The University of North Carolina
OFFICE OF THE PRESIDENT
POST OFFICE BOX 2688, CHAPEL HILL, NC 27515-2688
MOLLY CORBETT BROAD, *President*
Telephone: (919) 962-1000 FAX: (919) 843-9695
E-mail: mbroad@northcarolina.edu

April 23, 2002

MEMORANDUM

To: Committee on Educational Planning, Policies and Programs

From: Molly Corbett Broad MCBroad

Subject: Establishment of the Center for Optoelectronics and Optical Communications at UNC Charlotte

Request to Establish

In January 2001, UNC Charlotte received authorization to plan the Center for Optoelectronics and Optical Communications. The planning is now complete, and UNCC has submitted a request to establish this unit as an institutional research center. The following sections briefly summarize the information provided by UNCC to satisfy the requirements of *Administrative Memorandum #373.*

Goals and Objectives

Fiber optic devices (e.g., semiconductors, solid-state laser sources, nanostructured optical devices) play an increasingly important role in the effort to achieve the increased bandwidth needed to expand the optical communications superhighway. In response to the continuing growth of optics activities within the University and the larger optics community, the center's goal is to implement a comprehensive approach to research and professional activities in the optoelectronics and optic fields that are vital to our economy's future. The region served by UNCC is rapidly becoming the world center for optical fiber technology, with major facilities operated by Corning, Alcoa, Alcatel, and Seicor. Optics-related companies in the U.S., now totaling more than 5,000, have a net financial impact that exceeds $50 billion annually. To fulfill a critical need for leadership in optics-related activity at UNCC and provide a contact point for members of the larger optics community, the center will pursue the following goals:

- Provide infrastructure for students, faculty, and industrial partners who share research interests in optoelectronics and optical communications.
- Involve students in the process of inquiry that leads to senior theses, graduate dissertations, and peer-reviewed publications.

- Conduct pure and applied research in optical science/technology and engage in technology transfer.
- Promote interdisciplinary optics activities, guided by a sharing of clearly understood goals and objectives, which link the University and the larger optics community.

Relevance to Institutional Mission; Relationship with Existing Academic Units

Although UNCC currently offers several opportunities for study and research in pure and applied optics (see below), it does not have a centralized unit that addresses the research, educational, and service needs generated by the rapid growth of optoelectronics and optical communications. The center will bring together optics researchers from the University, industry, and government laboratories to encourage sharing of expertise, pooling of resources, and efforts to secure interdisciplinary external funding. While no similar units having optoelectronics and optical communications as their primary focus exist within the University, the center will collaborate with related units such as the Center for Precision Metrology (UNCC), the College of Information Technology (UNCC), the Center for Advanced Computing and Communications (NCSU), the Materials Research Center (NCSU), and the North Carolina Microelectronics Center (RTP).

Anticipated Effects on Instructional Programs

The center will support and enhance optics activities in five academic departments (Physics and Optical Sciences, Chemistry, Mathematics, Electrical and Computer Engineering, and Mechanical Engineering and Engineering Science), as well as the Center for Precision Metrology and the College of Information Technology. Undergraduates will benefit from new and enhanced courses; an expansion of research opportunities, often with financial support; and opportunities to interact and study with foreign students attending UNCC to study optics. Graduate students will benefit from an enhanced interdisciplinary research program, ongoing research seminars, and enhanced opportunities for external funding. Preliminary planning for new M.S. and Ph.D. programs in Applied Optics has been concurrent with the planning for implementation of the center.

Administrative Structure

Dr. M. A. Fiddy, former Department Head of Electrical and Computer Engineering at the University of Massachusetts at Lowell, was appointed In January 2002 as the center's Director. The Director will report to both the Dean of the College of Arts and Sciences and the Dean of the College of Engineering. An Advisory Board, consisting of the Center Director, the Associate Provost for Research, and selected representatives from the community, other optics centers, and optics-related industries, will provide guidance on the center's research program and the apportionment of industrial funds to specific research efforts. A Policy Board, chaired jointly by the Deans of the Colleges of Arts and Sciences and Engineering, will consist of the center Director, the Associate Provost for Research, and the Chairs of the departments most aligned with the center's program areas. Its role will be to ensure the center's research is consistent with UNCC goals; coordinate manpower,

space, and equipment requirements for the center; and provide information to the departments regarding activities of faculty members contributing to the center.

Budget and Anticipated Sources of Funding

The center's first-year budget, expected to be $2.2 million, will derive from $312,000 in University support for staff and operating expenses, and $2 million from federal funding for equipment. An additional $1 million is expected to derive from external sponsored funding. Exclusive of the federal funding, the budget for the center is expected to increase approximately 20 percent during the subsequent four years, deriving from increased external funding. Federal funding of $8.6 million for equipment costs will accrue to the center in its second year of operations. No additional state funding will be needed.

Space and Capital Needs

While existing space is adequate to support the center's activities for its first three years, additional space will be needed to accommodate anticipated growth. This space will become available in two buildings tentatively scheduled for completion by 2005. The first building will house the center and the Department of Physics and Optical Sciences. Additional research space will be available in the building that will house the Center for Precision Metrology and the Department of Mechanical Engineering and Engineering Science. Funding for these buildings was obtained through the November 2000 bond referendum for capital construction. Faculty, staff, and library resources are currently adequate for the center's operations, and future needs will be met through existing University funding channels and external funding.

Recommendation

It is recommended that UNC Charlotte be authorized to establish the Center for Optoelectronics and Optical Communications.