

DATE: January 27, 2005

SUBJECT: University of Tennessee Chattanooga - Change of focus from the Center of Excellence in Computer Applications to the Center of Excellence in Computational Engineering

ACTION RECOMMENDED: Approval

BACKGROUND INFORMATION: In 2003, the University of Tennessee Martin requested approval to terminate their Center of Excellence in Science and Mathematics Education that had been in operation since 1984. This request was made based on an internal assessment that found that the Center had accomplished its mission. UTM proposed a new emphasis to support the mission of the University. The new emphasis for a Center of Excellence in Experiential Learning in Agricultural Sciences was approved at the April Commission meeting.

During the time that the UTM proposal was being considered, staff was also preparing for the five-year review required for all Centers of Excellence. In the course of considering the criteria, review process, and efforts to align performance funding and master planning with institutional missions, it became apparent that this was a timely opportunity for Centers of Excellence to engage in an internal assessment to determine consistency with the guiding principles on which each was established: viability, quality, relevance, effectiveness of research, and the impact on student learning. During the 2004-2005 cycle, the five-year reviews are not being required. Centers of Excellence are to use this time as a window of opportunity for re-assessment for improvement or change.

An internal assessment of the Center of Excellence in Computer Applications that has been in operation at UTC for 20 years has occurred and the University is requesting approval to change the focus to Computational Engineering.

PROPOSED START-UP DATE: Upon approval

Commission staff has reviewed program proposals according to the academic standards adopted by the Commission on November 14, 2002. Each standard is referenced below.

MISSION: The proposed change of focus is consistent with the role and scope of the university and guiding principles for Centers of Excellence. “UTC is dedicated to the education of students: to providing quality education to a diverse population of students to...enlighten and discipline their minds and their preparation for ethical and active leadership in civic, cultural, and professional life.” UTC is committed to “utilizing its intellectual resources and

external partners to serve as a “national model of an engaged metropolitan university...”

JUSTIFICATION: The proposed new focus of the Center of Excellence in Computational Engineering will build on the Ph.D. in Computational Engineering that was approved in January 2004, and the Simulation Center established at UTC in 2001. The proposed Center builds upon the successful computational engineering initiatives at UTC. The objectives of the proposed new Center of Excellence are:

- To expand the demonstrated capability of the University in the area of Computational Science and Technology and to seed research and educational activities that broaden and expand the Center’s base of research expertise to attract new research funding.
- To increase the participation of additional faculty, graduate and undergraduate students in research efforts at the Center and where possible, assist in the recruitment of new faculty and students.
- To engage in activities directly or indirectly supportive of economic development initiatives to benefit Tennessee and create opportunities for new research.
- To seek appropriate opportunities for educational outreach activities that help to create awareness and stimulate interest in science and engineering among pre-college students.

FACULTY AND ORGANIZATIONAL STRUCTURE: The proposed center will be physically housed within the College of Engineering and Computer Science, and will be administered by the Director who will report to the UTC Chancellor. This reporting process is proposed to make it clear that the Center of Excellence is not restricted to any particular college, but is a campus-wide organization. The goal is to attract faculty from all the colleges who have an interest in and an ability to contribute and perform cutting edge research in the application of large scale computational methodologies to complex problems. The director and faculty will not be supported full-time by the Center. Most of the funds committed to the Center will provide direct support to active researchers, capable of soliciting and performing research, which either is, or can be supported by external awards.

SUPPORT RESOURCES: An external advisory board will be established to assure the relevance and quality of work supported by the Center.

RESEARCH FACILITIES AND EQUIPMENT: There are no additional infrastructure needs. The proposed Center will use, to the full extent possible, the 31,000 sq. ft. of renovated facilities that house the SimCenter, located adjacent to the UTC campus that will be available for education, research and high performance computing.

DUPLICATION: The present concept of an applied computational science and engineering center, building upon the existing extensive UTC expertise does not duplicate or conflict with any other Tennessee state sponsored higher education activity and is unique on a national scale. There are no other Centers of Excellence in Tennessee or concentrated strengths of research or education with similar goals and emphasis.

COOPERATIVE INSTITUTIONS: Linkages have been established with Oak Ridge National Labs (ORNL). SimCenter faculty and students currently access ORNL computers using high speed links to perform sponsored research for the Department of Energy.

ASSESSMENT/EVALUATION AND ACCREDITATION: An external Advisory Board will be formed to help guide the implementation of the proposed Center. The advisory Board will review the Center’s progress at regular intervals to assess the extent to which objectives are being met.

COST/BENEFIT/SOURCE: Funds requested to support the proposed new center (\$1.2 million) including the mandated UTC match of \$400,000, is the same level as prior years. The benefits for the proposed Center of Excellence in Computational Engineering are to provide:

- Highly educated graduates to help supply a high-technology work force skilled in computational technologies;
- Experts to provide an available computational technology knowledge base for new and existing businesses;
- Support for some specific targeted economic development opportunities and initiatives;
- Expansion of Tennessee’s high-technology research base;
- Intellectual capital to invigorate the technology based industries of the State; and
- Increased national and international stature and economic competitiveness.

Annual Benchmarks for Center Progress

	Year 1	Year 2	Year 3	Year 4	Year 5
Annual Center Funding	\$1.2M	\$1.2M	\$1.2M	\$1.2M	\$1.2M
New External Funding	0.5M	1.2M	2.4M	3.0M	3.6M
GS/UG Student Support*	12	14	16	16	16

*Graduate students will receive research assistantships and will engage in research integral to the Center objects. High achieving undergraduate students will also have part-time employment opportunities as research assistants.

POST APPROVAL MONITORING: Annual evaluations will be conducted on the operation of the proposed Center and the extent to which established benchmarks have been achieved. Evaluations will be based on individual users, the Advisory Council, and the Center Director. THEC requires annual fiscal reports and program reviews on a five-year cycle.