A Proposal from Computer Science to Computation Advisory Committee

I. Cover Page

A. The Undergraduate Project Laboratory

B. An innovative proposal with student involvement

C. Department of Computer Science

D. College of Liberal Arts and Sciences

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   Xiaoqiu Huang (faculty):
   Carl Chang (chair, computer science):

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II. Project Overview and Expected Benefit

We will develop an undergraduate project laboratory (UPL) to foster learning and development of information technology by students from information technology and students from any application area. The UPL lab will be run by undergraduate students for undergraduate students from any discipline on campus. The UPL lab will be a facility for students to learn and apply information technology to problems from any application area. Our UPL lab will be developed by following the successful example of a UPL lab at University of Wisconsin (http://www.upl.cs.wisc.edu).

Students in the UPL lab will primarily work on software development for diverse application. Each software development project will be conducted by a team of two groups of undergraduate students: a group of undergraduate students with strong background in information technology and a group of students with strong background in an application area. Each project will be supervised by a faculty member in information technology and a faculty member in the application area. Example projects include: development of a web-based system for students to experience collaborative learning, development of a software package for analysis of DNA sequences, and development of a software package for automated control of a vehicle, etc.

Oftentimes student groups from elsewhere on campus approach computer science to request lab time and space to facilitate their activities, such as small programming workshops, tutorials, and computer games programming club (very active). Limited by available resource, computer science may not always be able to accommodate these requests without reducing the support of our own majors. UPL lab will provide resources for students from information technology to work with students from application areas in a more structured manner. Students with strong background in information technology will help students from application areas learn information technology, whereas students from an application area will help students from information technology understand real problems in the application area. The two groups of students will work together to develop a software package that uses information technology to solve a problem in the application area. Through the interactions between the two groups of students, the students will appreciate the significance of information technology and will be motivated to learn advanced topics in information technology and its applications. Successful projects from the UPL lab will be showcases for attracting students into undergraduate programs in information technology.

The Department of Computer Science will provide a room along with desks/chairs and Internet connections for the UPL lab. The room for housing the UPL lab will be next to the Department’s instructional computer facilities for cost efficiency in maintenance. We request that CAC provide funding for computer hardware to equip the room. The UPL lab will be run by volunteer undergraduate students from the ISU UPE chapter under the leadership of its board.

The UPL lab will be available for general student use 7 days a week and 10 hours a day. Assuming full funding is granted, it will hold 20 students during those hours. Students from any discipline can participate in activities in the UPL lab. The students will use open source software packages in their project so that any software package developed in the UPL lab will be available to the public as open source code. The Department currently has five computer rooms in Pearson Hall under renovation. Four of the five rooms will be instructional computer labs, and the other room will be used to house the UPL lab. The room number (symbolically designated as Room E) for the UPL lab will be available in the summer of 2006.
III. Support and Maintenance

The UPL lab will be supported by experienced volunteer students. For any task beyond the ability of the students, the Department will provide resources for the task.

IV. Budget

Table 1. Full Itemized Budget (Costs for the entire project)

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<th>Item</th>
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<th>Unit cost</th>
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<th>Computer Sci.</th>
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Table 2. Minimum Feasible Itemized Budget (Costs for minimum part of the project)

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