The University of Georgia

University Council
Athens, Georgia 30602

March 21, 2012

UNIVERSITY CURRICULUM COMMITTEE – 2011-2012
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Dear Colleagues:

The attached proposal for a new College of Engineering will be an agenda item for the March 28, 2012, Full University Curriculum Committee meeting.

Sincerely,

David E. Shipley, Chair
University Curriculum Committee

cc: Provost Jere W. Morehead
Dr. Laura D. Jolly

PROPOSAL

for

College of Engineering
The University of Georgia

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Christof Meile (Marine Sciences)
Brahm Verma (Engineering), Chair

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1. Executive Summary

Engineering in today's university environment is an enabling science. The engineering perspective informs and determines the range of research that can be undertaken to benefit mankind. Engineers are society's master integrators. They work across different disciplines and fields, make connections for deeper insights to understand the intricacies of problems and imagine creative solutions; in other words, they are into getting things done.

Georgia ranks among the lowest states nationally in the percentage of engineers in its workforce. At the same time it relies on in-migration from other states and other countries to fill nearly half of all engineering jobs. Simultaneously it has had limited capacity to offer engineering education for its qualified high school graduates. Between 2005 and 2012, new educational opportunities have been created in the state of Georgia with the approval of 10 new undergraduate and graduate degree programs in the University of Georgia (UGA) Faculty of Engineering (FoE). These academic degrees when added to UGA's five existing engineering degree programs in the Biological and Agricultural Engineering (BAE) Department now provide UGA educational options in all major engineering disciplines.

Modernizing engineering education is a significant challenge and recommended in numerous studies conducted by prestigious organizations and industry including the National Academy of Engineering. Long before the publication of these reports in 2004-2008, UGA had developed a model profile for future engineers to guide its new degree curricula. This model goes beyond the goal of students mastering certain habits of mind for technical excellence to the goal of integration of technical excellence with humanistic aspects to form an ethical compass and innovativeness that inspire imagination of creative solutions and actions for human development. Engineering education in a liberal arts environment at UGA will graduate leaders for the globalized technology-savvy world. UGA's approach to Engineering has been hailed as both foresighted and futuristic.

The University of Georgia, as the flagship and land-grant and sea-grant institution for the state of Georgia, has strategically positioned itself to establish a College of Engineering that uniquely responds to this need by building on the achievements of the FoE and the BAE department. Since its establishment in 2001, the FoE in an integral partnership with BAE has created a campus-wide, cross-disciplinary culture built on the University's considerable intellectual and physical resources for advancing engineering research, new degree programs and outreach activities at the interfaces of disciplines.

Although the FoE and BAE have been successful in advancing engineering at UGA, the current UGA engineering structure has significant limitations for recruiting top-tier faculty and students, attracting private funding for development, building multi-institution collaborations and creating professional partnerships for achieving excellence. Also, within UGA the role of engineering becomes secondary for it lacks peer status with other college-level disciplines. This proposal for an innovative, nationally prominent College of Engineering has the overall goal to provide a unified and prominent home for UGA Engineering so it can strategically develop exceptional teaching, research and outreach programs that both meet needs and advance growth of Georgia and society at large.

In this context, the new College of Engineering will have the following goals:

- Provide higher education and graduate engineers for meeting the growing unmet demand for highly educated engineers, entrepreneurs and leaders in Georgia and the Southeast U.S., and the nation;

- Develop adaptive research at the interface of disciplines to attract the highest quality of faculty and students while being uniquely and proactively responsive to the increasingly complex needs of society;

- Cultivate an environment to prepare engineers and future leaders which is particularly appealing to women and other underrepresented communities by integrating the humanities, sciences and engineering; and

- Foster innovative partnerships, increase extramural funding, and enhance scholarship, thereby making significant contributions to UGA and the people of Georgia.

The College of Engineering at UGA will maintain core, unique features of the FoE. It will not divide into departments or create boundaries between engineering disciplines.

The new College will be comprised of faculty currently in BAE and FoE. FoE has fostered campus-wide support for engineering for building interdisciplinary programs. The new College will continue the FoE's current engagement with faculty in other disciplines and units to catalyze academic and research program advances at the interface of disciplines and will invite/encourage other UGA faculty to become engaged. Like other colleges and independent schools of the University, the faculty of the College of Engineering will have responsibility for the development of policies and guidelines related to all faculty governance matters, including curricula, appointment, promotion and tenure decisions as guided by BOR/UGA policies and procedures.

2. Background

We live in a time of profound transformation from an economy that prospered from the products of an industrial era to an economy relying on knowledge, communication and networks. Many reports[1] argue that with increasing globalization, engineers of the future will not only have to be technically superb and innovative but they will also have to know about the human dimensions that form social fabric and interplay among communities. Thomas Friedman's popular and provocative book *The World Is Flat* has brought the discussion on how to invest in U.S. technical literacy to the mainstream. U.S. public universities must heed Friedman's call, and our nation must respond boldly as we did after the Soviets launched Sputnik over a half century ago.

While Georgia's growth and its stature among states have been on a continuous rise, the state surprisingly ranks in the bottom quartile (40th in the nation) in percentage of engineers and scientists in its workforce. At the same time it relies on in-migration from other states and other countries to fill nearly half of all engineering jobs. Simultaneously it has had limited capacity to offer engineering education for its qualified high school graduates[2]. Between 2005 and 2012, new educational opportunities have been created in the state of Georgia with the approval of 10 new undergraduate and graduate degree programs in the UGA Faculty of Engineering (FoE). These academic degrees when added to UGA's five existing engineering degree programs in the Biological and Agricultural Engineering (BAE) Department now provide UGA educational options in all major engineering disciplines.

Kennedy[3] in his 2006 report concluded that much traditional engineering work has become commoditized. Although the skill to analyze situations and ramifications within the context of design remains *the* defining engineering quality, successful U.S. engineers must now also master characteristics not even contemplated only a generation ago, such as global understanding, ability to adapt to different cultures and knowledge bases, and ability to

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[1] G. Wayne Clough, "Educating the Engineer of 2020: Adapting Engineering Education to the New Century," *National Academy of Engineering*, 2005
Dr. Clough, NAE Member, is the Secretary of Smithsonian and the former President of Georgia Tech.

G. Wayne Clough, "The Engineers of 2020: Visions of Engineering in the New Century," *National Academy of Engineering*, 2004

Norman Augustine, "Rising Above the Gathering Storm: Energizing and Employing America for Brighter Economic Future," *National Academies Press*, 2005

James J. Duderstadt, "Engineering Research and America's Future: Meeting the Challenges of a Global Economy," *National Academy of Engineering*, 2005
Dr. Duderstadt is NAE and AAAS Member, and National Medal of Technology recipient, and the President Emeritus of the University of Michigan.

"Moving Forward to Improve Engineering Education," *National Science Board* 2007

"The National Innovation Initiative," *U.S Council of Competitiveness*, 2006

[2] Analysis of data of the U.S. Bureau of Labor and the U.S. Census Bureau projections showed a significant projected shortage for engineers in Georgia by 2016. For example, the annual shortage of BS graduates from Georgia institutions to meet the projected needs in Georgia until 2016 was found to be 320 Civil Engineers, 292 Electrical & Electronics Engineering and 129 Mechanical Engineers.

[3] Theodore C. Kennedy, "The Value-Added Approach to Engineering Education: An Industry Perspective," The Bridge: Linking Engineering and Society, 36(2):14-16, *National Academy of Engineering*, 2006.
NAE Member Mr. Kennedy is founder of BE&K Inc.

question and deliberate with diverse groups. Engineers will increasingly be called upon to serve in new and non-traditional roles. In particular, Clough [2006][4] stated that engineers of the future must extend to "take on jobs outside of engineering, including jobs in nonprofit and government policy areas where we desperately need people who think clearly, logically and also understand technology" and Duderstadt [2008][5] explained that engineers must become active "participants in leadership roles in government and business". Clearly, society in the future will need and value broadly versed, flexible and adaptive engineers, not merely technical specialists.

Globalization and socio-economic changes not only affect the education of engineers but also engineering research and outreach. Critical to long-term growth through technological innovation, engineering research leads to the conversion of scientific discoveries into products and services. Engineering (research) problems today often involve complex systems that require both new knowledge and new skills for engineering in a global and humanistic context. Indeed, mankind faces several "grand challenges" which each inextricably link culture, policy and technology [Duderstadt, 2008]. These challenges are: a) Global Sustainability, b) Energy, c) Global Poverty and Health, and d) Civic and Economic Infrastructure. Such complex human concerns demand research and outreach which integrate knowledge across a broad intellectual span.

Precursors to a College of Engineering at UGA

With its statewide mission as a comprehensive land-grant and sea-grant institution, and with established leadership in meeting challenges of the 21st-century global society, the University of Georgia anticipated these social trends by making engineering a strategic issue. A plan for *Comprehensive Engineering at UGA*[6] was endorsed in 2000 by the UGA Strategic Planning Advisory Committee and the UGA administration, and Engineering became a strategic initiative of the 2000-2010 University Strategic Plan.

An outcome of continued, extensive university-wide faculty deliberations to achieve comprehensive engineering goals was the formation of the Faculty of Engineering (FoE) in October 2001 as an academic entity with objectives to creatively capture an interdisciplinary approach to engineering through the convergence of the sciences, humanities and technology in innovative ways, and to increase opportunities for learning, research and outreach at the confluence of disciplines.

The concepts presented in the *Comprehensive Engineering at UGA* report in 2000 and the subsequent organization and governance structure created in the FoE in 2001 were indeed farsighted and unique. In rethinking future engineering needs and directions, the plan identified critical objectives four to six years ahead of similar concepts found in study reports published in 2004-2008 by prominent national leaders and the National Academy of Engineering (NAE). The organizing and governing structure of the FoE was carefully conceived to creatively meet the critical objectives. The FoE committed to preparing

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[4] G. Wayne Clough, "Reforming Engineering Education," Editor's Note, The Bridge: Linking Engineering and Society, 36(2):2-3 *National Academy of Engineering*, 2006.

[5] James J. Duderstadt, "Engineering for a Changing World: A Roadmap to the Future of Engineering Practice, Research, and Education," *The Millennium Project*, The University of Michigan, 2008.

[6] Brahm P Verma and E. Dale Threadgill. February 15, 2000. *Comprehensive Engineering - A Strategic Issue for the First Decade of the 21st Century*, Submitted by Biological and Agricultural Engineering Deprtment to UGA Vice-President for Strategi Planning, Accepted in May 2000 by the UGA Strategic Advisory Committee. Available on the UGA Websit - http://www.uga.edu/strategicplanning/part5/3.html

students for careers devoted to the integration of discoveries from multiple fields. This goal is being achieved by educating engineers in a liberal arts environment and simultaneously advancing liberal arts education by including engineering as one of its core elements.

The FoE was created as an institute with parallel responsibilities, but without the privilege of granting faculty promotion and tenure, as that of an academic college in the University. The administrative head of FoE is a Director who, like deans of colleges, reports to the University Provost.

From the beginning, the BAE faculty members were integral partners in creating and fulfilling FoE objectives. In the first year, they were joined by nearly 70 UGA faculty members from eight colleges and 25 academic departments who also became partners in building the Faculty of Engineering.

Since its inception in 2001, FoE together with BAE has made remarkable progress in building engineering at UGA. The FoE has engaged University faculty members and administrators in identifying programs, creating an interdisciplinary environment and implementing actions. A list of key events and achievements toward building Comprehensive Engineering at UGA is presented in Table A.1 in the Appendix. An overview of this progress since 2001 is summarized below.

- The FoE achieved Institute status with degree-granting privileges in February 2003. This opened doors for it to become the academic home for new engineering degrees.

- Ten new engineering degrees have been approved by the University System of Georgia Board of Regents (BOR) in the following areas:
  - B.S degrees in Biochemical Engineering, Civil Engineering, Computer Systems Engineering, Environmental Engineering, Electrical and Electronics Engineering, and Mechanical Engineering;
  - M.S. degrees in Biochemical Engineering, Environmental Engineering and Engineering; and
  - Ph.D. degree in Engineering

- Initiated and led in forming the UGA Nanoscale Science and Engineering Center (NanoSEC) and the UGA Biorefinery and Carbon Cycling Program which is now a key component of the UGA Bioenergy Systems Research Institute (BSRI);

- Provided a forum and support for faculty in complementary disciplines to create research programs at interfaces: "biology-inspired" engineering, systems and engineering ecology, computer systems engineering, and engineering education;

- Recruited for the tenure-track faculty positions in the FoE to meet the demands for offering new academic degrees and advance emerging use-inspired research programs. New positions were jointly created with the Departments of Mathematics, Physics and Astronomy, Chemistry and Biological and Agricultural Engineering;

- Established an Engineering Outreach Program (EOP) for technology transfer that in partnership with BAE extension faculty has expanded to serve and educate external stakeholders with programs that drive economic growth, develop and use new energy sources, advance green technology applications in building and landscape designs, and increase Georgia's national and global competitiveness.

Since 1998, faculty members of the University of Georgia, with the support of administrators at all levels, have engaged in a deliberate and thoughtful university-wide effort to methodically build nearly all aspects of a foresighted college of engineering. This effort has now established the full range of components for a college. Changing the FoE to a College of Engineering is a logical and important next step.

Although the successes of the FoE are noteworthy, without a College of Engineering and the credibility and visibility it brings, the FoE and BAE faculty will have limited ability to recruit top-tier faculty and students, attract private funding for development, build multi-institution collaborations and create professional partnerships for achieving excellence. This current proposal to establish a College of Engineering is borne of faculty deliberations and reflects the collective desire to create an academic unit for engineering that has the resources, responsibilities and status to achieve national stature.

3. Objectives of the College of Engineering

Engineering in today's university environment is an enabling science. The engineering perspective informs and determines the range of research that can be undertaken to benefit mankind. Engineers are society's master integrators. They work across different disciplines and fields, make connections for deeper insights to understand the intricacies of problems and imagine creative solutions; in other words, they are into getting things done.

The overarching objective of the College of Engineering at UGA is to provide uniformly high academic quality education in all its engineering degree programs and achieve national stature through strategically adaptive research and outreach programs; and therefore be uniquely responsive to the increasingly complex needs of the state of Georgia and society at large. Specifically, the College of Engineering will:

(1) Graduate engineers for meeting the current and growing unmet demand for highly educated engineers in Georgia, the Southeast U.S. and the nation.

(2) Build capacity of a cross-disciplinary academic community for engineering research, instruction and outreach by attracting top-tier faculty and students.

(3) Be proactively responsive to the increasingly complex needs of Georgia and society at large.

(4) Provide higher education which flexibly integrates the humanities, sciences and engineering to develop future leaders and entrepreneurs in Georgia.

(5) Foster innovative partnerships within the University and with diverse industries and stakeholders.

(6) Attract substantially increased extramural funding.

(7) Increase scholarship throughout UGA through pioneering research, instructional and outreach programs.

3.1 Meeting Demand

Georgia ranks among the lowest states nationally in the percentage of engineers in its workforce. At the same time it relies on in-migration from other states and other countries to fill nearly half of all engineering jobs.

Georgia needs more engineers. While Georgia's growth and its stature among states has been on continuous rise (in the decade of the 90's Georgia was 4th in population growth, 8th in venture capital investment, 8th in start-up companies)[7], the state surprisingly ranks 40th in the nation (in the bottom quartile) in percentage of engineers and scientists in its workforce. Georgia relies on in-migration from other states and other countries to fill nearly half of the engineering jobs in the state. This need has remained unmet. Before the approval of new engineering degrees at UGA, the future trends were projecting continued decline in the availability of engineers from Georgia; e.g., by 2016, projected annual shortages were 320 in Civil Engineering, 292 in Electrical & Electronics Engineering and 129 in Mechanical Engineering.

Simultaneously, Georgia has had limited capacity to offer engineering education for its qualified high school graduates. Little over half of the qualified Georgia high school graduates who declared engineering as their first choice for college enrolled in an engineering degree program in Georgia while over one-third went out of state for their higher education. For example, in Fall 2008 over 10% of the students enrolled in Auburn University's College of Engineering were Georgia high school graduates. In four years (2007-2011) USG added 40,000 students, increasing its total enrollment to over 310, 000 students, a 15% increase. The trend of nearly 15% increase in USG enrollment every four years is anticipated to continue until 2020. As USG is strategically preparing to expand its capacity to serve an additional 100,000 students by 2020, the need for adding in-state engineering education capacity will also have to grow.

Between 2005 and 2012, new educational opportunities in engineering provide UGA educational options in all major engineering disciplines. Students enrolled at UGA will have an opportunity to learn to integrate many different disciplines and receive engineering education in a liberal arts environment that is highly desirable for the Engineer of 2020. All engineering programs organized into a single College of Engineering will effectively serve to reduce the increasing gap of insufficient opportunities for students to enter engineering programs in Georgia and increase the availability of Georgia graduates to meet technical workforce needs.

Finally, a recent study conducted by Georgetown University and reported by Time magazine[8] lists the most and least lucrative college majors measured by the median earning per year. The top eight majors were in engineering fields. The other two were mathematics and computer science, and pharmacy and pharmaceutical sciences & administration. High-paying jobs are also high-impacting jobs for development. The new UGA College will address current the dilemma by providing additional engineering educational opportunities for the increasing number of high school graduates and producing engineers to support a resource-rich and technologically growing state.

[7] The State of New Economy Index. 2000. The U.S. Council of Competitiveness. http://207.225.143/state/

[8] Time Magazine, May 30, 2011 – Study of the Georgetown University Center on Education and Workforce

3.2 Building on Strengths

In part, the University of Georgia Mission states:

> "The University of Georgia, a land-grant and sea-grant university with statewide commitments and responsibilities is the state's oldest, most comprehensive and most diversified institution of higher education. Its motto, "to teach, to serve, and to inquire into the nature of things," reflects the University's integral and unique role in the conservation and enhancement of the state's and nation's intellectual, cultural, and environmental heritage."

Today, the University of Georgia is a top-tier U.S. research university. With its diverse humanities and arts, strong physical and biological sciences, outstanding interdisciplinary research institutes and nationally recognized Honors, CURO and Study-Abroad programs, the University of Georgia is uniquely positioned to build further on its strengths as an academic institution to address the tremendous engineering challenges of the twenty-first century in an innovative way. Agriculture, business, biological sciences, ecology, education, law and veterinary medicine, along with humanities and arts, have some of the most lauded programs nationally and internationally. Recent additions of public health and medicine provide new opportunities to build on UGA strengths. Biomedical and Health Sciences Institute (BHSI), Complex Carbohydrate Research Center (CCRC), Bioenergy Systems Research Institute, Faculty of Infectious Diseases, and Nanoscale Science and Engineering Center (NanoSEC) are, just to name a few, exemplary interdisciplinary research centers of excellence that the FoE and BAE have partnered with to build UGA engineering programs. The University's public service program is one of the largest and most comprehensive conducted by an American educational institution. Public service workers annually tally more than seven million contact hours with Georgia citizens.

As early as in mid-1980's, BAE faculty led in conceptualizing the emerging discipline of engineering in the context of biology – the Biological Engineering discipline. It crafted successful degree proposals to add undergraduate and graduate degrees in Biological Engineering, approved in 1992-94.

Continuing that tradition, the FoE was conceptualized and established to advance engineering at the interfaces of disciplines and to cultivate an environment that foster cross-disciplinary partnerships. The FoE has implemented many programs that demonstrate the value in cross-disciplinary research and interaction. The unique approach to Engineering at UGA is aligned with the growing needs of our society to innovate. Thus, the FoE has been especially focused on advancing engineering at the confluence of disciplines and offering education to prepare students for engineering careers devoted to the integration of discoveries from multiple fields.

In 2003 the FoE first created concepts for three interdisciplinary academic degree programs beyond the Agricultural Engineering and Biological Engineering degrees BAE already offered. They were in *BioChemical* (integrating Biology + Chemistry) Engineering, *Computer Systems* (integrating hardware + software to build working systems) Engineering, and *Environmental* (integrating ecology + systems thinking) Engineering, all designed to build on the strengths of the University. These degrees were approved by the BOR in November 2005. In the following years the well-known three core engineering disciplines of Civil, Mechanical and Electrical & Electronics Engineering were also conceptualized from the interdisciplinary view. These degrees were proposed to have the character and content for educating UGA engineers with the profile described in Section 3.3 of this proposal. The BOR approved these three degrees in November 2010. Finally, to promote the continuous development of interdisciplinary engineering, the two recently approved (February 2012)

graduate degrees of the FoE are non-disciplinary designated degrees; that is, the master-level degree - Master of Science in Engineering – is available to enable engineering students to focus on any approved combination of subjects in their studies. Similarly, the doctoral-level degree Ph.D. in Engineering is now available. Together with the five (5) BAE degrees, UGA now enrolls or will soon enroll students in a total of fifteen (15) engineering degree programs as listed below:

Bachelor of Science in Agricultural Engineering
Bachelor of Science in Biochemical Engineering
Bachelor of Science in Biological Engineering
Bachelor of Science in Civil Engineering *(first-year class in 2012)*
Bachelor of Science in Computer Systems Engineering
Bachelor of Science in Environmental Engineering
Bachelor of Science in Electrical & Electronics Engineering *(first-year class in 2013)*
Bachelor of Science in Mechanical Engineering *(first-year class in 2013)*

Master of Science in Agricultural Engineering
Master of Science in Biochemical Engineering
Master of Science in Biological Engineering
Master of Science in Environmental Engineering
Master of Science in Engineering

Ph.D. in Biological and Agricultural Engineering
Ph.D. in Engineering

The University has invested in significant physical and intellectual resources in engineering. Engineering faculty members are dispersed across the UGA campus and manage state-of-the-art research laboratories in numerous buildings. Although the network of the FoE faculty extends through several University buildings such as Riverbend South and the Biorefinery Center, the Driftmier Engineering Center is the current focal point for Engineering at UGA.

To fulfill the service mission of the University, the FoE created an Engineering Outreach Service (EOS) to serve a wide variety of stakeholders in the state, including energy, bio-based products, military, municipalities, forest products, food, agriculture, textile and carpet, educational, and government. The EOS has been participating/collaborating with many state and federal agencies including the U.S. Department of Energy, the U.S. Environmental Protection agency, the Georgia Department of Community Affairs, the Georgia Forestry Commission, the Georgia Environmental Partnership and the Georgia Water and Pollution Control Association. In its work EOS collaborates closely with the UGA cooperative extension service and the UGA agricultural pollution prevention program. EOS members become direct colleagues with many research faculty to provide education and technical assistance to Georgia stakeholders in issues related with sources and use of energy, biofuel, Leadership in Energy and Environmental Design (LEED) certification, environmental issues, CO_2 foot print, bioconversion, and regulations.

UGA is the most comprehensive and diversified university in the state with a major investment in a foresighted interdisciplinary engineering. These developments have reached an opportune point such that organizing UGA engineering faculty and programs into a single academic unit – a College of Engineering – is natural and straightforward. The College of Engineering will be best for streamlining governance and operational functions to build first-tier engineering programs.

With fifteen (15) degrees in all significant engineering disciplines, a critical mass in student enrollment (presently about 570 undergraduate and 56 graduate students with an anticipated 100-150% increase in the coming 3-5 years), a faculty of substantial diversity and size, and a commensurate scope in UGA facilities and resources, engineering at UGA has reached a time to reorganize engineering programs under a single college of engineering. A single unifying college will achieve the next level of excellence and provide clear connections with stakeholders to guide future program direction.

Colleges in the University are becoming more dependent on private funding aside from extramural grants received by faculty for research. The University has a strong Development Office and under the leadership of President Adams has received gifts and donations at a record pace. In the current form and without the stature of a college, engineering cannot be a priority of this office to target potential supporters. The College of Engineering will provide the engineering profile at the University level and nationally with peer institutions and professional organizations needed to attract private donations for funding chaired professorships, scholarships for students and facilities, which are unlikely to be provided by state funds.

The College of Engineering will enable multi-university collaborations that are currently not achieved. Simply stated, although the FoE in partnership with BAE has been successful in advancing comprehensive engineering at UGA, engineering in its current structure is unlikely to be considered a peer with other colleges in UGA. It will continue to lack stature that invites engagement with leaders and priority programs at the national level. It will continue to be at a disadvantageous position for attracting star faculty and students and private funds for building excellence.

In summary, UGA is a comprehensive institution that offers all subjects to support and build a first-tier engineering program. UGA offers a full complement of engineering programs, has considerable intellectual and physical resources in instruction, research and outreach and has programs and core facilities for establishing a College of Engineering. The proposed formation of the College will coalesce core management of programs, elevate student and professional recognition, and attract star faculty and students that will enhance development funds. Engineering at UGA and its visionary approach to engineering will achieve the state and national stature needed to become a partner for meaningfully contributing to future needs. By providing the unified framework of a college while retaining the FoE adaptive structure and culture, the UGA College of Engineering will soon achieve national recognition for its innovative organization and programs.

3.3 Developing Future Leaders

Engineers are society's master integrators. They work across different disciplines and fields, make connections for deeper insights to understand the intricacies of problems and imagine creative solutions; in other words, they are into getting things done. These are the core traits of leaders. The role of engineers as leaders in the globalized technology-savvy world is more critical than ever before.

There are plenty of opportunities for engineers and engineering leadership in Georgia. Georgia ranks among the lowest states nationally in the percentage of engineers in its workforce. At the same time it relies on in-migration from other states and other countries to fill nearly half of all engineering jobs.

For the last 25 years UGA faculty members have been engaged in a deliberate effort of enhancing engineering education. In 2006, a committee composed of 10 UGA faculty from

engineering, visual arts, chemistry, cell biology, geography and chemistry studied the desired qualities of future engineering leaders. Consistent with several reports of prominent leaders and the National Academy of Engineering (NAE) cited earlier, the committee visualized the profile of the UGA Engineer and the student learning environment as follows:

> "The profile of a UGA engineer is woven with the strands of *technical excellence* in science, mathematics, analysis and synthesis; *innovative curiosity* for creative adaptation from learning, unlearning and relearning; and *humanistic consciousness* grounded in the humanities, arts and social sciences."
>
> "UGA engineering education is a unique experience that is dominated by project-based learning where technical rigor, teamwork and hands-on experience, and creative innovation are tempered by the context of humanistic consciousness and moral tone awakened in a liberal arts educational environment."

Painstakingly, the character and content of new degree curricula were developed in the context of this desired profile. Engineering courses are integrating "non-engineering" content and, where possible, participation of "non-engineering" faculty members broadens the view of students. Integrated laboratories and other hands-on experiences are also being created. These signature approaches will educate engineering students and develop leaders of the future.

There is strong evidence that this environment is appealing to women and other underrepresented communities, which meets the University's strong commitment to serving diverse constituencies. Developing future leaders from diverse backgrounds will be an important component of the College of Engineering, as technical and humanistic leadership is incomplete unless it is also socially representative.

UGA with its comprehensive programs in all disciplines (including the recent additions in medicine and public health) and its long tradition in liberal arts and land-grant missions is a natural strategic home for such a College of Engineering. The combined programs of FoE and BAE and continued participation of the UGA faculty will provide a solid foundation for achieving and maintaining the highest quality standards across all engineering programs.

Finally, a College of Engineering will facilitate coordination of service learning, cooperative education study and study-abroad programs that are critical to developing future leaders. A college will similarly elevate the stature of all engineering activities to assist partnerships with external entities such as sister institutions for student team projects and team teaching, and industries for internships.

3.4 Creating Partnerships

The proposed College of Engineering will lead and proactively respond to the increasingly complex needs of the state of Georgia and society at large by fostering partnerships that shorten the cycle of knowledge, discovery, invention and use. Partnerships with industries and stakeholders to identify critical problems and close collaborations with researchers and educators of sister disciplines will elevate scholarship and catalyze discovery.

The FoE has engaged UGA faculty from 24 different academic departments in eight colleges and independent schools in advancing engineering. The FoE in partnership with BAE led in the formation of many new research programs, pedagogical approaches for integrating humanities and innovation in student learning, and engineering outreach activities that engage stakeholders and contribute to important needs of Georgia. NanoSEC, new

engineering degrees and appointment of faculty in several joint positions with Departments of Mathematics, Physics & Astronomy and Chemistry within UGA are examples of successful outcomes. The new College with create additional opportunities to build collaborations.

The College of Engineering will form a focal point for the community of engineers on the UGA campus. It will heighten awareness of engineering at UGA, facilitate building networks and thereby help bridge discovery and invention and their use. Engineering in today's university environment is an enabling science. Current partnerships with multi-institute and multi-national researchers, industry and government agencies in engineering agricultural and food systems, engineering biology for energy, medicine and products, engineering sustainable systems and engineering education will be significantly enhanced and serve as models for new programs. The interfaces of engineering with health sciences, biosciences, biomaterials, informatics and the humanities are potentially high value targets for new programs. The College of Engineering will further enable achieving our highest priorities for building partnerships with faculty in the UGA-GHSU Partnership Initiative, Biomedical and Health Sciences Institute, College of Public Health, Faculty of Infectious Diseases, Institute of Bioinformatics, Biological Sciences Division and the Willson Center of Humanities and Arts.

To promote superior educational programs and provide holistic perspectives, Engineering will step up its participation in the University Honors Program and Study-Abroad programs and activities in CURO-Engineering. The College of Engineering will also seek partnerships with other academic institutions fostering joint design projects and joint degree programs, and using distance learning technologies for exploiting expertise of multiple institutions and disciplines.

The College will extend beyond UGA and the state boundaries to forge partnerships. Already there are joint research/outreach projects with Georgia Institute of Technology, GHSU and Clemson University and several regional and national projects that include numerous out-of-state institutions. The regional and national visibility of UGA Engineering due to College status will increase the success of our efforts for building collaborations and opportunities to participate in addressing the NAE identified grand challenges for engineering.

3.5 Impacting Extramural Funding

As the state's flagship university, the University of Georgia is linked strongly with state and federal agencies, corporations and private foundations that provide extramural support for academics, research and outreach. Engineering programs are critical to serving the needs of Georgians by translating discoveries from the sciences into useful products, systems and services that contribute to a vibrant economy. This is a central mission of land-grant universities.

The significant role of engineering in adding extramural funds to the budgets of U.S. research universities is evident. Three of the nation's prominent state-funded research universities with colleges of engineering, the University of Michigan (353 faculty members), The Ohio State University (275 faculty members) and the University of Virginia (139 faculty members), received $164.8 M, $156 M and $62 M in their grants and contract for the most recent year, respectively. On an average, each engineering faculty member in these universities received $494,000 in grants and contracts. Since its establishment, the FoE has striven to improve the University's competitive position for engineering research funds, despite not having a recognized College of Engineering. In a short time with just nine FoE faculty having more than three years appointment, the additional extramural funds obtained

by these nine faculty members for engineering research in FY2010 was $4.3 million or $480,000 per faculty, similar to the funding level reported by the top research universities. Creating a College of Engineering will put UGA researchers and cooperating faculty on equal terms in the competition for sponsored research funds.

Increasingly, granting agencies solicit proposals addressing a high national priority research goal, and research results are expected to provide technologies to users that contribute to economic development and quality of life. For example, at the national level biomedical engineering was the fastest growing discipline with an average annual increase of 15% since 2000. With more than half of the federal support for academic research provided through NIH, universities with colleges of medicine and engineering with a collaborative culture are especially well positioned to succeed in the competition for such extramural funding. Duke University is an example that leveraged this opportunity where the R&D funds for engineering rose from $23.2 M in 2000/01 to $84 M in 2009/10. Its Biomedical Engineering program was ranked #1 by the U.S. News and World in 2011.

A unified and more visible engineering presence in a College of Engineering will significantly attract industry sponsored funds that have spin-off effects on overall R&D projects yielding application solutions. The recent establishment of the College of Public Health and the UGA-GHSU Partnership that is bringing medical education and research collaborations to UGA are also critical developments that would serve to benefit from a College of Engineering and give attention to technological aspects of the State of Georgia's health needs.

Finally, the University has a strong Development Office and under the leadership of President Adams has brought gifts and donations at a record pace. Yet in the current form and without the stature of a college, engineering has not been a priority of this office to target potential supporters/donors. A College of Engineering will provide the profile at the University level and nationally with industries, foundations and professional organizations to attract private donations for funding chaired professorships, scholarships for students and facilities needs.

3.6 Enhancing Scholarship

One of the important challenges universities are encountering is to create an environment that builds fluency across disciplines and engages faculty and students in scholarly inquiry at the interfaces of disciplines. Universities are looking for ways to make organizational changes that encourage interdisciplinary scholarship and deepen knowledge in individual disciplines.

Engineering is a catalyst for such scholarly inquiries because it lies at the interface of scientific discovery and society at large and its impact is ubiquitous. Engineering in today's university environment is an enabling science. Engineering perspective informs and determines the range of research that can be undertaken. It demands both scientific and humanistic understanding from its practitioners. UGA is in a unique position to provide exceptional opportunity for engineering with its diverse humanities and arts, strong physical and biological sciences, new college of public health, new medical education partnership with GHSU and nationally recognized Honors, CURO and Study-Abroad programs. Not confined/bonded to the traditional engineering college structure/organization, the College of Engineering at UGA will create an organization and culture that not only affects traditional technically-oriented research and scholarship, but also integrates humanistic education that impacts the quality of service and development opportunities that the University provides to the public. While engineering students will benefit from the strong sciences and liberal arts

at UGA, non-engineering students will also benefit from increased "technological literacy" because of the frequent, formal and informal interactions with engineers.

With the vision outlined herein, and with the participation of faculty from most other UGA colleges and schools, the proposed College of Engineering will forge a unique identity for UGA Engineering, one that will educate future leaders by a process others will seek to emulate.

4. Governance

The College of Engineering will be a new, independent academic unit that will be the home for engineering programs at UGA. The new College will consist of a faculty comprised of faculty currently in BAE and FoE. A Dean will be the chief administrative officer of the College who will report to the Provost, and like the deans of all other colleges and independent schools at the University of Georgia, will have overall responsibilities for providing innovative leadership to build strategically adaptive instruction, research and outreach programs; connecting with industry and government leaders/agencies for identifying and addressing the increasingly complex needs of the state; and linking with prominent organizations that bring credibility and national stature critical to attracting outstanding faculty, students and financial support. The Dean will receive counsel from a distinguished Engineering Advisory Board representing diverse communities of stakeholders who recognize needs, approaches and strategies for building a prominent engineering program.

The internal structure of the College of Engineering will emulate the structure of the FoE. Importantly, the College will not divide its faculty into academic departments. Faculty grouping by programs and fields of study will be evolutionary using mechanisms that promote self-organization and rapid adaptation to address new and changing needs. Like other colleges, the College of Engineering will be the designated Promotion and Tenure home of its faculty. FoE has fostered campus-wide support for engineering for building interdisciplinary programs. The new College will continue the FoE's current engagement with faculty in other disciplines and units to catalyze academic and research program advances at the interface of disciplines and will invite/encourage other UGA faculty to become engaged. This unique feature will catalyze advances at the interface of disciplines. Like other colleges and independent schools of the University, the faculty of the College of Engineering will have responsibility for the development of policies and guidelines related to all faculty governance matters, including curricula, appointment, promotion and tenure decisions as guided by BOR/UGA policies and procedures.

5. Funding

The College of Engineering will be supported by funds available to the University of Georgia. In addition to the current funds allocated to the FoE and BAE, new required fiscal resources for the implementation of the new undergraduate and graduate degree programs have been approved and already budgeted. Thus the limited additional resources needed for the creation of a College of Engineering will primarily be to establish the administrative functions associated with a dean's office. These funds will be provided by the Office of the Provost. Remaining funding for the College will come from the generated student credit hours, contracts and grants, and individuals, foundations and corporations.

6. Appendix

6.1 Key Events in the Evolution of the Faculty of Engineering at The University of Georgia

Academic year 1998-99

- Meetings with each UGA dean and several department heads individually to receive their responses to the following question:
  "In what dimensions is your school/college/discipline unable to grow due to lack of comprehensive engineering at the University of Georgia?"

Academic year 1999-00

- Building networks of UGA faculty and administrators to develop ground level support for comprehensive engineering at UGA.
- (February 15, 2000) Comprehensive Engineering at UGA proposal to the VP for Strategic Planning - See http://www.uga.edu/strategicplanning/part5/3.html

Academic year 2000-01

- (April 19, 2001) Engineering Symposium I – Towards 2010: Comprehensive Engineering at UGA - "To engage faculty in the advancement of engineering at UGA"
- (October 1, 2001) Faculty of Engineering established by Provost Karen Holbrook
  Dale Threadgill appointed the Director reporting to the Provost.

Academic year 2001-02

- (April 18, 2002) Engineering Symposium II – Towards 2010: The Faculty of Engineering
  "Engage Georgia's leaders with the Faculty of Engineering"
- Est. Nanoscale Science and Engineering Center (over 30 faculty members from several disciplines)
- Est. Engineering Council of F of E formalizing the governance structure

Academic year 2002-03

- (February 2003) University Council approves and President accepts proposals for six new engineering degrees
- (February 2003) University Council approves proposal for F of E to be a degree granting institute with its formal name being the "Institute of Faculty of Engineering"

Academic year 2003-04

- First faculty hired (jointly with engineering and mathematics)
- Initiated a University-wide competitive engineering grants program

Academic year 2004-05

- Waiting! No action on the six degree proposals at the Chancellor's office

Academic year 2005-06

- (November 5, 2005) Board of Regents (BoR) approves the following five engineering degrees (MS in Computer Systems Engineering [Pending])
  BS and MS degrees in BioChemical Engineering, and Environmental Engineering
  BS in Computer Systems Engineering

Academic year 2006-07

- Defined profile of a UGA Engineer
- Developed model curricula for the new degree programs

Academic year 2007-08

- Implemented curricula for the new degree programs developed
- First class of students admitted to the new degree programs
- Distinguished Engineering Lecture Series inaugurated by Dr. William Wulf, Immediate NAE Past President
- Prepared degree proposals for BS in Electrical & Electronics Engineering and BS in Civil Engineering

Academic year 2008-09

- Inaugural meeting of the Engineering Advisory Board
- Three Degree Proposals (BS in Civil, Mechanical and Electrical & Electronics Engineering) approved by UGA and forwarded to the USG Chancellor
- Prepared degree proposals for PhD in Engineering and MS in Engineering
- Prepared a proposal for School of Engineering; approved by the Engineering Council

Academic year 2009-10

- Distinguished Engineering Lecture by Dr. James J. Duderstadt
- Visit by Vice-chair of the Board of Regents to assess facilities and resources for expanding engineering in context to the three pending degree proposals
- Two proposals – MS in Engineering and PhD in Engineering; approved by the Engineering Council and ready for the University review
- Approved the Faculty of Engineering Mission Statement
- Initiated development of policy and governance system for UGA School of Engineering

Academic year 2010-11

- Initiated "CURO-Engineering" managed by the Honors Program for expanding undergraduate research opportunities in engineering design and research.
- (November 8, 2011) Board of Regents approved proposals for the following three degrees: BS in Civil Engineering, BS in Electrical & Electronics Engineering and BS in Mechanical Engineering degree
- Two graduate degree proposals – MS in Engineering and PhD in Engineering – were submitted to the Chancellor's Office for receiving the Board of Regents approval.
- First student graduated with BS in Environmental Engineering, May 2011

Academic year 2011-12

- (February 7, 2012) Board of Regents approved graduate degree proposals for:
  MS in ENGINEERING
  PhD in ENGINEERING
- College of Engineering draft proposal to the Provost's office (2/7/12)

6.2 List of Faculty in Proposed College of Engineering

Name	Title	Location
Christian, Jason	Assistant Professor (start 4-1-2012)	Athens
Chorzepa, Mi Geum	Assistant Professor (start 8-12-2012)	Athens
Das, K.C.	Professor	Athens
Durham, Stephan	Associate Professor	Athens
Eiteman, Mark	Professor	Athens
Foutz, Tim	Professor	Athens
Gattie, David	Associate Professor	Athens
Geller, Dan	Public Service Assistant	Athens
Haidekker, Mark	Associate Professor	Athens
Hamrita, Takoi	Professor	Athens
Jambeck, Jenna	Assistant Professor	Athens
Johnsen, Kyle	Assistant Professor	Athens
Kastner, Jim.	Associate Professor	Athens
Kazanci, Caner	Associate Professor with Mathematics	Athens
Kellam, Nadia	Assistant Professor	Athens
Kisaalita, William	Professor	Athens
Kner, Peter	Assistant Professor	Athens
Lawrence, Tom	Senior Public Service Associate	Athens
Li, Ke	Assistant Professor	Athens
Locklin, Jason	Assistant Professor with Chemistry	Athens
Mani, Sudhagar	Assistant Professor	Athens
Mao, Leidong	Assistant Professor	Athens
Mohammadpour, Javad	Assistant Professor (start 8-12-2012)	Athens
Pan, Zhengwei	Associate Professor with Physics	Athens
Ramasamy, Ramaraja	Assistant Professor	Athens
Savadatti, Siddharth	Lecturer	Athens
Schramski, John	Assistant Professor	Athens
Sornborger, Andrew	Associate Professor with Mathematics	Athens
Stooksbury, David	Associate Professor	Athens
Tanner, Hillary	Lecturer	Athens
Tse, Zion	Assistant Professor (start 4-1-2012)	Athens
Thai, Chi	Associate Professor	Athens
Thompson, Sid	Professor	Athens
Threadgill, Dale	Professor	Athens
Tollner, Bill	Professor	Athens
Wagner, Ben	Lecturer	Athens
Walther, Jo	Assistant Professor	Athens
Webb, Antonio	Assistant Professor	Athens
Xu, Bingqian	Associate Professor	Athens
Yan, Yajun	Assistant Professor	Athens
Yoder, Mike	Lecturer	Athens

6.3 List of *Emeriti* Faculty in Proposed College of Engineering

Name	Title
Allison, James	Professor *Emeritus*
Law, S. Edward	D.W. Brooks Distinguished Professor *Emeritus*
McClendon, Ronald	Professor *Emeritus*
Verma, Brahm	Professor *Emeritus*

7. Letters of Support

The University of Georgia

Faculty of Engineering

March 14, 2012

Dr. Jere Morehead
Sr. Vice President for Academic Affairs and Provost
Administration Building
Campus

Dear Dr. Morehead:

The 51 eligible faculty in the Institute of the Faculty of Engineering and the Department of Biological and Agricultural Engineering support the proposal to form the College of Engineering by a vote of Yes: 37; No-10; and Abstain-4. The faculty cast their votes anonymously with full knowledge that 14 BAE faculty would remain in the College of Agricultural and Environmental Sciences.

The Faculty of Engineering Curriculum Committee voted unanimously to support the proposal by a vote of: Yes-5 and No-0. The Engineering Council of the Faculty of Engineering voted unanimously to support the proposal by a vote of: Yes-8 and No-0.

I fully support this proposal and look forward to working with the faculty in the formation and success of the new College.

Sincerely,

E. Dale Threadgill
Director, Faculty of Engineering and
Head, Department of Biological and Agricultural Engineering

Driftmier Engineering Center • Athens, Georgia 30602-4435 • (706) 542-1653 • Fax (706) 542-8806
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The University of Georgia

College of Agricultural and Environmental Sciences
Office of the Dean and Director

March 20, 2012

Provost Jere Morehead
Sr. VP for Academic Affairs and Provost
206 Administration Bldg.

Dear Provost Morehead,

This is to confirm my commitment and support of the establishment of the College of Engineering. I understand that this will require the transfer of our Department of Biological and Agricultural Engineering to the new College. The college of Agricultural and Environmental Sciences created this department some years ago. It has been a very successful department from both a teaching and research perspective. However, I clearly understand the rationale for the creation of a College of Engineering at the University of Georgia. In view of that, I support and encourage the University to move to create such a College. We look forward to maintaining close ties and collaborating with the new College.

I recognize that there was some limited opposition to the proposal from several Extension faculty members whose ties are more closely related to the College of Agricultural and Environmental Sciences than the new College. I will work carefully with those affected faculty members to determine satisfactory departmental reassignments that will ensure their continued productivity and support by CAES following the establishment of the new College.

I support the establishment of the College of Engineering.

Sincerely,

J. Scott Angle
Dean and Director

JSA/alc

cc: Dale Threadgill

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Telephone 706-542-3924 • Fax 706-542-0803 • caesdean@uga.edu
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1785
The University of Georgia

Rebecca Hanner White
Dean and J. Alton Hosch Professor of Law

School of Law
Office of the Dean

March 22, 2012

Jere Morehead
Senior Vice President for Academic Affairs and Provost
Administration Building
CAMPUS

Dear Jere,

I have received and reviewed the proposal for a College of Engineering at the University of Georgia. I am in strong support of this proposal. I believe a College of Engineering will be beneficial for the University's academic reputation and for external funding opportunities, and I also believe a College of Engineering at UGA will be beneficial to the State of Georgia's economic development.

Sincerely,

Rebecca H. White
Dean
and J. Alton Hosch Professor of Law

The University of Georgia

Terry College of Business

Robert T. Sumichrast, *Dean*
Simon S. Selig, Jr. Chair for Economic Growth

335 Brooks Hall
Athens, Georgia 30602-6251
Telephone 706-542-8100
Fax 706-542-3835
busdean@terry.uga.edu

March 21, 2012

Mr. Jere W. Morehead
Senior Vice President for Academic Affairs and Provost
203 Administration Building
The University of Georgia
Athens, GA 30602
CAMPUS MAIL

Dear Jere:

I have reviewed the proposal for the creation of the College of Engineering at the University of Georgia and strongly support this initiative. I think its creation is important for the economic development of the state of Georgia and for the continued improvement of the University.

Sincerely,

Robert

Robert T. Sumichrast, Dean

\abg

Georgia Health Sciences University | The University of Georgia

MEDICAL PARTNERSHIP

March 24, 2012

Provost Jere Morehead
Office of the Provost
UGA Administration Building
Athens, Georgia 30602

Dear Provost Morehead:

I write to support the proposal for a College of Engineering at the University of Georgia. Since 1998, the growth of Engineering education has continuously increased through the Department of Biological and Agricultural Engineering and the Faculty of Engineering. With the recent expansion of degree programs in engineering, UGA should agressively seize the opportunity to develop a College of Engineering.

As one who has the privilege of developing a new medical campus in partnership with the University of Georgia, it is already evident to me that recruitment of outstanding research faculty is impeded without the status of an independent College. Additionally, student choice of institution is also effected. A College of Engineering will not only facilitate recruitment of outstanding Georgians interested in pursuing a career in engineering within a broad university experience, it will open opportunities for recruitment of additional faculty with expertise in education and research who seek the same environment. The expertise of modern engineers has become an essential component in interdisciplinary research and the multidisciplinary environment of UGA with its sixteen colleges and the Medical Partnership creates the perfect setting for both futuristic student education and research with a goal of serving the citizens of the State of Georgia.

Therefore, I enthusiastically support the proposal to move forward in the development of a College of Engineering.

Very truly yours,

Barbara

Barbara L. Schuster, M.D.

The University of Georgia

Odum School of Ecology

Jere Morehead,
Senior Vice President for Academic Affairs and Provost
203 Administration Building
Athens, GA 30602

27 March, 2012

Dear Jere:

I confirm my support of the proposal for a College of Engineering at the University of Georgia. As articulated by Dr. E. Dale Threadgill (Director of the Faculty of Engineering and Head of the Department of Biological and ad Agricultural Engineering), the new College will foster scientific, instructional and public service for the state of Georgia and expand various academic missions at the university.

Please do not hesitate to contact me or faculty in the Odum School if we may serve to facilitate the proposed College.

Yours sincerely,

John L. Gittleman,
Dean and Professor of Ecology

Athens, Georgia 30602-2202 • Telephone (706) 542-2968 • Fax (706) 542-4819
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1785
The University of Georgia

College of Pharmacy

27 March 2012

Jere Morehead
Senior Vice President for Academic Affairs and Provost
0206 Administration Building
University of Georgia
Athens, GA 30602

Dear Jere:

I have reviewed the Proposal for a College of Engineering at the University of Georgia, and I believe it is an excellent idea that I enthusiastically support.

A College of Engineering has several benefits to the State and the University. The state of Georgia has one of the lowest percentages of engineers in its workforce in the United States. In order for Georgia to continue its economic development, the University needs to increase the number of engineers that it graduates. The addition of a College of Engineering at the University will help meet this demand and contribute to a robust economy.

By adding a College of Engineering, the University will be adding a new dimension that will be beneficial to many of the other Colleges on campus, whether it is in teaching, outreach or research. For example, in the health sciences, the influence of engineering is significant and likely to play a critical role in our ability to improve diagnosing and treating disease and injuries.

I look forward to seeing a College of Engineering at the University of Georgia, and the opportunity for future collaborations and interdisciplinary activities.

If I can assist in any way to ensure the success of this proposal, please do not hesitate to contact me.

Sincerely,

Svein Øie
Dean

SØ:srm

cc: D. Threadgill

1785
The University of Georgia®

College of Environment and Design

27 March 2012

Jere Morehead, Vice President for Academic Affairs and Provost
203 Administration Building
University of Georgia
Athens, GA 30602

Dear Provost Morehead:

I fully approve and enthusiastically support the proposal sent forth by the Faculty of Engineering to officially form a new College of Engineering at the University of Georgia. As dean of an interdisciplinary college, I am particularly encouraged by the goals listed in the proposal focused on encouraging "adaptive research at the interface of disciplines" and "fostering innovative partnerships." Because one of the College of Environment and Design's strategic goals is to facilitate community engagement, I am also heartened by the attention in the proposal to underrepresented communities.

What I find the most encouraging is the clear intention for the new college to become a place of synthesis and a nexus, whereby it will pull together the best thinkers in the humanities, social sciences, sciences, and design and planning to grapple with the most pressing engineering questions of our time. That direction is already being promoted at a national level, where NSF, USDA, and other funding sources are promoting actionable science and supporting socio-environmental synthesis centers.

At other universities, programs found in our college—environmental planning, historic preservation, landscape architecture, and environmental ethics—are strengthened by a direct relationship with the engineering programs found there. We look forward to the outstanding opportunities for collaboration and synthesis that this new college will bring to CED and the University of Georgia.

Best regards,

Daniel J. Nadenicek, Dean and
Draper Chair in Landscape Architecture

609 Caldwell Hall • Athens, Georgia 30602-1845 • Telephone 706-542-1816 • Fax 706-542-4485
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The University of Georgia
Daniel B. Warnell School of Forestry and Natural Resources
Office of the Dean

March 27, 2012

Professor Jere Morehead
Senior Vice President for Academic Affairs and Provost
201 Administration Building
The University of Georgia
Athens, Georgia 30602
Via E-mail

Dear Provost Morehead,

This letter is to provide support for the proposed Engineering College curriculum and the creation of the College of Engineering. Warnell Faculty look forward to working with the College of Engineering in a number of critical areas related to forestry and natural resources. Our programs in water and soil, forest operations, and biometric and operations research will benefit dramatically from increased collaboration with the new unit. Please let me know what we can do to make this transition easier for the University and the Engineering College as we move forward.

Best Regards,

Mike Clutter

Mike Clutter, Dean
Warnell School

cc: Dr. Dale Threadgill, Agricultural and Biological Engineering

Athens, Georgia 30602-2152
Telephone: 706.542.2686 • Fax: 706.542.8356 • http://www.warnell.uga.edu
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College of Education
Office of the Dean

March 26, 2012

Provost Jere Morehead
Administration Building
The University of Georgia
Athens, GA 30602

Re: Engineering

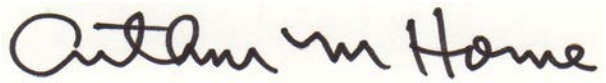
Dear Provost Morehead,

Faculty members and administrators from the College of Education have been integrally involved with the Faculty of Engineering for many years. We have several engineers among our faculty members, including faculty in the department of Workforce Education, and they have been highly engaged with faculty from the Faculty of Engineering. Examples of our engagement include adjunct appointments across the two disciplines, leadership of College of Education faculty members working with Faculty of Engineering members developing early career STEM learning experiences for high school students around the state, and joint projects of research and teaching. I have had the opportunity of meeting with the Advisory Board of the Faculty of Engineering for the past three years and have enjoyed the experience of meeting the engineering and business leaders who comprise the Advisory Board.

As the engineering discipline develops in the state, it is critical that we move from a Faculty of Engineering to establish a College of Engineering and that we then provide the support and leadership necessary for the new college to become an equal with the others on campus. To this end, I am very supportive of the efforts of Dale Threadgill and the faculty of the Faculty of Engineering as they take the steps necessary to be a fully functioning college. I believe this will be highly beneficial to the future students of our state, but will also be a very positive collaborative opportunity for many of our existing colleges. I am confident the College of Education will continue to have ongoing interdisciplinary work events as we promote the STEM majors on our campus.

If you have any questions or need any additional information, please feel free to contact me.

Warm regards,



Arthur M. Horne, Ph.D.
Dean and Distinguished Research Professor

1785
The University of Georgia

College of Public Health
Dean's Office

March 28, 2012

Professor Jere W. Morehead
Senior Vice President for Academic Affairs and Provost
206 Administration Bldg.
220 S. Jackson Street
Athens, GA 30602

Re: Establishment of College of Engineering

Dear Provost Morehead:

I am providing this letter supporting the proposal to establish a College of Engineering at the University of Georgia. This new college will provide a needed academic home for the expanding engineering academic programs and faculty and advance the University's status as a more comprehensive University.

I look forward to our faculty collaborating with the faculty in this new college.

Sincerely,

Phillip L. Williams, Ph.D.
Dean

Paul D. Coverdell Center for Biomedical and Health Sciences • Athens, Georgia 30602-7396
Telephone (706) 542-0939 • Fax (706) 542-6730
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The University of Georgia®

Grady College of Journalism and Mass Communication

To: Jere Morehead, Provost

From: E. Culpepper Clark, Dean

Date: March 27, 2012

Re: Support for formation of the College of Engineering

Jere, I have long considered the conversion of UGA's program in engineering into a college to be a top university priority. My previous experience at the University of Alabama gave me a good perspective on the value of an engineering college fully integrated into the mission of a flagship university. Despite the fact that UA's engineering college was one of the oldest accredited programs in the nation, even pre-dating Auburn, calls to end duplication frequently led to editorial demands that UA eliminate its engineering college.

My response to those declarations as I traveled about the state was that engineering's role at UA was integral and instrumental to what the Tuscaloosa campus offered; i.e. one could not imagine UA without joint programming between engineering and business or engineering and arts and sciences and so on. The same will increasingly be said of UGA. It is time. Not only will we contribute to the supply of well-educated engineers in Georgia, but as important, we will strengthen our academic offerings and research agenda and thus our global mission.

I know the Curriculum Committee will receive it tomorrow with the same optimism I have for UGA's future in engineering education.

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The University of Georgia

Graduate School

April 3, 2012

Dr. Jere Morehead
Senior Vice President for Academic
Affairs and Provost
Administration Bldg.
Campus

Dear Provost Morehead:

I am very pleased to endorse the establishment of the College of Engineering of the University of Georgia and perceive the College to be an asset to our institution.

Sincerely,

Maureen Grasso
Dean

MG:lcj

320 East Clayton Street, Suite 400 • Athens, GA 30602-4401
Telephone 706-542-1739 • Fax 706-425-3094
www.grad.uga.edu
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The University of Georgia

School of Social Work
Office of the Dean

April 2, 2012

Provost Jere W. Morehead
Senior Vice President of Academic Affairs and Provost
Administration Building
University of Georgia
Athens, Georgia 30602

Dear Provost Morehead:

It is a real pleasure to convey my full support for the establishment of a College of Engineering at the University of Georgia. I have thoroughly reviewed the proposal for the College of Engineering, dated March 3, 2012. I wholeheartedly endorse the objective to provide uniformly high academic quality education in all its engineering degree programs and achieve national stature through strategically adaptive research and outreach programs; and therefore be uniquely responsive to the increasingly complex needs of our state and society at large.

The goal related to cultivating an environment to prepare future leaders which is particularly appealing to women and other underrepresented communities by integrating the humanities, sciences and engineering is inextricably linked with the strategic priorities of the School of Social Work. Social Work and Faculty of Engineering colleagues are currently engaged in collaborative efforts that emphasize creating transdisciplinary experiential learning opportunities focused on educating reflective practitioners for sustainable, community-driven practice in a global society. The School of Social Work looks forward to building on this partnership and expanding interdisciplinary collaborations.

I enthusiastically endorse the proposal and look forward to the many benefits that our University community will reap.

Thank you for your consideration.

Sincerely,

Maurice Daniels
Dean and Professor

Tucker Hall • Athens, Georgia 30602-7016 • Telephone (706) 542-5424 • Fax (706) 542-3845
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The University of Georgia

Linda Kirk Fox
Dean

College of Family & Consumer Sciences
Office of the Dean

224 Dawson Hall
Athens, Georgia 30602-3622
Telephone (706) 542-4879
Facsimile (706) 542-4862
Web page www.fcs.uga.edu

April 2, 2012

Dale Threadgill
Director, Faculty of Engineering
University of Georgia

Dear Dr. Threadgill,

The College of Family and Consumer Sciences (FACS) at the University of Georgia is pleased to support the proposed College of Engineering at UGA.

Textile science faculty in FACS collaborate with industry and governmental partners and organizations in research endeavors. As the textile industry has changed, so too has the FACS textile science program, with increasing emphasis on research in nanotechnology, medical and protective textiles, and sustainability. Collaborations among faculty exist in engineering, chemistry, biochemistry, and physics and the nanotechnology center with the potential to develop a materials science program. FACS Textile Science program with its well-developed connections to industry can be strong collaborative partners with the newly formed College of Engineering at UGA.

On behalf of the faculty and graduate students in my college, we look forward to a strong future working together to benefit the students and the industries of the state of Georgia and the region. Please don't hesitate to contact me for additional information, lkfox@uga.edu.

Sincerely,

Linda Kirk Fox, Ph.D.
Dean

P:\Dean Fox\Letters and Letterhead\ltr support college engineering March 2012.doc

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1785
The University of Georgia

School of Public and International Affairs
Office of the Dean

March 28, 2012

Jere W. Morehead
Senior Vice President for Academic Affairs and Provost
The University of Georgia
203 Administration Building
CAMPUS

Dear Provost Morehead:

The purpose of this letter is to indicate my support for the proposed College of Engineering at the University of Georgia. Earlier this week our colleague Dale Threadgill, Director of the Faculty of Engineering, contacted me regarding this matter. He was kind enough to share with me the College of Engineering proposal. After reviewing the proposal, I am pleased to lend my support to this initiative.

In recent years the Faculty of Engineering has developed a wide variety of engineering degree programs that will form the academic base of the College. The next logical step in the development of Engineering education and research at the University of Georgia is the establishment of a College of Engineering.

A College of Engineering on our campus will partially alleviate the now unmet need for well trained engineers in our state and will contribute to Georgia's economic growth and development. Increased extramural funding for engineering research will benefit both the University of Georgia as well as the people of the State of Georgia. For these reasons, I am pleased to lend my support for this proposal.

Sincerely,

Thomas P. Lauth
Dean

cc: E. Dale Threadgill

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The University of Georgia

Franklin College of Arts and Sciences
Office of the Dean

March 27, 2012

E. Dale Threadgill, PhD, P.E.
Director, Faculty of Engineering and
Head, Department of Biological and Agricultural Engineering
101 Driftmier Engineering Center
University of Georgia
Athens, Georgia 30602

Dear Dale,

I am pleased to write in support of the proposal to create a College of Engineering at the University of Georgia. The proposed College will provide a base for consolidation of engineering programs at UGA, facilitate development of new interests in engineering and interdisciplinary interests, and educate students to meet increasing demands in the state for individuals with engineering expertise.

Cordially,

Hugh Ruppersburg
Interim Dean