BACKGROUND AND REQUEST

OHIO UNIVERSITY
Doctor of Philosophy in Civil Engineering

EXECUTIVE SUMMARY/RECOMMENDATION

This program clearly meets Regents' standards for graduate degree programs. The Regents' Advisory Committee on Graduate Study voted approval for the new doctorate program. There were no serious concerns raised in the review.

Request: Ohio University's Russ College of Engineering and Technology's Department of Civil Engineering seeks approval for a Doctor of Philosophy in Civil Engineering degree.

Program Purpose/Mission: The proposed program is a collaboration between the Civil Engineering Departments at Ohio University and Case Western Reserve University. The goal of this collaboration is to support the creation of a Ph.D. program at Ohio University and to strengthen the existing Ph.D. program in Civil Engineering at Case Western Reserve University. The innovative program may provide a model for collaboration among other graduate programs in Ohio, and it will enhance the quality of education at both schools, while preventing duplication between the programs. It will more efficiently utilize state funding for higher education.

In today's global economy, American civil engineers often find themselves in direct competition with civil engineers from outside the U.S. In order to be competitive in such an unpredictable global market, technical competency is a must and can only be gained by attaining a doctoral degree. In order for the state of Ohio to move forward economically, the state will need Ph.D. graduates that will be able to solve and address problems related to the new emerging technologies of smart roads, smart structures, and nontraditional materials. These areas will require more than a Master of Science degree to solve the societal problems facing the state and the nation.

Collaboration will include electronic classroom delivery of Ph.D. level courses, on-site delivery of seminars by faculty from the two programs, advising of students by Ph.D. committees comprised of faculty from both institutions, submission of joint research proposals, joint work on externally funded projects, and sharing of research facilities. The two programs have devised a five year plan to bring the collaboration to full fruition, which would be the length of time for students entering the Ph.D. program to matriculate through the program. The existing Integrated Engineering Ph.D. program at Ohio University will be phased out in favor of the new Civil Engineering program.

Enrollments: With existing staffing levels, Ohio University's civil engineering faculty can realistically enroll about 30 Ph.D. students. Roughly half of these students would otherwise be enrolled in the Integrated Engineering Ph.D. program to be phased out. Currently, seven students are enrolled and supported in the geotechnical and environmental area of the Integrated Ph.D. program at Ohio University, and all would be enrolled in a Civil Engineering Ph.D. program if available. It is estimated that there will be 8 students for 2008/2009, 10 students for 2009/2010, 12 students for 2010/2011, 14 students for 2011/2012, and 15 students for 2012/2013.

Curriculum: Ninety credit hours are required beyond the M.S. level for a doctoral degree, 45 credit hours resulting from the dissertation and 45 credit hours from coursework. There are six proposed course offerings in Structural and Geotechnical/Materials Engineering that have been initially identified as the most likely to implement the collaboration agreement. At Ohio University, 500 level courses (graduate and undergraduate) and 600 level or above courses (graduate only) will be offered. At Case Western Reserve University, 400 level courses (graduate and undergraduate) and 500 level or above courses (graduate only) will be offered. Owing to the fact that the two collaborating institutions follow different academic calendars; quarters at Ohio University and semesters at Case Western Reserve University, credit-hour equivalencies will be developed to transfer credits from the host to the home institution of the graduate student. A mechanism to transfer credits from the semester to the quarter calendars or vice versa could be implemented following an equivalency of: 9 quarter hrs. (equivalent to 6 semester hrs.) or: 3 quarter courses (equivalent to 2 semester courses).

Faculty, Facilities and Resources: Fourteen faculty currently are in the Civil Engineering Department; this number is typical of other Ph.D. programs in the state. Ninety-two percent of the faculty members are engaged in externally funded research projects in the areas of pavements, structures, bridges, traffic, noise abatement, pipes, soil structure intervention, composite materials for bridges, nondestructive testing, environmental remediation, storm water runoff, reservoir and flood analysis, and clean coal technologies. The department's facilities are extensive and require no additional funding. Several of the research facilities are located off-campus which lessons the requirement for physical space. The success of the Civil Engineering department in attracting external research funding means that no additional graduate assistant stipend funding should be required. The Civil Engineering department currently oversees the Master of Science program, and administration of a Ph.D. program will only slightly increase administrative responsibilities and can easily be absorbed by the department. One of the advantages of initiating a Ph.D. program in Civil Engineering at Ohio University is that all of the required elements are already in place, so there will be no additional cost in implementing the program.

Evidence of Need: In January 2003, the Russ College of Engineering and Technology determined that a Ph.D. program in Civil Engineering was a critical strategic need, and that Ohio University Civil Engineering should proceed with a Ph.D. proposal with the full backing of the college.

Civil engineers of the future must be well prepared to tackle challenging issues related to the rehabilitation of aging infrastructure and homeland security. In Ohio, 25% of major highways and bridges are in poor condition. Drinking water infrastructure needs $5 billion for replacement/rehabilitation work. Wastewater infrastructure needs $9 billion for replacement/rehabilitation work. Since the 9/11 event, the pressure is on to make the nation's bridges, roads, and water supplies more resistant to terrorist threats. Civil engineers are critical to the safety of the nation. According to the U.S. Department of Labor, civil engineering employment in Ohio is projected to grow by 12% or more between years 2002 and 2012. The Division of Science Resources Statistics reports that the total number of retirements among the science and engineering Ph.D.-holders will rise dramatically within the next 10 years. The void created by retirements will need to be filled with new Ph.D. graduates.

End of Comment Period: May 16, 2008
Comments in support, Recommend Approval

Approved	6/16/08
Eric D. Fingerhut, Chancellor	Date