

COLLEGE OF TEXTILES ANNUAL REPORT 2003-2004

Changes in Service Environment

The financial situation again remains challenging. The continuing cuts in state funding, the decrease in foundation support due to the drop in equity value, and financial pressures on some of our industry supporters, force us to continue to seek and develop every opportunity to identify new areas of financial support and to operate more efficiently. In many areas we see positive change. The textile industry is showing signs of new strength in several sectors. Our short courses and in-plant courses have continued to grow significantly. We continue to attract new members to the Nonwovens Cooperative Research Center (NCRC). Our new alliance with the Institute of Textile Technology (ITT) has significantly increased our industry support. Our placement of graduates remains exceptionally strong. Consolidations and mergers in the industry are creating larger companies with renewed interests in research and new product development. We are working with more companies in more ways than ever before. We have received several large federal grants and significant research grants from companies outside the traditional textile industry.

The industry continues to expand into new, nontraditional, areas. Our primary challenge is to move quickly enough to be the leader in these areas, thereby attracting the necessary funding, building the facilities, and positioning our faculty for these emerging opportunities. In the past year, we enhanced our leadership position in nonwovens research. We received new recognition for our pioneering work in protective clothing. We launched our new concentrations in medical and biotextiles partnering closely with the new Biomedical Engineering Department. We built new lab facilities to support the “new world of textiles.” Five exceptional new faculty members joined the college with outstanding credentials in several of these new areas.

Compact Plan: Major Initiatives from Our Compact

Progress on major Compact Plan initiatives was outstanding. The Nonwovens Partners Lab is now fully operational and continues to attract new members, new funding, and new equipment. Applications for our Anni Albers Scholars dual-degree program with the College of Design continue to grow and we added a new weaving design lab to support the courses. We still need to find additional space for studios and other needed facilities.

Our High School Teachers Summer Research Workshop for chemistry and physics teachers again was a major success. Last summer 43 teachers attended. Our Summer Textiles Exploration Program (STEP) for rising high school seniors continues to grow in popularity. This summer we have 124 students (up from 110 last year). Forty-five of last year's students were accepted for admission as students for the coming fall (thirty of these are "will enters").

The Centennial Scholars Program is the cornerstone of our scholarship opportunities. We selected eight students this year (three are also Park Scholars). Our redesigned academic distance education program, renamed TOP (Textiles Off-campus Programs), is an outstanding success. Enrollment in TOP grew 62% over last year with 86 students now enrolled.

Our Textile Engineering, Chemistry and Science (TECS) Department revamped the Textile Chemistry program with a new focus on Polymer and Color Chemistry. The new program and degree names were approved. Four new faculty members were added to support its new directions in color science, polymer science, and textile engineering. We added new lab facilities in support of our growing work in color chemistry, medical textiles, biotextiles and nanotechnologies.

One of our major internal initiatives continues to be increasing visibility of the college through public relations and improved communications. This past year we had 63 articles placed in university, local, state, national, and international publications, including *The Financial Times*, seven television spots featured the college, one radio spot on NPR, and two university ads featured faculty in the college. We created new undergraduate brochures for our Polymer and Color Chemistry and Textile Engineering

programs. We also introduced a new college logo, a polished annual report, and published our *Wolftext* alumni and friends newsletter online quarterly. We have enhanced our website and began adding the research activities of our ITT and National Textile Center partners to it through our collaborative initiatives site that allow anyone involved in a particular research area to share ideas, research, and technical reports through a Web-based virtual center.

Diversity: Initiatives and Progress

The College of Textiles continues to be a leader in diversity. Under Terry Brasier, our new Coordinator of Diversity, and April Wilson, our Associate Coordinator, we have made considerable progress. The African American Textile Society is once again a strong organization. We participated in the Hispanic Youth Education Summit, hosted our first college minority visitation day, and worked closely with Admissions on minority recruitment receptions in Raleigh, Lumberton, and Charlotte. Of the five new-faculty who joined us this year, one is female, one is Hispanic, and two are international. Our freshman class of 171 students (our largest since 1998) will have twenty African American, five Hispanic, and three Native American students.

Instructional Program Advances

Our new degree program and the degree in Polymer and Color Chemistry was approved. The College Course and Curriculum Committee approved the Medical Textiles courses. A minor in Medical Textiles and a minor in Nonwoven Science and Technology were approved. Our TECS faculty submitted all materials needed in preparation for this fall's ABET accreditation review.

The college worked closely with the Institute of Textile Technology to develop a special curriculum for ITT Fellows. Students in this graduate program will be funded by the ITT Foundation and industry-sponsored fellowships and will conduct a summer research internship at a participating company. Last fall we had seven ITT fellows. This year we expect twelve. Six of these will be funded directly by industry, six by the ITT Foundation.

Research

Overall, our research indicators continue to show a decline. The good news is that research funding has grown significantly (+18% since 2002) so increases in expenditures should follow. Contracts and Grants expenditures are up significantly over last year (58%). We received patents and a \$300,000 gift from Kimberly Clark. In addition, we received another gift of \$300,000 and patents from Procter and Gamble

Our *Textile Protection and Comfort Center* had an exceptional year with the first Department of Homeland Security award (\$832,000), awards totaling \$658,000 from Boeing, NASA, NIOSH and Geomet, and \$494,000 in service agreements. This center is becoming well known as the finest facility in the world for assessing protection and comfort issues. In partnership with DuPont and Globe Manufacturing we are developing the next generation of clothing for emergency first responders.

The *Nonwovens Cooperative Research Center* now has 47 associate, affiliate, and full members. During the year the center received \$572,126 in research funding from industry. The state-of-the art melt-blown/spun-bond pilot facility is now fully operational and this summer we have started a major rebuilding of our staple nonwovens laboratory.

Our new partnership with ITT and the creation of the ITT/NCSU Research Consortium is bringing significant new research opportunities to the college. We have also started the planning for a *Center of Excellence for Textile Nanotechnologies*. The first projects are receiving seed funding from Vice Chancellor John Gilligan and the college, with the goal of obtaining major funding from NSF, NIH, and/or DOD. Governor Hunt is supporting our efforts to attract Nano-Tex and Burlington into the program with the possibility of state funding in the future. This center is part of the University plan to establish an Institute for Nano Science, Engineering and Technology. Under the leadership of Dr. Gerald Iafrate (ECE), the college is continuing to play a major role in creating a multi-college initiative designed to develop this Institute for Nanotechnologies.

The National Textile Center continues to be successful, with this past year marking the 12th year of support from the Department of Commerce. Over these years the College of Textiles has received \$30 million in research funding. This center continues to be one of the few sources of funding for new fundamental knowledge for the textile industry, supporting basic research in new materials, new chemical processes, new manufacturing processes, and new systems.

Our major research effort over the past few years, Supercritical Fluid Processes for Textiles, has finished the research program, and we are now seeking partners for the development phase to be based on a portfolio of University-owned intellectual property. Discussions with major machine manufactures during last year's ITMA trade show produced great interest and further discussions with several are underway.

Extension

Textile Extension and Applied Research Department programs have continued their remarkable turnaround in performance. This was an extremely strong year for in-plant, short-course, and executive programs including our Six Sigma and Supply Chain Management programs. Our total receipts from these programs have grown from \$602,000 in 2000-2001 to over \$1,114,000 last year. Our traditional short-course participants and receipts have continued to decline, but new courses in partnership with other organizations increased dramatically. Our Supply Chain Management offerings (a completed Compact Plan initiative by Dr. Robert Barnhardt in Textiles and Dr. Robert Handfield in Management) remained strong and our Six Sigma programs—offered jointly with the College of Engineering Industry Extension Services—also increased, both in participants and receipts.

Relationships with external partners remain strong. We now have formal agreements with INDA (the nonwovens society) to jointly conduct all of their short courses, with the American Yarn Spinners Association offering a new program for textile managers, and with AATCC for CD-based training in three areas. This spring, we held our second annual Industry Open House, designed to share our research activities with industry partners. The Textiles Association of Graduate Students again

provided most of the organizational effort including an outstanding poster session, highlighting key research topics.

Faculty and Staff

Dr. Behnam Pourdeyhimi was appointed William A. Klopman Distinguished Professor. Drs. Barbara Scruggs and Nancy Cassill received the College of Textiles Outstanding Extension Service Awards. Dr. Gary Smith was selected as the College of Textiles nominee for the Board of Governors Award for Excellence in Teaching. Dr. Michelle Jones was this year's College of Textiles Outstanding Teacher and the first recipient of the newly instituted College of Textiles Outstanding Advisor Award. Also, Dr. Jones was the College of Textiles nominee for the Academic Faculty Advising Award. Dr. Keith Beck serves on the Publications Committee for the American Association of Textile Chemists and Colorists. Dr. David Hinks continues as Academic Editor for the Society of Dyers and Colorists and chairs the Color Measurement Test Method Committee for American Association of Textile Chemists and Colorists (AATCC). Dr. David Buchanan chairs the Textile Institute Publications Committee and is Editor-in-Chief of *Textile Progress*. Dr. Buchanan is also chairing the organizing committee for next year's 84th annual Textile Institute International Conference. Dr. Subhash Batra chairs The Fiber Society. Dr. A. Blanton Godfrey is editor of the American Society for Quality's *Six Sigma Forum Magazine*. Mr. Cliff Seastrunk serves on the Foundation Board of AATCC. Dr. Peter Hauser chaired the organizing committee for the AATCC Medical, Protective and Technical Fabrics Symposium. Drs. Bhupender Gupta and Martin King are chairing the upcoming IFAI Conference on Medical Textiles. Dr. Harold Freeman is on the Editorial Boards for *Dyes and Pigments*, *Coloration Technology*, *Colour Index*, and the *Nigerian Journal of Scientific Research*. Dr. Jeff Joines is the Area Editor for *Fuzzy Evolutionary Methods*, *Fuzzy Optimization and Decision Making*. Dr. Blanton Godfrey was elected a Fellow of the Royal Society for the Encouragement of Arts, Manufacturers and Commerce.

Faculty members published over 175 papers, made over 190 conference presentations. They submitted 20 patent disclosures and patent applications to the Office of Technology Transfer and had two patents issued.

Students

During the December 2003 and May 2004 graduation ceremonies, we presented 164 degrees: 129 undergraduate and 35 graduate. With new funding from ITT and strong demand from both American and international students for our programs, incoming graduate student enrollment increased for Fall 2003 and we expect a further increase for Fall 2004 with twelve incoming ITT Fellows. Freshman enrollment took a major jump (40%) for Fall 2003 and the projected numbers appear similar for Fall 2004. Enrollment in our Textiles Off-Campus program is up 62% from the previous year. Placement remains surprisingly strong, although the placement rate is lower than in previous years at this time. We again had a high number of students graduating with honors and many also with two degrees. Two students were elected to Phi Beta Kappa and five students were elected to Phi Kappa Phi. A graduate student won the best poster award at the National Textile Center Forum.

Fund Raising

Over the past year, we made excellent progress in our development campaign, having reached almost one-half of our new \$50-million goal. We hired a new Director of Development and a full-time Administrative Assistant. We had major gifts of \$3 million from Mr. Duke Kimbrell, \$500 thousand from Mr. Alan Dickson, and a number of significant gifts of equipment, research support, and funded scholarships.

Administration

We continue to make organizational and infrastructure changes to improve efficiency. We added new servers for home file space for faculty staff and purchased 32 laptop computers for student classroom use. Ten sections of four different courses used the laptops in classes. We have just added

new PDAs for use in classrooms this fall. We have continued to upgrade classrooms, labs and offices to new Internet wiring standards, projection equipment, and power.

Recommendations and Concerns for the Future

Our main concern continues to be the weak state financial situation and the continuing lack of funding for faculty and staff increases. We are becoming increasingly vulnerable to raids on our key faculty and staff members. We are adjusting quickly to changes in the textile industry and building a strong base for the “new world of textiles.” We need new funding for constructing the laboratory facilities and for attracting leading researchers to support these key areas. We remain the foremost college of our kind in the world, with both depth and breadth in key areas of the industry. Our most important challenges are enrollment, program changes, and expanding critical research funding sources.