Preliminary Proposal for a Computer Science Minor

a) The minor in computer science will provide a solid foundation in computer science for students in other disciplines. Students will have an opportunity to participate in an independent study project that will apply computing principles to their major field. Students who complete the minor will gain understanding of the basic principles of computer science and how to apply them.

Currently the National Science Foundation, through their CPATH (CISE Pathways to revitalized Computer Science Education) is encouraging Computer Science departments to investigate ways to "transform computing-related programs in order to better serve the nation's workforce, improve our global competitiveness, and engage students in relevant experiences. While creative recruiting activities may attract more students to the field, it is not increases in enrollment we seek but the creation of new, exciting, pertinent, inter/multi/trans/disciplinary programs and activities that appeal to potential students and draw from a broad range of disciplines." We feel that this new minor program accomplishes these goals.

The program consists of the following 4 fundamental courses:

CIS1068 (old CIS67) Program Design and Abstraction
CIS1166 (old CIS66) Mathematical Concepts in Computing I
CIS2107 (old CIS72) Computer Systems and Low Level programming
CIS2168 (old CIS68) Data Structures

The recommended fifth course is the following:

An independent study course CIS4282 (old CIS398) consisting of a project relating to the student's major. Students will be required to submit a substantial paper describing their project. Registration for the independent study course requires approval by the Computer Science program director. A requirement will be that the student have a faculty sponsor in both CIS and his/her major department.

In place of the independent study a student may choose to take a Computer Science course at the 2000 level or above. Examples of candidate courses are

CIS2166 (old CIS166) Mathematical Concepts in Computing II
CIS3203 (old CIS203) Introduction to Artificial Intelligence
CIS3207 (old CIS207) Introduction to Systems Programming and Operating Systems
CIS3211 (old CIS211) Automata, Computability, and Languages
CIS3219 (old CIS220) Computer Graphics and Image Processing
CIS3223 (old CIS223) Data Structures and Algorithms
CIS3242 (old CIS242) Discrete Structures

b) Meeting the college's mission: "The mission of the College of Science and Technology is to seek academic excellence by providing outstanding instruction in the

sciences, and fostering scientific research of the highest quality. In pursuing its mission the College is committed to meeting the needs of a diverse student body, and is truly dedicated to the founding principles of Temple University in providing a superior education to the prepared student. . . .

Interdisciplinary degree programs, and independent research projects allow the student to explore scientific boundaries."

This program is interdisciplinary in nature and will, therefore, benefit students in a variety of disciplines who want a strong foundation in computer science. It should also enable well-qualified undergraduate students to participate in research projects in their major field that require computing skills or in ongoing interdisciplinary research projects in the Information Science and Technology Center.

c) This program will replace the existing minor in Computer Science which requires 7 courses (the first 4 courses in the new program plus 3 additional required CS courses). Most Temple students are not able to complete a minor program with 7 courses that are very different from courses in their major field. The new program also provides students with an opportunity to complete a project that applies computing to their major so it should be more relevant and desirable to Temple students.

There is also a minor in IS&T. Like its major program, the IS&T minor focuses more on applications and web programming rather than the fundamental concepts of Computer Science. It is oriented more towards the general student population whereas the minor in CS should appeal more to students with an interest and ability in mathematics, science, and engineering.

d) The program will be offered on main campus.

e) Many of Temple's students are interested in entering the work force upon graduation. Solid computing skills and completion of a computing project in their chosen field should help differentiate students with this minor from undergraduates without this background.

f) Many institutions offer minor programs in computer science. Most programs require a similar mix of 4 to 6 courses consisting of 3 or 4 required courses and 1 or 2 electives. The independent study project will differentiate this program from the others. A small sample of institutions selected by a Google search for Computer Science minor follows:

University of Virginia: 4 required courses, 2 electives
SUNY Plattsburgh: 4 required courses, 2 electives
Florida State University: 4 required courses
Washington University, Saint Louis: 3 required courses, 2 electives
New York University: 4 required courses
University of Colorado at Boulder: 2 required courses, 3 electives
University of Illinois at Urbana – Champaign: 3 required courses, 3 electives

g) We estimate approximately 10 to 20 students will be in the program during the first year of operation.

h) No additional faculty or other resources will be required