics

d. Objectives of the proposed degree major program.

General Objectives:
Provide students an opportunity to earn a Masters degree in Computer Science from the California State University.

Prepare students for employment in professional/high-technology industry, including software designer, scientific programmer, and programming analyst, with applications to the sciences, finance, business, education, military and local and federal government.

Prepare students for further study in graduate or professional schools.

Equip students with design, analytical, and programming skills that apply to variety of fields and offer various career opportunities, including consulting, scientific and technical positions in business and industry, research and development, national and industrial security or teaching positions.

Offer all CSUCI students the opportunity to broaden their knowledge and learn computational skills and computer technology that can be applied to various professional and personal situations.

Learning Objectives:

Students will:

1. Demonstrate critical thinking, problem solving, and advanced computational skills by identifying, evaluating, analyzing, synthesizing and presenting fundamental and advanced mathematical and computer science issues and their applications.

2. Demonstrate the knowledge of current computing practices and broad technology use in industry and education, including a working knowledge of software development techniques in various settings.

Be knowledgeable of emerging new technologies and industrial practices connected to the computer industry and demonstrate understanding of computing technologies in society.

Demonstrate cooperation skills by working effectively with others in interdisciplinary group settings – both inside and outside the classroom.

Demonstrate independent working and thinking skills by completing a graduate project and/or master thesis.

Demonstrate a sense of exploration that enables them to pursue rewarding careers in high-tech industries, bio-tech industries, finance, businesses, education systems, military and local and federal government

Demonstrate flexibility, transferability and adaptability of their life-learning skills that are so important n fast changing national and international economy.

2. Justification for the Proposed Degree Major Program

a. List of other California State University campuses currently offering or projecting the proposed degree major program; list of neighboring institutions, public and private, currently offering the proposed degree major program.

Most other CSU campuses offer a Master of Science in Computer Science. However, the demand for graduate work in computer science is very high in our region. For example, students working at the Point Mugu and Port Hueneme Military bases have to travel to CSU Northridge or UCSB to get an equivalent program. It is worth noting that CSUN's

computer science program is currently "impacted", so they are not planning to accommodate student demand.

b. Differences between the proposed program and programs listed in Section 2a above.

Our Masters Program in Computer Science will have a tighter connection with the mathematics program than most equivalent programs in the CSU. This degree program is intended to foster a strong relationship between the computer skills typical of a traditional MS and the analytical skills typical of a higher degree in mathematics. It will also encourage a strong interaction between Mathematics and Computer Science faculty. As a result, there will be a lot of overlap and interaction between graduate mathematics and graduate computer science students.

The program provides local industry related projects and internships with the local high–tech companies. (We have good relationships with several companies, and our undergraduate students are already placed in internship positions).

c. Professional uses of the proposed degree major program.

The Master of Science in Computer Science will prepare students for a variety of computational, statistical, data management industrial positions and college teaching professions. The degree would also prepare students for further graduate education in computer science.

d. Community/Regional/Statewide need for the proposed program.

Due to the rapid growth of information sciences based industries nationally and locally, there is a tremendous need for people with advanced technological and computational degrees. Many new positions will need to be filled within the next 5 years, with far more anticipated needs for the coming decade. By federal national estimates, in the next decade the number of mathematics and CS related industries will be the fastest growing sector in US economy, especially in the technology-oriented state of California.

Current national security needs created many state and federally funded positions for people with graduate computational degrees.

Locally, CSUCI is located in the center of the high-tech corridor in the Ventura County and near several military bases, that have high need for employees with advanced computational skills. Due to the high cost of living in Ventura County, the companies are looking for local talents with graduate degrees.

Regionally, CSUCI is one of the CSU campuses within Southern California, which has the largest clusters of high-tech, military and national security services. All high-tech companies are experiencing a severe shortage of people with computational skills, including this region.

The program is interdisciplinary in nature and will strengthen and enhance offerings of all existing programs. Due to the strong background in computer science and mathematics our graduates will be able to fill positions related to information sciences and data management.

Both Mathematics and CS programs have students already planning to enroll in the proposed graduate program once it is open. This includes our own graduates and professionals from local industries.

The program is expected to generate outside funding in the form of grants and contracts, hence bringing additional resources to the university.

The program is very timely and intellectually inspiring for faculty members and the local community interested in new research areas. The program will bring prestige and recognition to CSUCI locally and nationally.

e. The expected number of majors in the year of initiation and three years and five years thereafter. The expected number of graduates in the year of initiation and three years and five years thereafter.

	Number of Majors*	Number of Graduates*
Initiation Year	20	0
Third year	40	30
Fifth year	100	80

•from CSU Channel Islands Enrollments Models

3. Resources Needs for the Proposed Degree Major Program (faculty, instructional, library, other)

a. Existing.

There is no immediate need for labs or unusual space requirements. Since this MS in CS will be offered via the Office of Extended Education, any plans for labs, library resources, and classroom space will be negotiated and paid for by that office.

b. Future.

Through the Office of Extended Education, we anticipate hiring additional faculty members to assist in offering the courses. Additional part-time faculty also will be hired. Any additional library resources will be required and paid for through the Office of Extended Education .