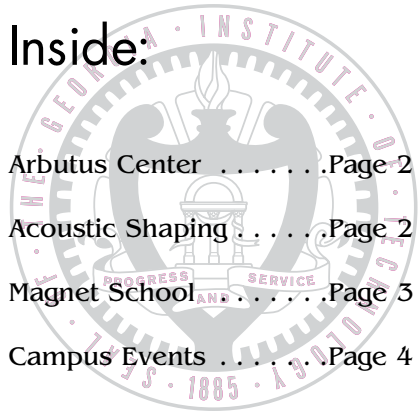


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THE WHISTLE

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THE GEORGIA INSTITUTE OF TECHNOLOGY

Advisory board focuses on policy leadership

David Terraso
Institute Communications
and Public Affairs

No longer satisfied with being known only for its technological prowess, Georgia Tech wants to use its high-tech know-how to help government leaders shape public policy.

"It's clear to me that technology is interwoven into every part of our lives today," President Wayne Clough told members of the Georgia Tech Advisory Board (GTAB) at the group's fall meeting on Nov. 8. "Georgia Tech's expertise in science and technology puts it in a unique position to improve public understanding of complex issues and to assist local and national government leaders to

appreciate how we can best respond to the urgent questions we face today. These include how we protect ourselves against chemical, biological and cyber-terrorism, helping save our fragile environment, and using technology to improve our lives and cities," he later added.

The advisory board meets twice a year and is comprised of top business and government leaders from around the nation, most of them Georgia Tech alumni. Much like a corporate board of directors, GTAB advises Tech's administration on planning and helps promote Tech's activities to the outside world. Founded in 1957 as the National Advisory Board of the Georgia Tech National Alumni Association, the board changed its name to GTAB

in 1990.

The board has historically advised the Institute and its presidents on strategic planning issues and new initiatives such as those undertaken in the curriculum and research.

This fall's meeting featured speeches by former U.S. Senator and current Georgia Tech Professor Sam

Nunn; Bell South President of Georgia Operations Phil Jacobs; Tech alumnus and State Rep. Richard Royal; Renay Blumenthal, policy director for Gov. Roy Barnes' office; and E. Floyd Kvarme, co-chair of President Bush's Presidents' Council of Advisors on Science and Technology (PCAST).

Board members also toured



Speaking to the Georgia Tech Advisory Board, Sam Nunn referred to the need to "balance security versus economics" when prioritizing threats to national security.

photo by Nicole Cappello

Technology Square, attended a dinner that featured musical entertainment provided by Georgia Tech students and watched the Tech vs. Florida State football game.

The policy question, however, was central to the agenda. Clough asked

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Alcohol policy guidelines now include visitors

David Terraso
Institute Communications
and Public Affairs

Campus visitors must follow the same alcohol use guidelines as employees and students, thanks to a new campus alcohol policy. The policy was announced by President Wayne Clough in a letter to deans and department heads last week.

"We felt it was important that all people on campus play by the same rules when it comes to using alcohol. This policy is designed to complement the existing employee and student alcohol policies," said Vice President of Student Affairs Lee Wilcox.

According to the new rules, alcohol cannot be present at any event or activity without prior authorization by the president's office or his delegates. The delegates include Provost Jean-Lou Chameau, Senior Vice President for Administration and Finance Bob Thompson, Executive Director of the Alumni Association Joe Irwin, Director of the Athletic

Association Dave Braine and Wilcox.

Campus departments and units may also have additional rules on the use of alcohol in their facilities.

In addition, tailgating is allowed for official Georgia Tech sporting events, but is limited to three hours before and after the event. Kegs and common containers for alcohol are not permitted at tailgate parties on campus.

The policy also mandates that student attendance at events where alcohol is served must be completely voluntary.

Copies of the new policy as well as the existing student and employee alcohol and drug policies are available from Wilcox's office or the drug policy coordinator in the Office of Human Resources.

For more information...

A complete campus alcohol policy statement is available at:
www.deanofstudents.gatech.edu/integrity/docs/alcoholdrugpolicy.htm



photo by Nicole Cappello

Associate athletic director Mary McElroy (right) congratulates alumnae Shirley Clements Mewborn (center) and Elizabeth Herndon (left) on their ride in the Ramblin' Wreck as part of pre-game festivities at last week's Tech/FSU game. Herndon made history in 1952 as one of the first two women admitted to Tech; the other was Diane Michel. Mewborn was one of the first two women to graduate from Tech in 1956. Both Mewborn and Herndon were honored in a pre-game ceremony as part of Tech's year-long celebration of 50 Years of Women at Georgia Tech.

1952 - 2002

50 YEARS
of
WOMEN
at TECH



“QUOTE— UNQUOTE”

“This is a practical idea that could help people maintain their balance. For someone with sensory problems, the high-tech answer might be a bionic ankle, but maybe instead they’ll just slip into a pair of bionic socks. Those are a whole lot cheaper.”
—Kurt Weisenfeld, a professor in the School of Physics, on the electronic signals a person’s feet send to the brain for the purpose of maintaining balance and posture.
(*New York Times*)

“There’s going to be a change in what we think privacy is. We’ve had the luxury of not seeing that our privacy and another person’s secrecy are the same thing. We want the government to be open in its dealings, yet we want to know about the private lives of famous people. We think those things don’t apply to us.”
—Colin Potts, associate professor in the College of Computing, on web marketers pushing the limits of privacy.
(*Atlanta Journal Constitution*)

Center offers learning ‘any time, any place’

Jackie Nemeth
School of Electrical
and Computer Engineering

Last week the School of Electrical and Computer Engineering (ECE) celebrated the formal opening of the Arbutus Center for Distributed Engineering Education, an initiative devoted to developing state-of-the-art, computer-enhanced education technologies for ECE students to pursue their engineering studies at literally “any time, any place.” The Arbutus Center has been formed as a result of broad and early acceptance of pioneering work in the emerging field of distributed education at Tech and through the funding of an ECE alumnus.

The Arbutus Center will be led by Thomas P. Barnwell, the newly named Arbutus Chair Professor and Georgia Research Alliance Eminent Scholar in Education. Barnwell recently completed 31 years as a researcher and professor at Georgia Tech and was honored with a first-of-its-kind Lifetime Achievement Award by his ECE faculty colleagues earlier this year.

Well regarded throughout the world for his research and technical contributions in the field of digital signal processing over the past several decades, Barnwell in the early 1990s began to focus his attention on improving the methods of teaching new engineers. Along with a

number of ECE colleagues, he has informally led the successful development and packaging of an array of new tools and techniques using the latest computer and Internet technologies to revolutionize the manner in which engineering courses will be taught in the future.

“The new Arbutus Center now formalizes this work, and gives focus, visibility and added impetus to the expansion of the work that Tom Barnwell has already begun,” said Roger P. Webb, Steve W. Chaddick School Chair of Electrical and Computer Engineering. “We expect Georgia Tech to become the world leader in the advancement of enhanced methods for delivering technical education to future generations of engineers.”

Barnwell has also played a pivotal role in the computer-enhanced education movement across the Georgia Tech campus, said Jean-Lou Chameau, provost and vice president for Academic Affairs. He also noted that Barnwell is a “go to” person when it comes to creativity in this important area.

The Arbutus Center has been funded through a \$2.25-million grant from James R. Carreker, a 1969 electrical engineering graduate, and his wife, Helen, along with matching funds from the Georgia Research Alliance. Carreker, who has served on ECE’s Advisory Board and the Georgia Tech Advisory Board, has

long been active in entrepreneurial philanthropy. The Carrekers decided to fund the Arbutus Center because of the potential for positive and lasting consequences from advancing the methodology for teaching complex engineering courses.

“Much of the advancement of civilization has been based on the ability of pragmatic engineers to understand increasingly complex problems and to apply learned skills and problem-solving approaches to create innovative solutions,” said Carreker. “Helen and I are pleased to help foster the advancement of engineering education through the establishment of the Arbutus Center at Georgia Tech, and to leverage the existing capabilities of an in-place team of top-notch engineering educators to expand the field of classroom education into a world without boundaries, where students will be empowered to study from the leading professors at a place and time that is best optimized for the student. This is a fundamental change in the process of delivering education and one that would have been virtually impossible prior to the global expanse of the Internet and the relatively affordable technology of the personal computer. This is an exciting endeavor and one that advances the reputation and impact of Georgia Tech.”

Sound idea: Radio waves and space settlements

Larry Bowie
Institute Communications
and Public Affairs

It may sound like pure science fiction, but recent research in the School of Aerospace Engineering indicates that large, massive structures could be built in space simply by using radio waves that create force fields to move materials and assemble them into various structures. Once bonded in place, the structures could lay the groundwork for human settlement in space and a space-based economy, according to Narayanan Komerath, a professor of aerospace engineering.

A large number of objects can be arranged into shapes to form structures in reduced-gravity environments using radio and electromagnetic waves, according to Komerath. The structures could range from micrometer-scale discs to kilometer-scale habitats.

Komerath recently presented his team’s work in Atlanta during a conference of the NASA Institute for Advanced Concepts (NIAC), which explores ideas that could potentially result in funding from NASA. The team, which named the project “Tailored Force Fields,” found that structures could be built in small, enclosed gas-filled containers using sound waves. But in the vacuum of space, electromagnetic waves could

be used.

“The development of a comprehensive space-based economy is the best way to achieve the goals of human exploration and development of space,” Komerath said. “In such an economy, humans would gradually find more reasons to invest in space-based businesses and eventually to live and work in space for long periods, interacting for the most part with other humans located in other space habitats.”

Concepts for extracting materials and power from the moon and asteroids are already being developed. But Komerath says the idea of using force fields could solve some of the long-term problems of inhabiting space, such as the construction of a massive shield to protect humans from radiation, the danger and expense of humans laboring in space and skepticism about the prospects for building an economy in space.

According to Komerath’s idea, robotic craft would be sent to Earth’s asteroid belt to break up an asteroid into small pieces. Formations of satellites would follow and form a radio-wave resonator that would begin moving the debris into various structures. Komerath estimates that it would take approximately one hour to form a rubble cloud into a 50-meter long enclosed structure, and could hold for another 12 hours while the pieces are

fused together.

The idea follows earlier flight experiments conducted by the team that tested the effects of intense sound on a variety of particles in near-zero gravity conditions. Results from the technique – called “acoustic shaping” – proved the basic theory that sound waves could form raw material into walls of specified shape.

These experiments have been performed inside rectangular boxes containing various materials including Styrofoam pieces, porous grains, aluminum oxide spheres and aluminum spheres. These experiments have been performed on the ground and aboard NASA’s KC-135 Reduced Gravity Flight Laboratory. Komerath says that light is already used in microscopes to hold nano-sized particles, and microwaves could shift millimeter-sized material, but radio waves would be needed to move brick-sized stones. An engineer by training, Komerath admits that such a concept sounds alien to most engineers, who are taught to think “faster, lighter and smaller” as well as “cheaper and better” for anything related to space.

Komerath’s findings were gathered after a six-month feasibility study funded by a grant from the NIAC. Komerath estimates that a demonstration experiment could be ready for space flight by 2009.



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Rockdale students head to France for research exchange

Larry Bowie
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Ten high school students enrolled in Georgia Tech's magnet school program in Rockdale County traveled to Europe this week to collaborate with students at a magnet school in Metz, France, as part of a science research exchange program.

The students – all sophomores and juniors – will take with them research projects and experiments they developed at Rockdale Magnet School of Science and Technology in Conyers, Ga. Once in France, they will share the projects with students at the Lycee de la Communication (Lycom). Lycom is located near Tech's Metz campus in the Lorraine region of France.

Students there are just beginning to understand the importance of learning science through research, said Angela Quick, director of Rockdale Magnet.

"In a sense, our students will be acting as teachers to explain the fundamentals and merits of scientific research and demonstrate various techniques," she said. "We hope this experience will trigger a continued working relationship and exchange of ideas between our students and those in France."

Rockdale Magnet is the only school of its kind in the nation offering college-level science and technology courses and research opportunities to high school students.

Touted as "a new concept in education" when it opened its doors in fall 2000, Rockdale Magnet is a comprehensive four-year school experience open to students in the Rockdale County Public School system. While earning their high school diplomas, magnet students receive preparation for research university and academic work.

Prospective students complete a rigorous application process that includes interviews and experiments. Typically, those accepted have expressed interest and proficiency in math and science. The curriculum is similar to advanced placement classes, but the magnet school curriculum also includes a research component.

"The research component is what truly makes the program unique because that's where the students bridge the gap between theory and application," Quick said. "They design experiments, run assays, publish papers and defend their research." Quick and the students will be accompanied by Tech Professor Whit Smith, School of Electrical and Computer Engineering. Smith acts as Tech's liaison to the magnet school and helped teachers develop the magnet school curriculum to introduce students to information theory concepts.

"Our students are learning formal research techniques that are typical of what research laboratories use to systematically attack a problem," Smith said. "At some point, they will be given problems that are unique to each of them. Over a multi-year period, they will follow through with those research problems."



IN BRIEF:

Section of Ferst Drive closed for 2002

The Office of Design and Construction within the Department of Facilities has announced that to support the construction and utility requirements of the Whitaker Biomedical Engineering (BME) Building, the section of Ferst Drive between Atlantic Drive and Plum Street will be closed Monday, Nov. 18, through late January 2003. In addition, the peripheral avenues — Fourth, Fifth, Atlantic and Plum Streets — will be affected for limited closure or as detour routes.

The purpose of the closure is to allow for the extension of water and gas lines, which are critical not only to support the BME building construction, but also to support the new Klaus Advanced Computing Building.

Closing the street permits the contractor to complete the work as quickly as possible with the least possible hazard to vehicular and pedestrian traffic. The sidewalk along the Cherry-Emerson Building will continue to be available to pedestrians.

Faculty feedback now online

The Center for the Enhancement of Teaching and Learning (CETL) is reminding faculty that course/instructor opinion surveys will be available online from Monday, Nov. 25, until Friday, Dec. 6, from 6:00 a.m. – midnight, which gives students the opportunity to provide feedback about the course and the quality of instruction. Using their Banner ID and password for access, students should be directed to:

[www.coursesurvey.gatech.edu/](http://www.coursesurvey.gatech.edu/student_login.cfm)

[student_login.cfm](http://www.coursesurvey.gatech.edu/student_login.cfm) to complete a survey. Those with questions or comments should e-mail CETLhelp@gatech.edu.

New research database available to students and faculty

The Office of Information Technology (OIT) and the Georgia Tech Library have expanded the Institute's electronic research services to include an extensive database of information technology (IT) research and analysis documentation to serve the campus community. The research documentation is provided through a subscription service with Gartner Inc., an independent provider of research and analysis services, following a discussion with faculty members assessing research needs.

The documentation covers more than two dozen IT focus areas including hardware, software, telecommunications, networking, wireless, semiconductors, and knowledge management. Research materials are written and developed by more than 700 analysts and consultants contracted by Gartner. The database, which is for educational use only, is accessible by browsing document titles within 100 core topic areas.

After a discussion with faculty members, OIT acquired the subscription for the Gartner research materials under a special program wherein universities locally host a copy of the data and make it freely available to students and faculty.

"We have many students, faculty and staff engaged in or working on IT-related projects who need the most accurate and current information on technology advances and research," said John Mullin, associate vice president/associate vice provost of Information Technology. "The Gartner database helps ensure that they have the most timely and accurate information possible."

For more information on the Gartner research service, visit the Library Web site at www.library.gatech.edu.

GTAB, cont'd from page 1

the board for its thoughts on how Tech can be more active in advising and shaping public policy on a national, state and local level. He also asked them how Tech can prepare its students to take leadership roles later in their careers.

The board and the keynote speakers were of one mind in strongly endorsing an expanded role for Tech in shaping public policy. Placing experts in key positions to communicate with the media and government leaders were among the key recommendations made by the board. Georgia Tech's faculty, students and facilities were felt to be tremendous resources in an era where too few are informed about technology. It was noted that most legislators have neither the background nor the time to fully understand the complexities of many of the day's issues. The board also

indicated that encouraging faculty experts to share their expertise with the outside world would do much to increase the public profile of Tech regionally, nationally and internationally.

Clough, the board said, is leading the Institute by example through his work on PCAST and his positions as chair of Gov. Barnes' natural gas task force and Mayor Shirley Franklin's clean water panel. But Tech has many more experts in residence who can serve the community, and the Institute should do more to make sure their voices are heard.

The board also recommended Tech increase opportunities for students to get involved in community and service projects and issues. Ideas that were discussed included creating more government internships, increasing enrollment in public policy courses and infusing the curriculum with lessons on leadership and communications skills.

Tech's student leadership initiative, announced last year with Chemical Engineering Professor Arnold Stancell's appointment to the new Turner Chair of Servant Leadership, is a big step in the right direction, the board agreed. The initiative aims to teach leadership skills to all students through various classroom and teamwork exercises as well as co-curricular opportunities.

Deservedly or not, Tech students have a reputation for being so involved in their studies they have little time or interest in getting involved in community issues, the board said. Tech needs to provide more opportunities for students to use their knowledge to benefit society.

"Our students ought to graduate with a great sense of dissatisfaction," explained board member Ray Anderson.

"Dissatisfaction with the world and the way things are and the commitment to change it."