Click on the cover to view the Annual Report.
A MESSAGE FROM THE CHAIR

To Colleagues and Friends of the Woodruff School of Mechanical Engineering:

We completed another very successful, busy, and satisfying academic year, wherein we have continued to improve the quality of our programs. We successfully underwent an ABET 2000 review of both of our undergraduate programs, completed the conversion of our academic programs to a semester calendar, and most visibly, saw construction begin on the Manufacturing Related Disciplines Complex Phase II building, which will house roughly half of the Woodruff School. This tremendous improvement in our physical plan will complete a three-building complex within seven years and provide us with one of the finest facilities for a mechanical engineering program in the country.

This report presents the record of accomplishments for the period July 1, 1997 to June 30, 1998. In addition to the major accomplishments just noted, the faculty, staff, and students of the Woodruff School continue their tradition of excellence in the pursuit of our vision to be the best engineering education program of its kind and to be so recognized. The quality of both our undergraduate and graduate students continues to improve, and our faculty and staff have also improved and expanded. Because of the tremendous efforts on the part of our faculty in pursuing their research programs, they brought in 50 percent more in research funding commitments this past year than the expenditures for the same period. This bodes well for our future research and education programs, particularly in light of the national environment for research funding. By way of new academic programs this past year, we launched our master's level mechanical engineering program at the Georgia Tech Lorraine campus in Metz, France, and participated in the University System's undergraduate summer program at Metz with 35 students and one faculty member. We also had 43 undergraduate students and a faculty member participate in the Georgia Tech/Oxford program at Worcester College in Oxford, England. It will be clear as you read this report that our faculty are talented, energetic, and innovative with respect to both academic and research programs.

I hope you find this annual report informative and interesting. It represents a picture of our
accomplishments for the past year in the Woodruff School, highlighting our activities for faculty, staff, our degree-granting programs, and our outstanding students. This document is available to anyone interested in learning more about Woodruff School activities. You will find the report on our web page at http://www.me.gatech.edu (view Woodruff School Publications). If you have any questions about our programs or if you have any suggestions for how to improve our programs, please do not hesitate to let me know.

Ward O. Winer, Regents' Professor and Chair

September 1998

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APPRECIATION

Writer and Editor: Rona A. Ginsberg

Special thanks to: Kaye Fuller for preparing the manuscript, Craig Moonshower, with the help of Suzanne Mekeel, for designing the document, Gary Meek for taking most of the photographs in this report, and Sue Clites for the photo in the anechoic chamber. We also gratefully acknowledge the Woodruff Endowment to the Woodruff School of Mechanical Engineering, which provided the funds to produce this annual report.

COVER FIGURE

The picture on the front cover shows a small segment from our newly installed historical display titled, The George W. Woodruff School of Mechanical Engineering: The Early Years at Georgia Tech. The view is of articles from the Wood Shop. This shop was mandatory for all first year students and proficiency was required. Wooden boxes were made to carry the tools for pattern and product making. Also shown is a working clock made in the Wood Shop; notice the words on the hands. The clock is but a sample of the items produced in the shop, where furniture was made for the dormitories or sold to the public.
The Back Cover: This picture shows another segment of the Woodruff School's historical display. All students were required to take four years of mechanical drawing, where proficiency was considered almost as important as skill in shop. Pictured here are three mechanical drawings that were done in 1893. Students progressed from freehand drawing in the first year to drawing various problems, to machine parts, and to detailed machine design drawings in the senior year. Drawing instruments cost about $13.00 and classes met for 2 1/2 hours a week.

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Updated: 8 September 2003
THE WOODRUFF SCHOOL

In 1888 the Georgia School of Technology opened its doors and admitted its first engineering class: 129 mechanical engineering students enrolled in Tech's first degree program. As part of their education these early students worked at trades such as forging, woodworking, and mechanical drawing. The products of these shop exercises were then sold to produce income for the School.

The first Head (starting in 1889) and Professor of Mechanical Engineering was John Saylor Coon, a graduate of Cornell University and a charter member of the American Society of Mechanical Engineers. He held this position until his retirement in 1923. For eight years mechanical engineering was the only degree offered, and Dr. Coon saw to it that classes were challenging—so challenging that only 28 of the original students earned degrees. Uncle Si, as Professor Coon was known, set high standards that became a precedent at Tech.

Over the years, the mechanical engineering program expanded and changed. By 1896, the contract system of shops had been abandoned, and workshops were entirely instructional. Departments in electrical, civil, and textile engineering were added, and increasing emphasis was given to higher mathematics, theoretical science, and original research. The first M.S.M.E. was authorized in 1922, and a doctoral program was added in 1946. Georgia Tech graduated its first two students, with bachelor's degrees in mechanical engineering, in 1890. The first M.S. degrees were awarded in 1925, and the first Ph.D.'s were granted in 1950. In 1949, the Department of Mechanical Engineering officially became the School of Mechanical Engineering with its own director and administrative staff.

Today, the Woodruff School of Mechanical Engineering is the oldest and second largest of the eight divisions in the College of Engineering at Georgia Tech. In 1985 the School was named for its benefactor, distinguished Atlanta business and civic leader, the late George W. Woodruff (class of 1917). The programs in mechanical engineering, nuclear and radiological engineering, health physics, and bioengineering house 1067 undergraduate students (this number excludes co-op students at work) and 479 graduate students.

Research and teaching in the Woodruff School is directed by a distinguished faculty of 65 academic faculty and 18 full-time research engineers/scientists. Many of the 418 graduate students in mechanical engineering and 71 graduate students in the nuclear engineering and health physics
programs are employed as research assistants and are an integral part of this technical community. In 1997-1998, Woodruff School research teams conducted work on more than 215 grants and contracts from government and industry.

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THE YEAR IN REVIEW

This past academic year (summer 1997 through spring 1998) featured a busy and exciting calendar for the faculty, staff, and students of the Woodruff School. Two major challenges, an evaluation visit by the Accreditation Board for Engineering and Technology (ABET) and the conversion of our curriculum to a semester-based approach, were completed during this time. In addition, there were many other events sponsored by the Woodruff School; some of these projects are highlighted in this review, enumerated somewhat by their order of occurrence.

School Honors Jack M. Zeigler

On Friday, September 26, 1997, the Woodruff School held an event to honor Mr. Jack M. Zeigler (BME 1948): The dedication of the Woodruff School Lobbies in MRDC I. Furnishings for the lobbies were made possible through the generosity of Mr. Zeigler.

The day began with Dr. Winer conducting Mr. Zeigler and guests (many of his family members came for the dedication) on a tour of the facilities. After the dedication ceremony, a reception in the form of the Graduate Student/Faculty/Staff Cookout was held on the lawn between MARC and MRDC I. This was an opportunity for everyone new to the School to get acquainted.

Generous Donor

Mr. Jack M. Zeigler (class of 1948) received his bachelor’s degree in mechanical engineering after interrupting his education with 3 1/2 years of service in the U. S. Army. While at Georgia Tech, he was a co-op student at two companies, where he worked primarily as a draftsman. In one company he earned $1.25 an hour; this was a raise from $0.55 per hour at the other company.

Mr. Zeigler is the retired President and Owner of Fabrication Engineering Service Company, Inc. (FESCO). FESCO specializes in the made-to-order fabrication business using high quality alloy steels to produce tanks for the chemicals industry and pressure vessels for textile manufacturers.

Until his retirement in 1989, Mr. Zeigler was a registered professional engineer in Alabama, Georgia, North Carolina, South Carolina, and Virginia, and he is a lifetime member of the American Society of Mechanical Engineers and the American Welding Society.

Mr. Zeigler has been very supportive of Georgia Tech. He was the chairman of the Charlotte Regional Campaign Steering Committee of the Georgia Tech Centennial Campaign, a member of the Alexander-Tharpe Fund Board of Trustees, a member of the class of 1948 40th Reunion Fund Committee, and past president of the Charlotte Georgia Tech Club.

He is also the recipient of the 1994 Woodruff School Distinguished Alumnus Award, and the 1994 Distinguished Engineering Alumnus Award sponsored by the College of Engineering at Georgia Tech. Jack Zeigler was born in Thomasville, Georgia and resides, with his wife, Sarah, in Charlotte, North Carolina.

Tech Team Wins First World Air Race
The husband-and-wife, Georgia Tech alumni flying team of Larry and Cathy Lee won the first World Air Race (also called the Aviation Olympics) by two seconds. Their Piper Malibu, aptly named the Rambling Wreck, had to race more than 6,500 miles over a ten-day period from Iceland to Turkey. Woodruff School faculty member, Sam Shelton, was one of the faculty advisors for the project; he taught a course during summer quarter 1997 to prepare the plane for the trip. The other faculty advisor was Professor Amy Pritchett of the School of Industrial and Systems Engineering, whose job it was to oversee ground operations during the race. There were 20 entrants from ten countries, however, the Tech plane was the only one with a university flight preparation and support team.

Keynote Address On Manufacturing

Roy Richards, Jr., CEO of Southwire Company of Carrollton, Georgia, delivered a keynote address on the impact of manufacturing in Georgia to a standing-room only audience just before the groundbreaking ceremony for MRDC II. Georgia has 11,000 manufacturing companies and a payroll of more than $15 billion, so manufacturing is extremely important to the state. In fact, Georgia created more high tech jobs last year than any state in the country.

According to Richards, "Manufacturing today is about imposing or bringing science or new technology to what is already there, to improve it, to make it better, and make it world class. That's what we try to do at our company and that's why what you're doing here is so important. Our company is an example of what can happen when you bring science to bear on a manufacturing business."

Richards' concept of manufacturing is to "apply science to the art we are practicing and to make what we're doing exact, repeatable, and perfect. We've got to do it better, faster, cheaper, and make a high quality product in a more timely fashion. Thus to succeed in manufacturing you have to bring science to the art form of manufacturing."

Brief Biography

Roy Richards, Jr. began to work at Southwire Company when he was 13 years old and was hired to sweep floors and stack boxes. He continued to perform odd jobs at Southwire throughout high school and college. After attending Georgia Tech as a student in mechanical engineering, he joined the company in 1980 full-time as a draftsman.

During the years that followed, he moved into key positions in the company, including project coordinator of the Copper Rod Mill, general manager of Southwire Machinery Division, technical assistant to the president, and group vice president and co-president. He became chief executive officer in 1988.

Mr. Richards was an Ernst & Young 1990 Manufacturing entrepreneur of the Year, past chairman of the Georgia Partnership for Excellence in Education, and the 1997 Chairman of the Georgia Chamber of Commerce.

MRDC II Groundbreaking

Following the keynote address on manufacturing given by Roy Richards, Jr. on October 30, 1997, a groundbreaking ceremony was held for the new Manufacturing Related Disciplines Complex building (MRDC II). The $27 million, 135,000 square foot research and laboratory facility, designed by the architectural firm of Nix Mann Perkins & Will, will be located on a site between the Groseclose Building and the Manufacturing Research Center. The new building will provide additional space for the Woodruff School (about two
thirds of the space) and house the School of Materials Science and Engineering. This is the third building in a manufacturing complex being developed on the northwest side of campus that includes MRDC I and MARC.

Pictured from left to right are: Dr. Jean-Lou Chameau, (Dean of Engineering), Mr. Roy Richards, Jr. (CEO Southwire Co.), Dr. Ward O. Winer (Regents' Professor and Chair of the Woodruff School), Mr. Parker H. Petit (Woodruff School Advisory Board), Dr. Ashok Saxena (Professor and Chair of the School of Materials Science and Engineering), Dr. John W. Koger (Chair of the External Advisory Board of the School of Materials Science), Mr. George Hook (Chairman of the Georgia Senate Committee on Appropriations), and Dr. G. Wayne Clough (President of Georgia Tech).

**Georgia Tech Lorraine (GTL) Ceremony**

In February 1998, at a ceremony in Metz, France, the Woodruff School of Mechanical Engineering made official its interactions with ENSAM, the French Grande Ecole for Mechanical and Industrial Engineering. Georgia Tech was represented by, among others, President Wayne Clough, Dean of Engineering Jean-Lou Chameau (a graduate of ENSAM), and Woodruff School Chair Ward O. Winer. ENSAM was represented by their president and the directors of the Paris and Metz campuses. The signing of the agreement took place in the post-modern Hall of the Council on the ENSAM campus at the Technopolis 2000, just outside the city of Metz and down the street from the Georgia Tech Lorraine building. Afterwards, there was a tour of the new ENSAM buildings. Their campus opened in fall 1997 and is very spacious. ENSAM focuses on hands-on learning and manufacturing, and there is a lot of high-bay lab space for machine tools, metal forming presses, and testing equipment.

Back in Atlanta, the Woodruff School's first year of participation in Georgia Tech Lorraine came to a close. The first group of students returned to campus to finish the program. Dr. Bill Wepfer, Associate Chair for Graduate Studies, said that the School's participation in the GTL program helped in the recruitment of new graduate students. "In a number of cases," he said, "students decided to come to Georgia Tech because of the GTL program." For more information about the program, view our web page at [http://www.me.gatech.edu/me/gtl/GTL.html](http://www.me.gatech.edu/me/gtl/GTL.html) or send an e-mail to mike.wileman@me.gatech.edu.

**Semester Conversion**

One of the largest and most difficult tasks from an academic standpoint during the past academic year was to finalize the semester conversion program for both mechanical and nuclear engineering. We are essentially finished with the task, and turned in the materials to the Dean's Office in December for approval through the appropriate faculty committees at the Institute level. We took this opportunity to completely review the undergraduate programs and believe that the semester calendar courses that we developed will be even better than our current curriculum. Georgia Tech will convert to a semester system in fall 1999. To review the semester curriculum for mechanical and nuclear engineering, view the web page at [http://www.me.gatech.edu](http://www.me.gatech.edu) (click on Graduate or Undergraduate Programs).

**Accreditation Visit**

The Accreditation Board for Engineering and Technology (ABET) evaluation visit occurred on November 2-4, 1997. Georgia Tech was the first major engineering research institution evaluated under these criteria, which represent a shift to a performance and outcomes-based approach, and should help set the standards and procedures for future ABET 2000 accreditation activities. Although we would not learn the outcome of the accreditation until the summer of 1998 when the ABET Council would meet and pass judgment, we were convinced from comments received from the ABET visitors and those made during the exit interview with the president, that both our Nuclear and Mechanical Engineering Programs would receive full accreditation. Later we
received notification that our accreditation is valid until September 30, 2003. To review the ABET documents, see our web page at http://www.me.gatech.edu (click on Academic Programs).

Integrated Acoustics Laboratory Dedicated

The Woodruff School's state-of-the-art Integrated Acoustics Laboratory (IAL) was dedicated on February 24, 1998 in the high-bay area of the Manufacturing Research Center. The centerpiece of the lab is a 24' by 24' x 20' anechoic (echo-free) chamber. The chamber and its related instrumentation support research and education in the analysis, modeling, and testing of the production and control of sound from engineered objects, such as vehicle assemblies, panels, and motor housings.

The chamber was designed and built by Industrial Acoustics Company, and opened on January 1, 1998. The chamber creates a specific environment, but the measurements require instrumentation and data acquisition systems. The laboratory’s data acquisition backbone is an HP VXI system with 32 input channels, 16 output channels, and four arbitrary waveform output channels. Other components include a Polytec scanning laser vibrometer, two workstations, and a full suite of microphones, accelerometers, and related hardware.

Use of the anechoic chamber began in winter quarter 1998 with qualification testing of the chamber in ME 4055, the senior mechanical engineering lab. Future use includes focusing on test objects of interest to sponsoring organizations in ME 4055, short experiments in ME 3056, a junior-level lab class; and integration into ME 4760, ME 6763, and ME 8103, undergraduate and graduate classes that deal with noise control and acoustics and vibration instrumentation.

Funds for this project were provided by the Ford Motor Company ($300,000 to help build and equip the anechoic chamber), the National Science Foundation ($440,000 in matching funds for the acquisition of the chamber and its instrumentation), and $140,000 in lottery funds from the Georgia Institute of Technology.

Lecture Series

The Annual Woodruff Distinguished Lecture

The George W. Woodruff Distinguished Lecture was established by the School in 1990 to recognize an engineer who has made an outstanding contribution to society and to provide a forum for that person to address and interact with the Georgia Tech community. Support for the lecture is made possible by an endowment given to the School by the late George W. Woodruff.

Mr. Robert A. Lutz, Vice Chairman of the Chrysler Corporation, gave the 1998 Woodruff Distinguished Lecture on April 23, 1998. His talk was called: Lutz's Laws: A Primer for the Business Side of Engineering. Some of these laws include: The customer is not always right, and the goal of business is not to make money.

Lutz told the overflow crowd in the Van Leer auditorium that he “pulled off a feat that many thought harder than landing a man on the moon. I helped, at Chrysler, to actually get engineers truly working together in teams and to begin thinking with the intuitive,
nonquantitative right side of their brains just as much as with the highly-trained, very rational left side." He then told us, with the aid of slides, how and why Chrysler did it.

After Mr. Lutz finished his prepared remarks he spent more than an hour answering questions from a receptive audience. This was followed by a reception under the big yellow tents in the MiRC courtyard to honor Mr. Lutz. This was a wonderful opportunity for the members of the audience to talk to the speaker, and Mr. Lutz spent some time with the members of GT Motorsports and the car the team will use in this year’s competition. Before the lecture, Mr. Lutz had lunch with some Woodruff School undergraduate and graduate students, representatives from the Georgia Tech administration, and some School faculty. He spent a lot of time answering questions at a rather free-wheeling discussion about almost anything having to do with cars and the automotive industry. We finally had to end the lunch session so that Mr. Lutz could go on a tour of the Woodruff School and then to the pre-lecture reception for representatives of the Atlanta and the Georgia Tech communities to meet the distinguished lecturer.

Notice: A transcript of Mr. Lutz’s lecture is available. The lecture is also available on our web page at http://www.me.gatech.edu (click on Woodruff School Publications).

The name of each distinguished lecturer appears on a permanent wall display in MRDC. Previous Woodruff Distinguished Lecturers were:

1990  Donald E. Petersen  
Chairman and CEO, Ford Motor Company

1991  Samuel C. Florman  
Author and Professional Engineer

1992  Chang-Lin Tien  
Chancellor and A. Martin Berlin Professor of Mechanical Engineering,  
University of California, Berkeley

1993  Sheila E. Widnall  
Associate Provost and Abby Rockefeller Mauze Professor of Aeronautics and Astronautics,  
Massachusetts Institute of Technology

1994  Roberto C. Goizueta  
Chairman of the Board and CEO, The Coca-Cola Company

1995  James J. Duderstadt  
President, The University of Michigan

1996  Norman R. Augustine  
Chairman and CEO, Lockheed Martin Corporation

1997  Charles M. Vest  
President and Professor of Mechanical Engineering,  
Massachusetts Institute of Technology
ANNOUNCEMENT: Dr. George H. Heilmeier, Chairman Emeritus of Bellcore (Bell Communications Research) will be the 1999 Woodruff Distinguished Lecturer. The date has not been announced, but it will be, as usual, sometime in the spring, most likely in April or May.

The Gegenheimer Lecture Series on Innovation

The third annual Harold W. Gegenheimer Lecture on Innovation was given on November 6, 1997 and featured Professor Jim Adams of Stanford University speaking on Creativity Versus Control: Their Impact on Innovation. He spoke about the control necessary to individuals, groups, and organizations that may be in conflict with the creativity needed in innovation. This is especially true in large organizations. There are a number of commonly accepted methods of increasing creativity, such as: the use of idea techniques, promotion of intellectual diversity, reallocation of resources, changes in the reward systems, alterations of group behavior, and modifications of organizational culture. Dr. Adams discussed these methods. The successful employment of these methods, however, demands a good understanding of the creative process. He outlined the present state of this understanding and talked about his personal experience in attempting to apply it as an engineer, a teacher, and a consultant. He used short exercises and examples throughout his lecture to help members of the audience better apply general beliefs about increasing creativity to their own lives.

About the Gegenheimer Lecture Series on Innovation

Harold W. Gegenheimer (class of 1933) has been associated with the printing industry all his life; he is the retired chairman of the Baldwin Technology Company, an international manufacturer of material handling, press accessory, and prespress equipment for offset printing. He was elected 1983 Graphic Arts Man of the Year, is a long-time contributor to Georgia Tech’s Thousand Club, served as co-chair of his 50th Reunion Committee, and was the recipient of the 1996 Woodruff School Distinguished Alumnus Award. As an inventor, he continues to express interest in the great advances made at his alma mater through innovative programs that link industry with graduate and undergraduate studies. Thus, an endowment to the Woodruff School in 1995 established the Harold W. Gegenheimer Lecture Series on Innovation to support student programs that encourage creativity, innovation, and design. Through the lecture series and support of capstone design projects, students are exposed to processes that stimulate creativity and lead to inventions and patents.

The previous Gegenheimer lecturers were:

1995  **Dr. Jerry M. Woodall**  
Distinguished Professor of Microelectronics at Purdue University  
*Necessity Is the Mother of Invention, But Curiosity and Persistence Make It Happen*

1996  **Mr. Burt Rutan**  
President and CEO of Scaled Composites, Inc.  
*Innovation: Use It or Lose It*
Woodruff Seminar Series

Each quarter, the endowment to the School sponsors the Woodruff Seminars, a series of lectures presented by national and international experts in the various research areas of mechanical and nuclear engineering. The eleven Woodruff Seminars given during the past academic year were:

Ronald Adrian, Professor, University of Illinois
*Large-Scale Structures in Wall Turbulence*

Thomas Avedisian, Professor, Cornell University
*Droplet/Wall Interactions*

John Bischof, Professor, University of Minnesota
*Freezing of Biological Tissue*

Chieh Su Hsu, Professor, University of California, Berkeley
*A Global Analysis Method of Nonlinear Dynamical Systems Based Upon the Poset Theory*

John W. Hutchinson, Professor, Harvard University
*The Mechanics of Thin Film Delamination*

Alvin P. Lehnerd, The Shadowstone Group, Darlington, Maryland
*Product Platforms: Research & Development Issues in Product Design and Manufacturing Processes*

Van C. Mow, Professor, Columbia University
*Constitutive Modeling of Charged-Hydrated Biological Tissues and Cells*

David Newland, University of Cambridge, England
*Time Frequency Signal Analysis by Harmonic Wavelets*

John Tichy, Professor, Rensselaer Polytechnic Institute
*Limits of Lubrication Theory*

Galip Ulsoy, Professor, The University of Michigan
*Control of Reconfigurable Manufacturing Systems*

Novak Zuber, Consultant, Rockville, Maryland
*A General Method for Scaling and Analyzing Transport Processes*

The Woodruff Faculty Seminars

The Woodruff Faculty Seminars, which began in early 1998, were presented by speakers from both inside and outside the
Woodruff School. The idea behind this series is to expose the faculty to current work that might be outside their own particular research area. The seminars presented were:

S. I. Abdel-Khalik, Georgia Tech  
*Onset of Flow Instability in Heated Microchannels*

Wayne Book, Georgia Tech  
*Making Flexible Arms Work, Accumulated Results: 1972-1998 (With Interactive Demo Over the Internet)*

C. Richard Liu, Purdue University  
*Machine Accuracy Enhancement by Real Time Error Compensation*

Fotis Sotiropoulos, Georgia Tech  
*The Three-Dimensional Structure of Vortex Breakdown in a Cylindrical Container with a Rotating Lid*

Jane Wang, Florida International University  
*Mixed-TEHD Studies of Journal-Bearing Conformal Contacts*

### Graduate Students and Innovation

*The Power of Innovation* was the theme of the 8th Annual Graduate Student Symposium held on May 14, 1998 in the Manufacturing Research Center on the Georgia Tech campus. By harnessing this power, businesses can gain a competitive edge. Firms must utilize their innovative power and seek out new ideas to thrive in today's information economy.

The symposium is organized and planned by graduate students and features technical presentations and poster summaries by students nearing the completion of their doctoral degrees. A five-minute presentation is followed by an extended exhibit session (about 45 minutes long), which gives attendees a quick review of current research and allows time for informal discussion. The symposium was held in abbreviated form this year (on one day instead of two) because of the extremely hectic schedule at the Institute and the short time to plan for the event. Four sessions of presentations and exhibits were held.

In addition to the Woodruff School, represented schools included the: Colleges of Computing, Sciences, and Engineering, and the Schools of Aeronautical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Industrial and Systems Engineering, and Materials Science and Engineering.

Each attendee to the symposium received a résumé book, which includes abstracts from each presenter. Plans for next year's symposium are underway. In the interim, contact bill.wepfer@me.gatech.edu for more information about the graduate programs in the Woodruff School.

### Annual Spring Banquet

The Annual Spring Banquet was held on May 21, 1998 in the Gordy Room of the Wardlaw Center. This event is planned and organized by the Woodruff School of Mechanical Engineering Student Advisory Committee (WSSAC) and is sponsored by the Woodruff School. The members of the 1998 banquet committee were: Chris Welsh (WSSAC Chair), Jim Bell, Anijka Stone, and Konrad Wilder. Additional help was provided by: James Dorsey, Judy Liaw, Joseph Miller, Nia Simmons, and Raquelle Thigpen.

This dinner is an opportunity to recognize graduating seniors and to acknowledge those graduate students who have received fellowships and other recognitions during the past academic year. The banquet is also the time when the Woodruff School names its Annual Distinguished Alumnus; that person attends the banquet and interacts with the students,
This year's winner, Mr. Harris Saunders, Jr. (BME 1945), spoke about his education at Georgia Tech during World War II. The education he received and the time he spent on campus was condensed, out of necessity for the war effort. Still, he received a terrific education at Tech and although he was never a practicing engineer, the knowledge that he gained from his classes in mechanical engineering were extremely valuable for his business. He said that it was important for students to follow three keys to success: **work** (hard in your education and apply it to your life/career), **luck** (you need some luck to be successful in what you do), and **risk** (you have to be willing to take some chances to be successful).

The entertainment for the evening was an impromptu design contest. After dinner, Dr. Raymond Vito, Associate Chair for Undergraduate Studies, recognized those individuals who keep the student organizations running for the whole School, and Dr. William Wepfer, Associate Chair for Graduate Studies, recognized those graduate students who received fellowships and other awards during the past academic year. Finally, the 1998 Academia Awards were announced.

Harris Saunders, Jr. Named 1998 Woodruff School Distinguished Alumnus

Harris Saunders, Jr. (BME 1945) was presented the 1998 Woodruff School Distinguished Alumnus Award at the Annual Spring Banquet held on May 21, 1998. Mr. Saunders earned his bachelor’s degree at Georgia Tech in the Navy V12 program. On July 1, 1943, he was called to active duty in the Navy. He boarded a train to Atlanta and Georgia Tech to become an engineer. He said, "I hardly knew what engineering was, and certainly didn't know that there were many different kinds. When asked, I chose Mechanical Engineering because I had some vague thought about the maintenance of cars and trucks in the family rental business."

After graduation, he served in the Navy, which included duty at Bikini Atoll for the first post-war atom bomb test. After the Navy, he spent the next forty years building Saunders Systems, Inc. (Birmingham, Alabama) into the third largest truck-leasing company in the United States. The company is credited with giving birth to the car-leasing industry in 1916 by renting Model-T Fords for 16 cents a mile. Saunders Systems was sold to Ryder Systems of Miami in 1986.

Upon retirement, Mr. Saunders was involved in the development of Saunders, Inc., a company serving the trucking industry, which he sold in 1993, and began his second retirement. Today, he might often be found on the 80-foot trawler, Life Support, sailing to such places as Vancouver, British Columbia, Guatemala, Belize, and the Coco Islands.

Mr. Saunders served on the board of SouthTrust Bank and Energen Corporation. He was also the founding chairman of the Truck Rental and Leasing Association, past chairman of the American Truck Historical Association, and chairman of the United States Business and Industrial Council.

Mr. Saunders has been a generous contributor to Georgia Tech for more than 35 years; a member of the WWII Class Reunion Committee, and was inducted into the Georgia Tech Engineering Hall of Fame in October 1997.

About the Award

The Woodruff School Distinguished Alumnus Award was inaugurated in 1989 to recognize an outstanding alumnus of the School. The names are on permanent display in the lobby of MRDC. Previous winners of the award are:
1989  Charles L. Ray (BME 1950) 
1990  Frank M. White (BME 1954) 
1991  Paul A. Duke (BME 1945) 
1992  Frank K. Webb (BME 1938) 
1993  Herbert P. Haley (BME 1933) 
1994  Jack M. Zeigler (BME 1948) 
1995  Nelson D. Abell (BME 1944) 
1996  Harold W. Gegenheimer (BME 1933) 
1997  Eugene C. Gwaltney (BME 1940) 

The impetus for creating the Distinguished Alumnus Award was the generous endowment given to the School of Mechanical Engineering by George W. Woodruff. In 1985, the centennial year for mechanical engineering at the Institute, the School took the name of this benefactor and became the Woodruff School of Mechanical Engineering. Subsequently, it became apparent that other than this overt identification, the School had never publicly recognized any of its outstanding alumni. To rectify this situation, the Woodruff School Distinguished Alumnus Award was inaugurated in 1989.

The Woodruff School Goes To Washington

In the beginning of May, Ward O. Winer, Regents' Professor and Chair of the Woodruff School, went to Washington, D.C. to represent Georgia Tech at the American Association of Universities Department of Defense (AAU DOD) Research Congressional Exhibition at the Cannon Office Building. Georgia Tech was one of about 25 universities represented. Five programs from the Woodruff School were highlighted in the display: The DOD MURI Center for Integrated Diagnostics (Ward O. Winer, Principal Investigator); the ONR CAVES Project (Peter Rogers and Gary Caille (GTRI), Principal Investigators); the Defense Logistics Agency Electronic Commerce Program (Robert Fulton, Principal Investigator); the Army Research Office Program on Materials Modeling for Deformation Processing and Impact Simulations (David McDowell, Principal Investigator); and the Novel High-Flux Heat Transfer Cells Program (Ari Glezer, Principal Investigator). These programs present nearly ten million dollars a year in funding to the School. Patty Bartlett, who represents Georgia Tech in Washington, D.C. handled the introductions and the logistics. Staff members for Georgia Congressional Representatives and Senators stopped by to discuss the exhibit.

Dr. Winer said, "The sprits were high for basic research and defense research, but then what would you expect; we were preaching to the choir. The event was a great experience and a big success."

ASME Spring Picnic

On Thursday, May 28, 1998 the Woodruff School and a couple of the Mechanical Engineering student organizations came together for the ASME's Annual Spring Picnic. About 300 students, faculty, and administration met on the patio by the MARC building for good food and fun. It was a great opportunity for everyone to come out and relax for a few minutes and enjoy the sun. Several companies provided sponsorship, so shirts were printed. This past academic year, ASME participated in many activities besides the regular speaker meetings and taking plant tours. ASME also participated
in National Engineer's Week, the Georgia Science Olympiad, and hosted the ASME Region XI Student Conference. The highlight of this year was working with the Georgia Science Olympiad. ASME developed and ran the Mystery Architecture event. Since this was a trial event, ASME was given free reign to develop and run the event. Giorgos Hatzilias and Jim Bell created the project. A few weeks before the Olympiad, ASME held a Student Design Competition to test the project.

The following students are recognized for contributing their time to the ASME during the past academic year: Douglas Aleong, Tori Bailey, Jim Bell, Cavelle Benjamin, Scott Bodem, Nathan Bouknight, Carleshia Broadnax, Jeff Coon, James Dunn, Joe Edell, Brad Geving, Mari Gravlee, Giorgos Hatzilias, Jeffrey Joni, Chris Keppeler, Judy Liaw, Necole Liowns, Noah McNeely, Joe Salamone, Curtis Sharif, Charles Sherer, Jason Vaia, Anthony Walker, and Monica White.

GT Motorsports

The GT Motorsports team, which is comprised of students from several engineering majors, returned from this year's annual Formula SAE competition in Pontiac, Michigan, having raced a car they designed and fabricated in less than four quarters. One hundred eleven teams registered for the competition, and more than 90 teams showed up. Teams from the United States, Puerto Rico, Canada, Mexico, and the United Kingdom participated in the event. The team's biggest achievement this year was a 3rd place finish in the design portion of the competition. They also won the Flowmaster Exhaust Technology award of $750 for the best exhaust system design. Because the team experienced trouble with the engine's turbocharger and had a drivetrain oil leak, they did not finish with a top 20 score. The car, inoperative turbo and all, placed seventh in the autocross event.

While he was attending the competition, Mr. Jon Crossno, the father of team member Adam Crossno, purchased a chassis dynamometer ($8,500) for the team. The team has already met to lay out the design for next year's competition, which will be held in May 1999 at the Detroit Fairgrounds. Also, next year a Formula SAE competition will be held in the United Kingdom for the first time.

Twenty-one people went to the competition this year; Jimmie MacLean was the team leader. Upon their return to campus, the team reorganized and redivided responsibilities for the next competition: The business manager is Adam Crossno, the chief engineer is Brandon Taylor, the powertrain manager is Scott Lovett, and the suspension manager is Jeff Hipps.

It costs about $25,000 to design, analyze, build and test the car, and travel to the competition. Major sponsors, such as Ford, General Motors, Hoechst Celanese, Allied Signal, Cummins, and the Van Owen Group provide money, materials and services. For more information about the GT Motorsports team, please contact Professor Ken Cunefare, the faculty advisor, at ken.cunefare@me.gatech.edu. Or call the GT Motorsports shop in the Coon Building at (404) 894-3222.

Display Cases Installed

In June 1998, the Woodruff School display cases were installed. These detailed and colorful presentations are on all three floors of MRDC and were designed by the firm of Murphy & Orr of Forest Park, Georgia. The cases were made possible by a gift from alumnus Jack Zeigler.

The displays on the second floor are:
- Distinguished Alumnus: Jack Zeigler
Pi Tau Sigma
American Society of Mechanical Engineers
GT Motorsports.

The displays on the third floor are:
- Distinguished Alumnus: Bobby Jones
- The Olympic Torch
- Events and Publications.

The displays on the fourth floor are:
- Distinguished Engineer: James Brazell
- Distinguished Professor: Mario J. Goglia
- MRDC II
- The Woodruff School of Mechanical Engineering: The Early Years at Georgia Tech.

When you are in the MRDC building take some time to visit these displays to get a flavor of the history of the oldest engineering school on campus and to witness how dynamic is the state of mechanical engineering studies in the Woodruff School.
The Woodruff School maintains a standard of excellence in all the core, traditional areas of mechanical engineering, while still retaining the ability to expand into other interdisciplinary areas and applications such as acoustics, bioengineering, materials, and microelectromechanical (MEMS) and nanotechnology. The academic faculty represents this breadth of coverage, giving our students the opportunity to learn from professors who work on the cutting edge of technical and scientific research and giving graduate students an edge to focus their studies in all our research areas. A current portrait of the faculty in the Woodruff School is presented in the accompanying chart.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Faculty (Tenure Track)</td>
<td>65</td>
</tr>
<tr>
<td>Joint Appointments</td>
<td>6</td>
</tr>
<tr>
<td>Endowed/Distinguished Faculty</td>
<td>9</td>
</tr>
<tr>
<td>Research Faculty</td>
<td>18</td>
</tr>
<tr>
<td>(With a Ph.D.: 6)</td>
<td></td>
</tr>
<tr>
<td>(With an M.D.: 1)</td>
<td></td>
</tr>
<tr>
<td>Academic Professionals</td>
<td>1</td>
</tr>
<tr>
<td>Adjunct and Part-Time Faculty</td>
<td>9</td>
</tr>
<tr>
<td>Postdoctoral Fellows</td>
<td>20</td>
</tr>
<tr>
<td>Visiting Scholars</td>
<td>28</td>
</tr>
<tr>
<td>Support Staff</td>
<td>45</td>
</tr>
</tbody>
</table>

The faculty is divided into 11 self-selected research area groups as follows:

- Acoustics and Dynamics
- Automation and Mechatronics
- Bioengineering
- Computer-Aided Engineering and Design
- Fluid Mechanics
- Fusion
- Heat Transfer, Combustion, and Energy Systems
- Manufacturing
- Mechanics of Materials
- Nuclear and Radiological Engineering and Health Physics
- Tribology

The Distinguished Faculty
The Woodruff School has nine distinguished faculty members who hold endowed chairs or distinguished professorships. They are:

- **Said Abdel-Khalik**  
  Southern Nuclear Distinguished Professor

- **William Z. Black**  
  Georgia Power Distinguished Professor

- **Steven Danyluk**  
  Morris M. Bryan, Jr. Chair in Mechanical Engineering for Advanced Manufacturing Systems

- **Jerry H. Ginsberg**  
  George W. Woodruff Chair in Mechanical Systems

- **David L. McDowell**  
  Carter Paden Jr. Chair in Metals Processing

- **Robert M. Nerem**  
  Parker H. Petit Distinguished Chair for Engineering in Medicine

- **Peter H. Rogers**  
  Rae and Frank Neely Chair in Mechanical Engineering

- **Weston M. Stacey, Jr.**  
  Callaway Professorship in Nuclear Engineering

- **Ward O. Winer**  
  Eugene C. Gwaltney Jr. Chair in Manufacturing Systems

In addition, the Woodruff School faculty includes: two members of the National Academy of Engineering (NAE): Robert Nerem and Ward O. Winer; and two NAE members who hold joint or adjunct appointments in the Woodruff School: Ben Zinn and Ernest Wilkins. Furthermore, many faculty members hold the prestigious grade of Fellow in professional societies as follows:

- **Acoustical Society of America (ASA)**  
  Yves Berthelot, Jerry Ginsberg, Jacek Jarzynski, and Peter Rogers

- **American Association for the Advancement of Science (AAAS)**  
  Robert Nerem and Ward Winer

- **American Ceramic Society**
Some highlighted sections of the text include:

**National Science Foundation Award Winners**

Sixteen current Woodruff School faculty members have received National Science Foundation (NSF) Career Awards (previously known as the Presidential Young Investigator Award or the Young Investigator Award). The most recent winners of this well-regarded award are Christopher Lynch and Suresh Sitaraman. John Valentine, who will join the faculty in January 1999, is also an NSF holder. Other current and former winners are: Cyrus Aidun (joint appointment in ME), Yves Berthelot, Bert Bras, Jonathan Colton, David Ku, Thomas Kurfess, Kok-Meng Lee, Harvey Lipkin, David McDowell, Paul Neitzel, Marc Smith, Jeffrey Streator, and Cheng Zhu.

In addition, five faculty members who have since left Georgia Tech and five Woodruff School Ph.D. alumni who have started academic careers elsewhere have received this prestigious award.

**Publications and Presentations**

The faculty publishes extensively in scientific and technical journals, and several have written widely-used textbooks. In addition, faculty members present papers at national society meetings and other technical conferences, workshops, invited seminars, keynote addresses, short courses, and other lectures throughout the academic year.
Woodruff Faculty Fellows

The Woodruff Faculty Fellow Program recognizes outstanding mechanical engineering academics who are in the early to middle years of their professional development. This program encourages young professors to build their careers at Georgia Tech, and provides support as they mature into senior faculty members with national and international reputations.

The first Woodruff Faculty Fellows were appointed in the 1991-1992 academic year. Recipients are: David Ku and David McDowell: 6/91-6/96; Yves Berthelot and Jonathan Colton: 6/92-6/97; Aldo Ferri and Itzhak Green: 6/93-6/98; Kok-Meng Lee: 6/94-6/99; Steven Liang, Jianmin Qu, and Cheng Zhu: 6/97-6/02. There were no Woodruff Faculty Fellows named during this past academic year.

Woodruff School Academic Faculty

Said I. Abdel-Khalik, Southern Nuclear Distinguished Professor and Professor of Nuclear Engineering
Ph.D., University of Wisconsin, 1973
Microscale, heat transfer, reactor safety, thermal hydraulics, and accident analysis

Daniel F. Baldwin, Assistant Professor
Ph.D., Massachusetts Institute of Technology, 1994
Manufacturing systems, electronic manufacturing and packaging design, and polymer processing

Yves H. Berthelot, Professor
Ph.D., University of Texas at Austin, 1985
Acoustics, laser instrumentation in acoustics, and ultrasonics

William Z. Black, Georgia Power Distinguished Professor and Regents' Professor
Ph.D., Purdue University, 1968
Heat transfer, thermodynamics, and fluids

Wayne J. Book, Professor
Ph.D., Massachusetts Institute of Technology, 1974
System modeling and control, robotics, automation, manufacturing systems, and flexible structures

Bert A. Bras, Associate Professor
Ph.D., University of Houston, 1992
Environmentally conscious design, design for recycling, and robust design

Robert S. Cargill, Assistant Professor
Ye-Hwa Chen, *Associate Professor*

Ph.D., University of Pennsylvania, 1994  
Cell biomechanics, trauma and development, and tissue engineering

Jonathan S. Colton, *Professor*

Ph.D., Massachusetts Institute of Technology, 1986  
Manufacturing, polymer and composites processing, and design

Kenneth A. Cunefare, *Associate Professor*

Ph.D., Pennsylvania State University, 1990  
Active/passive control, fluid-structure interaction, and optimal acoustic design

Steven M. Danyluk, *Morris M. Bryan, Jr. Chair in Mechanical Engineering for Advanced Manufacturing Systems and Professor of Mechanical Engineering*

Ph.D., Cornell University, 1974  
Processing of materials, residual stresses, tribology, lubricant-surface interaction, chemomechanical polishing, and sensors

Prateen V. Desai, *Professor*

Ph.D., Tulane University, 1967  
Fluid mechanics, solidification, and convection in materials processing

Imme Ebert-Uphoff, *Assistant Professor*

Ph.D., The Johns Hopkins University, 1997  
Robotics, parallel platform manipulators, flight simulation, and static balancing

Aldo A. Ferri, *Associate Professor*

Ph.D., Princeton University, 1985  
Acoustics, structural dynamics, and nonlinear dynamics and control

Robert E. Fulton, *Professor*

Ph.D., University of Illinois, 1960  
Finite-element methods, integrated CAD/CAM, information management, and electronic commerce

Andres J. Garcia, *Assistant Professor*

Ph.D., University of Pennsylvania, 1996  
Cellular and tissue engineering, cell adhesion, and biomaterials

S. Mostafa Ghiaasiaan, *Associate Professor*
Jerry H. Ginsberg, *George W. Woodruff Chair in Mechanical Systems and Professor of Mechanical Engineering*
E.Sc.D., Columbia University, 1970
Vibrations, acoustics, dynamics, and fluid-structure interaction

Ari Glezer, *Professor*
Ph.D., California Institute of Technology, 1981
Fluid mechanics, turbulent shear flows, flow control, and diagnostics

Itzhak Green, *Professor*
Sc.D., Technion-Israel Institute of Technology, 1984
Finite and boundary element methods, rotordynamics, fluid sealing, and design

Robert E. Guldberg, *Assistant Professor*
Ph.D., The University of Michigan, 1995
Biomechanics, image-based FEM, and tissue engineering

James G. Hartley, *Professor*
Ph.D., Georgia Institute of Technology, 1977
Heat transfer, thermodynamics, and fluid mechanics

Nolan E. Hertel, *Professor*
Ph.D., University of Illinois, 1979
Radiation shielding, neutron dosimetry, radiological and health risk assessment, and radioactive waste management

Jacek Jarzynski, *Professor*
Ph.D., Imperial College of Science and Technology, London, 1961
Acoustics, acousto-optics, transducers, and ultrasonics

Iwona M. Jasiuk, *Associate Professor*
Ph.D., Northwestern University, 1986
Micromechanics, fracture, damage mechanics, composite materials, and biomaterials

Sheldon M. Jeter, *Associate Professor*
Ph.D., Georgia Institute of Technology, 1979
Thermal hydraulics and energy systems

Damir Juric, *Assistant Professor*
Ph.D., The University of Michigan, 1996
Fluid dynamics and heat transfer of multiphase, multicomponent processes

Prasanna V. Kadaba, Associate Professor
Ph.D., Illinois Institute of Technology, 1964
Heat transfer, I.C. engine design, energy and environmental systems, and advanced cycles

David N. Ku, Regents' Professor
M.D., Emory University, 1984
Ph.D., Georgia Institute of Technology, 1983
Magnetic resonance, thrombosis, and prostheses

Thomas R. Kurfess, Associate Professor
Ph.D., Massachusetts Institute of Technology, 1989
System dynamics, control, metrology, and CAD/CAM/CAE

Alan V. Larson, Professor and Associate Chair for Administration
Ph.D., University of Illinois, 1961
Thermodynamics

W. Jack Lackey, Professor
Ph.D., North Carolina State University, 1970
Ceramic and metallic coatings and composites processing

Kok-Meng Lee, Associate Professor
Ph.D., Massachusetts Institute of Technology, 1985
System dynamics, control, automation, and optomechatronics

Marc E. Levenston, Assistant Professor
Ph.D., Stanford University, 1995
Musculoskeletal biomechanics and soft tissue biomechanics

Steven Y. Liang, Associate Professor
Ph.D., University of California, Berkeley, 1987
Automated manufacturing, control systems, and digital signal processing

Harvey Lipkin, Associate Professor
Ph.D., University of Florida, 1985
Design and analysis of mechanical systems, robotics, and spatial mechanisms

Christopher S. Lynch, Assistant Professor
Ph.D., University of California, Santa Barbara, 1992
Experimental mechanics and smart materials
David L. McDowell, Carter N. Paden Distinguished Chair in Metals Processing and Regents' Professor
Ph.D., University of Illinois, 1983
Fracture, fatigue, cyclic plasticity and viscoplasticity, finite strain effects, continuum damage, and composite materials

Shreyes N. Melkote, Assistant Professor
Ph.D., Michigan Technological University, 1993
Machining process modeling, surfaces and CAM/CAPP

Farrokh Mistree, Professor
Ph.D., University of California, Berkeley, 1974
Design of open systems, decision-based design, product families, and enterprise integration

G. Paul Neitzel, Professor
Ph.D., The John Hopkins University, 1979
Hydrodynamic stability, numerical methods, and free-surface and rotating flows

Robert M. Nerem, Institute Professor and Parker H. Petit Distinguished Chair for Engineering in Medicine
Ph.D., The Ohio State University, 1964
Biomedical engineering, biomechanics, cellular engineering, and tissue engineering

Richard W. Neu, Assistant Professor
Ph.D., University of Illinois, 1991
Fatigue, viscoplasticity, and composite materials

John G. Papastavridis, Associate Professor
Ph.D., Purdue University, 1976
Analytical, structural and nonlinear mechanics, vibrations, and stability

Jianmin Qu, Associate Professor
Ph.D., Northwestern University, 1987
Fracture, materials, wave propagation, and micro-electronic packaging

Farzad Rahnema, Associate Professor
Ph.D., University of California, Los Angeles, 1981
Reactor physics, perturbation and variational methods, reactor simulator and monitoring methods, criticality safety, and benchmark methods

Peter H. Rogers, Rae and Frank H. Neely Distinguished Chair in Mechanical Engineering
Ph.D., Brown University, 1970
Acoustics and bioacoustics
David W. Rosen, Associate Professor
Ph.D., University of Massachusetts, 1992
Virtual and rapid prototyping and intelligent CAD/CAM/CAE

Nader Sadegh, Associate Professor
Ph.D., University of California, Berkeley, 1987
 Controls, vibrations, and design

Richard F. Salant, Professor
Sc.D., Massachusetts Institute of Technology, 1967
Fluid mechanics and fluid sealing

Sam V. Shelton, Associate Professor
Ph.D., Georgia Institute of Technology, 1969
Energy systems, HVAC systems, absorption, and refrigeration

William E. Singhose, Assistant Professor
Ph.D., Massachusetts Institute of Technology, 1997
Vibration, flexible dynamics, and command generation

Suresh Sitaraman, Assistant Professor
Ph.D., The Ohio State University, 1989
CAD/CAE, electronic packaging, thermomechanics and reliability, and FEM

Marc K. Smith, Associate Professor
Ph.D., Northwestern University, 1982
Flows and liquid films and droplets

Weston M. Stacey, Jr., Fuller E. Callaway and Regents' Professor
Ph.D., Massachusetts Institute of Technology, 1966
Fusion engineering, plasma physics, and reactor physics

Jeffrey L. Streator, Associate Professor
Ph.D., University of California, Berkeley, 1990
Computer-disk tribology, rheology, friction-induced vibration, and capillarity

Charles Ume, Associate Professor
Ph.D., University of South Carolina, 1985
Electronic packaging, mechatronics, and laser moiré/ultrasonics

John D. Valentine, Associate Professor
Ph.D., The University of Michigan, 1993
Radiation detection and measurements

**Raymond P. Vito, Professor and Associate Chair for Undergraduate Studies**  
Ph.D., Cornell University, 1971  
Biomechanics, tissue mechanics, and biomechanical design

**C.-K. Chris Wang, Associate Professor**  
Ph.D., The Ohio State University, 1989  
Radiation detection, radiation dosimetry, medical and industrial applications of ionizing radiations, and spent nuclear fuel measurements

**William J. Wepfer, Professor and Associate Chair for Graduate Studies**  
Ph.D., University of Wisconsin, 1979  
Heat transfer and thermodynamics

**Ward O. Winer, Eugene C. Gwaltney Chair in Manufacturing Systems, Regents' Professor, and Chair of the Woodruff School**  
Ph.D., Cambridge University, 1964  
Ph.D., The University of Michigan, 1961  
High-pressure rheology, lubrication, tribology, thermo- mechanics, and mechanical systems diagnostics

**Minami Yoda, Assistant Professor**  
Ph.D., Stanford University, 1993  
Suspension flows, shear flows, flow-structure interactions, and optimal diagnostics

**Min Zhou, Assistant Professor**  
Ph.D., Brown University, 1993  
Experimental mechanics, dynamic behavior, material failure, and shear localization

**Cheng Zhu, Associate Professor**  
Ph.D., Columbia University, 1988  
Cell and molecular mechanics and applications to immunology and tumor biology

**Academic Faculty with Joint Appointments**

**W. Steven Johnson, Professor of Materials Science and Engineering**  
Ph.D., Duke University, 1979  
Deformations, composite materials, and joints

**Gunter H. Meyer, Professor of Mathematics**  
Ph.D., University of Maryland, 1967
Numerical methods for partial differential equations, reaction diffusion problems and numerical heat transfer, and hydrodynamic stability

**Amyn S. Teja, Regents' Professor of Chemical Engineering**  
Ph.D., Imperial College, London, 1972  
Thermodynamics, fluid properties, and supercritical fluid separations

**Timothy M. Wick, Associate Professor of Chemical Engineering**  
Ph.D. Rice, University, 1988  
Tissue and cellular engineering and bioreactor design

**Ajit P. Yoganathan, Regents' Professor of Biomedical Engineering**  
Ph.D., Rice University, 1978  
Cardiovascular fluid dynamics, rheology, Doppler ultrasound, and magnetic resonance imaging

**Ben T. Zinn, David S. Lewis Chair of Aerospace Engineering and Regents' Professor**  
Ph.D., Princeton University, 1965  
Combustion instability, pulse combustion, propulsion, and acoustics

**Academic Professionals**

James Michael Wileman, *Academic Professional*  
(Adjoint au Directeur de Génie Mécanique at Georgia Tech Lorraine, Metz, France)  
Ph.D., Georgia Institute of Technology, 1994  
Mechanical seal dynamics, tribology, rotor dynamics, and design

**Adjunct Professors and Part-Time Appointments**

**Cyrus K. Aidun, Adjunct Professor, Institute of Paper Science and Technology**  
Ph.D., Clarkson University, 1985  
Hydrodynamic stability, liquid coating, and suspended particle hydrodynamics

**L. Dennis Ballou, Part-Time Instructor**  
J.D., Law, University of Georgia, 1977  
Elastic instability of cylindrical shells, and availability analysis

**Herman Cember, Visiting Professor (part-time)**  
Ph.D., University of Pennsylvania, 1960  
Health physics

**Paul A. Charp, Visiting Professor (part-time)**  
Ph.D., University of Tennessee, 1981
Health physics and radiology

Stephen L. Dickerson, *Professor Emeritus (part-time)*
Ph.D., Massachusetts Institute of Technology, 1965
Automatic control, machine vision, and manufacturing automation

Mario J. Goglia, *Regents' Professor Emeritus (part-time)*
Ph.D., Purdue University, 1948
Compressible fluid flow, incompressible fluid flow, and thermodynamics

William C. Hutton, *Adjunct Professor, Emory University*
Ph.D., University of Birmingham, England, 1984
Bioengineering and orthopaedic mechanics

Rodney D. Ice, *Adjunct Professor, Neely Nuclear Reactor*
Ph.D., Purdue University, 1967
Radiopharmaceuticals, radioprotectants, boron neutron capture theory, radionuclide methodology, and hospital health physics

J. Ernest Wilkins, Jr., *Adjunct Professor, Clark-Atlanta University*
Ph.D., University of Chicago, 1942
Extended surfaces for heat transfer and nuclear reactor engineering

Woodruff School Emeritus Faculty

Samuel C. Barnett, *Professor Emeritus*; Retired June 1980

Melvin W. Carter, *Neely Professor Emeritus of Nuclear Engineering and Health Physics*
Ph.D., University of Florida; Retired July 1988

Joseph D. Clement, *Professor Emeritus*
Ph.D., University of Wisconsin; Retired December 1991

Gene T. Colwell, *Professor Emeritus*
Ph.D., University of Tennessee; Retired June 1995

Monte Davis, *Professor Emeritus of Nuclear Engineering and Health Physics*
Ph.D. Oregon State University; Retired October 1987

Stephen L. Dickerson, *Professor Emeritus*
Ph.D., Massachusetts Institute of Technology; Retired June 1996
Pandeli Durbetaki, *Professor Emeritus*
Ph.D., Michigan State University; Retired October 1995

Geoffrey C. Eichholz, *Regents' Professor Emeritus*
Ph.D., University of Leeds; Retired July 1988

Mario J. Goglia, *Regents' Professor Emeritus*
Ph.D., Purdue University; Retired December 1981

Bernd Kahn, *Professor Emeritus and Director Environmental Resources Center*
Ph.D., Massachusetts Institute of Technology; Retired April 1996

Ratib Karam, *Professor Emeritus*
Ph.D., University of Florida; Retired June 1997

S. Peter Kezios, *Regents' Professor Emeritus*
Ph.D., Illinois Institute of Technology; Retired July 1990

Alfred Schneider, *Professor Emeritus*
Ph.D., Polytechnical University of New York Retired June 1990

**Research Faculty**

Janet Allen, *Senior Research Scientist*
Ph.D., University of California, Berkeley, 1973
Design evolution over time, modeling uncertainty, decision-based design, and design pedagogy

Scott S. Bair, *Principal Research Engineer*
Ph.D., Georgia Institute of Technology, 1990
Tribology, rheology, properties of liquids at high pressure, and machine design

Van B. Biesel, *Research Engineer II*
M.S., Georgia Institute of Technology, 1993
Acoustics, vibrations, noise control, numerical modeling, transducers, and piezoelectric materials

John R. Bogle, *Research Engineer II*
M.S., Georgia Institute of Technology, 1987
Structural acoustics, finite/boundary element modeling techniques of the interaction of underwater sound and structures, and vibrations

Richard S. Cowan, *Research Engineer II*
Michael L. Dowling, Research Engineer II  
M.S., University of Illinois, 1990  
Heat transfer research, experimental investigation of steam/vapor explosions, particle image velocimetry of droplet sprays, and innovative heat pump designs

Steven R. Hahn, Research Engineer II  
M.S., Georgia Institute of Technology, 1988  
Structural acoustics, vibrations and control, and finite element and boundary element techniques

Lula L. Hilenski, Research Scientist II  
Ph.D., University of Tennessee, 1980  
Cell-extracellular matrix interactions, mechanical effects on cytoskeletal architecture, and bioengineering of vascular grafts

Gregg D. Larson, Research Engineer II  
Ph.D., Georgia Institute of Technology, 1996  
Transduction, acoustics, vibrations, and piezoelectric ceramics

Yu-Hua Li, Research Scientist II  
M.D., Peking Union Medical University, Beijing, China. 1991  
Tumor cell and endothelial cell interaction as related to tumor metastasis

Joey G. Lloyd, Research Engineer I  
B.S., Georgia Institute of Technology, 1988  
Mechanical design, robotics, finite element modeling, and programming

Thomas M. Logan, Research Engineer II  
M.S., Georgia Institute of Technology, 1997  
Underwater and structural acoustics and advanced submarine sonor systems

James S. Martin, Research Engineer II  
M.S., Georgia Institute of Technology, 1994  
Shallow water sound propagation, internal gravity waves, experimental structural acoustics, bioacoustics/biomimetics, and nondestructive testing

George S. McCall, II, Research Engineer II  
M.S., Georgia Institute of Technology, 1994  
Underwater acoustic transduction, radiation, scattering, and shallow water acoustics
Dennis L. Sadowski, Research Engineer II  
M.S., University of Illinois, 1986  
Thermal sciences, and design and construction of experimental equipment

Guang-Fa Yao, Research Engineer II  
Ph.D., Georgia Institute of Technology, 1996  
Computational fluid dynamics and heat transfer with emphasis on multiphase and turbulent flows, and Arbitrary-Eulerian-Lagrangian (ALE) formulation

Xuezhen Zhang, Research Scientist II  
M.S. Nanjing University, 1963  
Computational acoustics and shallow water acoustics

Ji-Xun Zhou, Principal Research Scientist  
Ph.D., Graduate School of Chinese Academy of Sciences, 1967  
Shallow water acoustics, sound propagation and reverberation, acoustic interactions with internal waves, seafloor acoustics, and acoustic remote sensing

Woodruff School Staff

Ernestine Bradley, Administrative Assistant II  
Donald F. "Butch" Cabe, Manager of Facilities  
Anna Chromiak, Medical Research Assistant III  
Tilden E. "Gene" Clopton, Director of Special Projects  
Leonia Collins, Administrative Secretary  
Phillip R. Coulson, Accountant II  
Betty M. Crumbley, Administrative Assistant I  
Andrew G. "Drew" Davis, Electronics Technician III  
Martin L. Davisson, Systems Analyst III  
Royal F. "Pete" Dawkins, Director of Finance  
Judith E. Diamond, Senior Administrative Secretary  
Kenneth Dollar, Director of Support and Technical Services  
Jeffrey A. Donnell, Communications Program Coordinator  
Debra L. Finney, Administrative Assistant II  
Melody Foster, Administrative Assistant II  
Norma L. Frank, Academic Assistant II  
Phyllis R. Frost, Administrative Supervisor II  
B. Kaye Fuller, Administrative Manager I  
Cosetta W. Gibson, Academic Assistant II  
Rona A. Ginsberg, Director of Publications & Public Relations  
John W. Graham, Machine Shop Manager  
Rebecca Hembree, Senior Administrative Secretary  
Angela L. Hicks, Administrative Assistant II
The student community in the Woodruff School reflects a rich diversity of person and place and a common bond of excellence.

**Freshman Class Profile**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Freshmen</td>
<td>128</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>123</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>5</td>
</tr>
<tr>
<td>Average SAT Score (out of 1600)</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>1314</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>1404</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>1305</td>
</tr>
<tr>
<td>High School Grade Point Average</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>3.68</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>3.68</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>3.67</td>
</tr>
<tr>
<td>Number of Males</td>
<td>114</td>
</tr>
<tr>
<td>Number of Females</td>
<td>14</td>
</tr>
<tr>
<td>Number of Georgia Residents</td>
<td>68</td>
</tr>
<tr>
<td>Number Who Live Out of State</td>
<td>60</td>
</tr>
</tbody>
</table>

**Incoming Graduate Class Profile**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Matriculated Students</td>
<td>143</td>
</tr>
<tr>
<td>(58% of those admitted)</td>
<td></td>
</tr>
<tr>
<td>Number of Applicants</td>
<td>527</td>
</tr>
<tr>
<td>Number Admitted (47% of applicants)</td>
<td>247</td>
</tr>
<tr>
<td>Average Grade Point Average (GRA)</td>
<td>3.56</td>
</tr>
<tr>
<td>Average Score on Graduate Record Exam (GRE)</td>
<td>1934</td>
</tr>
<tr>
<td>(out of 2400)</td>
<td></td>
</tr>
</tbody>
</table>
Geographical Breakdown by Sector and Percent (by undergraduate school)

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>East/Northeast</td>
<td>19</td>
</tr>
<tr>
<td>South/Southeast</td>
<td>36</td>
</tr>
<tr>
<td>Midwest</td>
<td>12</td>
</tr>
<tr>
<td>West/Southwest</td>
<td>14</td>
</tr>
<tr>
<td>Foreign</td>
<td>19</td>
</tr>
</tbody>
</table>

Class Makeup

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>113</td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
</tr>
</tbody>
</table>

Number With Work Experience Before Attending Graduate School: 34
Number Entering Graduate School Straight From Undergraduate School: 109

Student Body Makeup

The School tries to reflect the Institute’s concern for a diverse student body. In fall quarter 1997, the graduate and undergraduate student body looked like this:

<table>
<thead>
<tr>
<th>Category</th>
<th>Undergraduates</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Females</td>
<td>179</td>
<td>17</td>
</tr>
<tr>
<td>Males</td>
<td>888</td>
<td>83</td>
</tr>
<tr>
<td>Minorities</td>
<td>248</td>
<td>24</td>
</tr>
<tr>
<td>International</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Total Enrollment</td>
<td>1,067</td>
<td>100</td>
</tr>
</tbody>
</table>

NOTE: Minority (ethnic origin) includes (only U.S. citizens and permanent residents): Asians, Blacks, Hispanics, American Indian, and Multiracial. Co-ops at work are also excluded. The percentage of minority students is based on the total number of U.S. citizens and permanent residents.

The Woodruff School continues to be a leading producer of graduate degrees to women. In 1997-98, seven women earned Ph.D. degrees (4 in ME, 2 in NE/HP, and 1 in bioengineering) while twenty-one earned MS degrees (17 in ME and 4 in either NE or HP). Since the 1990-91 academic year, 33 women have earned Ph.D. degrees from the Woodruff School. In 1997-98, the Woodruff School awarded four Ph.D. degrees to minorities (2 in ME and 2 in NE/HP) and seven MS degrees to minorities (all in ME).

Student Organizations and Activities
These organizations have active student chapters in the Woodruff School:

- American Nuclear Society
- American Society of Heating, Refrigerating, and Air Conditioning Engineers
- American Society of Mechanical Engineers
- Foundry Society
- Health Physics Society
- Graduate Student Symposium
- GT Motorsports/Formula SAE
- ME Graduate Students Association
- Pi Tau Sigma, Honorary Mechanical Engineering Fraternity (the national office of Pi Tau Sigma is located at the Woodruff School)
- Society of Automotive Engineers
- Society of Manufacturing Engineers
- Woodruff School Student Advisory Committee

Selected activities of some of these organizations may be found in The Year in Review.

Enrollment

The enrollment statistics for fall quarter 1997 are set forth below.

<table>
<thead>
<tr>
<th>Number of Undergraduate Students</th>
<th>1067</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ME &amp; NE/HP)</td>
<td></td>
</tr>
<tr>
<td>(excludes co-op students at work)</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>1041</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>26</td>
</tr>
<tr>
<td>Number of Freshmen</td>
<td>259</td>
</tr>
<tr>
<td>(+ 9 NE/NRE)</td>
<td></td>
</tr>
<tr>
<td>Number of Sophomores</td>
<td>241</td>
</tr>
<tr>
<td>(+ 6 NE/NRE)</td>
<td></td>
</tr>
<tr>
<td>Number of Juniors</td>
<td>249</td>
</tr>
<tr>
<td>(+ 2 NE/NRE)</td>
<td></td>
</tr>
<tr>
<td>Number of Seniors</td>
<td>292</td>
</tr>
<tr>
<td>(+ 9 NE/NRE)</td>
<td></td>
</tr>
<tr>
<td>Number of Graduate Students</td>
<td>479</td>
</tr>
</tbody>
</table>

| Mechanical Engineering           |      |
| Masters                          | 215  |
| Doctoral                         | 192  |
| Special                          | 11   |

| Nuclear Engineering and Health Physics | | |
| Masters                             | 37  |
| Doctoral                            | 24  |
| Special                             | 0   |
| **TOTAL**                           | **1,546** |

The next chart shows the undergraduate and graduate student enrollment in the various Schools of the College of Engineering for fall quarter 1997.
<table>
<thead>
<tr>
<th>School</th>
<th>Undergraduates</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>273</td>
<td>211</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>712</td>
<td>115</td>
</tr>
<tr>
<td>Civil and Environmental Engineering</td>
<td>595</td>
<td>383</td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>1621</td>
<td>709</td>
</tr>
<tr>
<td>Industrial &amp; Systems Engineering</td>
<td>942</td>
<td>198</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>1067</td>
<td>479</td>
</tr>
<tr>
<td>Textile &amp; Fiber Engineering</td>
<td>153</td>
<td>50</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>5,434</strong></td>
<td><strong>2,213</strong></td>
</tr>
</tbody>
</table>

In addition, there are 525 students, mostly undergraduates, who are undecided about which engineering school to join. The numbers above exclude co-ops at work.
DISTINCTIONS

Faculty

Said Abdel-Khalik, Professor and Southern Nuclear Distinguished Professor, received the Outstanding Doctoral Thesis Advisor award at the 1998 Faculty/Staff Awards Luncheon.

Scott Bair, Principal Research Engineer, received a grant for his research in tribology from the Jacob Wallenberg Foundation in Stockholm, Sweden.

Bert Bras was promoted to Associate Professor and granted tenure.

Ye-Hwa Chen, Associate Professor, was recognized with a 10-year service award at the 1998 Faculty/Staff Honors Luncheon.

Jerry Ginsberg, George W. Woodruff Chair and Professor of Mechanical Engineering, was elected Chair of the Technical Committee on Structural Acoustics and Vibrations of the American Society of Acoustics (ASA). In addition, he is a member of the ASA Technical Council. Professor Ginsberg also received the 1998 Archie Higdon Distinguished Educator Award from the Mechanics Division of the American Society for Engineering Education (ASEE) in recognition of his distinguished and outstanding contributions to the field of mechanics education.

Nolan Hertel was promoted to the rank of Professor. He also won (along with his co-authors) the 1997 Radiation Protection and Shielding Best Paper Award at the 1997 Winter American Nuclear Society Meeting in Albuquerque, New Mexico.

David Ku was promoted to Regents' Professor. He also received a Whitaker Special Opportunity Award to establish a certificate program in biomedical engineering.

Christopher Lynch, Assistant Professor, received a 1997 Career Award from the National Science Foundation.

David McDowell was named to the Carter N. Paden Distinguished Chair in Metals Processing. He also received the 1997 Nadai Award from the American Society of Mechanical Engineering (ASME). The award recognizes distinctive contributions to the field of engineering materials.

Shreyes Melkote, Assistant Professor, received the Dell K. Allen Outstanding Young Manufacturing Engineer Award for 1998. The award is given by the Society of Manufacturing Engineers (SME) for significant achievement and leadership in the field of manufacturing engineering. He also received the Best Paper Award at the NAMRC Conference in Atlanta, Georgia.
Robert Nerem, Parker H. Petit Distinguished Chair for Engineering in Medicine and Institute Professor, received the Theo C. Pilkington Outstanding Educator Award of the ASEE/Biomedical Engineering Division and was elected a Fellow of the American Academy of Arts and Sciences. He was also inducted as an Honorary Member of the Institution of Mechanical Engineers (London), one of few Americans to hold this distinction.

Richard Neu, Assistant Professor, was selected as the first recipient of the Keith J. Miller Young Investigator Award. The award is given by the American Society for Testing and Materials (ASTM) to recognize outstanding researchers in the area of fatigue and fracture within seven years of leaving school. He also received the 1998 Outstanding New Mechanics Educator Award from the Mechanics Division of American Society for Engineering Education (ASEE) in recognition of his outstanding effort and achievement as a new mechanics educator.

Farzad Rahnema, Associate Professor, was granted tenure.

David Rosen was promoted to Associate Professor and granted tenure.

Nader Sadegh, Associate Professor, received a Georgia Tech 10-year service award at the 1998 Faculty/Staff Awards Luncheon.

Suresh Sitaraman, Assistant Professor, received a 1997 Career Award from the National Science Foundation.

Weston Stacey, Fuller E. Callaway Professor and Professor of Nuclear Engineering, received the 1998 Georgia Tech Sigma Xi Sustained Research Award.

William J. Wepfer, Professor and Associate Director for Graduate Studies, has been selected by the National Society of Women Engineers as the 1998 recipient of the Rodney D. Chipp Memorial Award. He also won the Graduate Student Senate Graduate Faculty Member of the Year Award for 1997-1998. This is the second year in a row that Professor Wepfer has received recognition for his outstanding effort on behalf of the graduate students in the Woodruff School and the Institute. Finally, he received the Outstanding Continuing Education Award at the 1998 Faculty/Staff Awards Luncheon.

Staff

Leonia Collins joined the Woodruff School as an Administrative Secretary and serves as the receptionist for the Administrative and Finance Offices.

Martin Davisson, Systems Analyst III, received the Woodruff School Outstanding Achievement Award for Classified Employees for fall quarter 1997.
Debbie Finney, Administrative Assistant II, received the Woodruff School Outstanding Achievement Award for Classified Employees for summer quarter 1997.

Norma Frank, Academic Assistant II, received a Georgia Tech 25-year service award at the 1998 Faculty/Staff Awards Luncheon.

Melody Lynn Foster joined the Woodruff School as Administrative Secretary and was later promoted to Administrative Assistant II.

Joyce D. Jones joined the Woodruff School as the Senior Administrative Secretary for the Mechanics of Materials research group.

John McCullough received the summer quarter 1998 Woodruff School Outstanding Achievement Award for Classified Employees.

Jefforey Murphy joined the Woodruff School as a Systems Analyst III.

Mike Murphy, Administrative Assistant II, received the yearly 1997 Woodruff School Outstanding Achievement Award for Classified Employees; he also received the award for spring quarter 1997.

Claudine Nickens, Administrative Assistant II, received a Georgia Tech 10-year service award at the 1998 Faculty/Staff Honors Luncheon.

Gail Payne joined the staff as an Administrative Assistant II to Dr. Wayne Book.

Chelcea Warren, Academic Assistant I, received the Woodruff School Outstanding Achievement Award for Classified Employees for winter quarter 1998.

Alumni

Three mechanical and nuclear engineering alumni were inducted into the College of Engineering Hall of Fame at the COE Alumni Awards Induction Ceremony on October 24, 1997. This designation is the college's most prestigious award and is based on life-long career accomplishments. The alumni inducted were: Robert T. "Bobby" Jones (deceased) (BSME 1922), Albert L. "Buddy" Luce, Jr. (1945), and Harris Saunders, Jr. (BME 1945).

Three mechanical and nuclear engineering alumni were honored with selection into the Academy of Distinguished Engineering Alumni of the College of Engineering. The
award is intended for alumni who have sustained and made distinguished contributions to Georgia Tech, the profession, or the society at large. The 1997 group included: J. Don Brock (Ph.D, ME 1965), Robert E. Cannon (BME 1951), and John R. Markley (BME 1956).

In addition, two of the School's young alumni were inducted into the Council of Outstanding Young Engineering Alumni. Membership is reserved for those individuals under the age of 40 who have distinguished themselves through professional practice and/or service to Georgia Tech. The 1997 group included: Coleman T. Bentley (BME 1982, PE) and Margie Lewis (BNE 1979).

Also, five Woodruff School alumni with a Ph.D. have won prestigious National Science Foundation Career Awards. They are: Wei Chen, Assistant Professor at Clemson University; Jorge E. Gonzalez, Associate Professor at the University of Puerto Rico; Matt Miller, Assistant Professor at Cornell University; Pam Norris and Susan Carson Skalak, both Assistant Professors at the University of Virginia.

Students

Sixty-one students in the Woodruff School were included in the 1998 edition of Who's Who in American Universities and Colleges. The students were chosen based on their academic records, service to the community, leadership in extracurricular activities, and potential for continued success. The students are: Amanda Adams, William Anderson, Laura Atkinson-Schaefer, Robert Reid Bailey, Eric Barth, Matthew Bauer, Steve Benintendi, Harris Bergman, Scott Billington, Zrinka Bilusic, Sophie Biz, Bryan Blair, Maria Brathwaite, Jason Brown, Lisa Chiang (HP), Peter Christiansen, Andre Claudet, Tal Cohen, Frederick S. Cowan, Richard W. Cowan, Nathan Peter Davis, Winnycy Du, Jesse Ehnert, Jeffrey Ellis, Jan Emblemsvag, Dawn Foley, Mark Gillespie, Christie Cooch, Francois Guillot, Paul Hausgen, Samuel Heffington, Andrew Honohan, Sandra Hopko, Clifford Johnson, Wayne Johnson, Stephanie Cladakis, Leonard Lay, Timothy Lieuwen, Thomas Logan, David Loganbach, Matthew Marston, Mark McIntosh, M. Scott McKinley (NE/HP), Bradley A. Miller, Ryan Morrissey, Gregory Mumpower, Taryn Narrow, Carrie Nottingham, Richard Oberer (HP), John Pape, Gena Poe (HP), Yarom Polsky, Hosein Ali Razavi, Orlando Ruiz, Griffith Russell, Melissa Sandlin, David Scarborough, Andrew Scholand, Michelle Sutton (HP), Kimberly Triplett, and Susan Welsh.

Jeff Favorite, Scott McKinley, Diane Norris, and Michelle Sutton (all NE graduate students) represented the Georgia Tech design team at the finals of the American Nuclear Society Graduate
Design Competition in Albuquerque, New Mexico; they were awarded first place for the design project, "A Tokamak Tritium Production Reactor." The design was done by the NE/HP 6753 Advanced Nuclear/Radiological Engineering Design class in summer 1996.

**Sean Bailey** received a 1998 National Science Foundation Fellowship and a National Defense Science and Engineering Graduate Fellowship. He also received the Woodruff School Chair's Award, which recognizes outstanding scholarship and contributions to the School, especially to its programs and external representation.

**Tori Bailey** received a GEM Student Fellowship.

**Kevin Betts** received a Henry Ford II Scholar Award. This prize is from a restricted endowment fund grant provided by the Ford Motor Company to the engineering student(s) with the best academic record at the end of the third year of undergraduate study.

**Jim Weir Campbell II** won the Outstanding Scholastic Achievement Award, Nuclear Engineering Program, School of Mechanical Engineering. This award recognizes a graduating senior who has achieved an exceptional scholastic record in the nuclear engineering program.

**Rafael Cardenas** received a GEM Student Fellowship.

**Sung II (Tony) Cha** received the Pi Tau Sigma Outstanding Sophomore Award. This award is given to a sophomore student in mechanical engineering who has demonstrated outstanding scholarship but also service to the School and to student activities.

**Scott Chesla** won a Whitaker Graduate Student Award for a paper he submitted for presentation at the Biomedical Engineering Society Fall Annual Meeting in San Diego.

**David Clark** is this year's winner of the CETL/Dow Foundation Perseverance Award.

**John Clayton** received a 1998 National Science Foundation Fellowship.

**James D. Cunningham** won the George W. Woodruff School of Mechanical Engineering Outstanding Scholar Award, which recognizes a graduating senior who has achieved an exception scholastic record in the mechanical engineering program.

**Bradford R. Czerwonky** won the Pi Tau Sigma Outstanding Senior Award, awarded to a graduating senior who has demonstrated outstanding scholarship, service to the School, the Institute, and to student activities.

**Matthew David Bauer** received the Sigma Xi award for an outstanding master's thesis. (Professor David Rosen is his advisor.)
Ty Dawson received an honorable mention in the 1998 National Science Foundation fellowship competition.

Stacey Dixon is the recipient of the 1998 UNCF-Merck Graduate Science Research Dissertation Fellowship, and the Luther S. Long III Memorial Award in Engineering Mechanics, given to a graduate student doing research in engineering mechanics who has excelled in academics, research, leadership, and service. The award honors the memory of Dr. Luther Long, a former Ph.D. student in ESM.

Chad Duty received an honorable mention in the 1998 National Science Foundation fellowship competition. Dathan Erdahl received an honorable mention in the 1998 National Science Foundation fellowship competition.

Jeffrey M. Fowler won a Henry Ford II Scholar Award. This award is from a restricted endowment fund grant provided by the Ford Motor Company, made annually to the engineering students with the best academic record at the end of the third year of undergraduate study.

Samuel Graham is an awardee of the 1998 Ford Foundation Doctoral Fellowship Program for Minorities and has been awarded the Outstanding Young Investigator Award by the International Thermal Conductivity Conferences.

Ronald Grover received a 1998 National Science Foundation Fellowship. Philip Harp received a GEM Student Fellowship.

Comas L. Haynes has received the DEED Scholarship for the project, "Simulation of Tubular Solid Oxide Fuel Cell Behavior for Integration Into Gas Turbine Cycles."

Jennifer C. Hsieh received the Samuel P. Eschenbach Memorial Award in Mechanical Engineering, which is given by the family of Samuel P. Eschenbach (class of 1933) and is based on academic performance, leadership capabilities in the campus community, and promise as a mechanical engineer.

Ozzie Hutchins received an honorable mention in the 1998 National Science Foundation fellowship competition.

Germina Ilas won a best paper award at the American Nuclear Society Conference in Austin, Texas.

Sundiata Jangha received an honorable mention in the 1998 National Science Foundation fellowship competition.
Lindsey Johnson won a Graduate Teaching Assistant Award.

Stephenie Kladakis received the High Score on the Qualifying Exams Award.

Arthur McClung received a GEM Student Fellowship.

Michael Medaska received a 1998 National Science Foundation Fellowship.

Scott Mosher won a best paper award at the American Nuclear Society Conference in Austin, Texas.

Terry Sanderson received the Sigma Xi award for an outstanding doctoral thesis. (Professor Charles Ume is his advisor.)

Melissa Sandlin received the ASME Marjorie Roy Rothermal Scholarship. Melissa received her BSME in May 1996 from the University of Illinois.

Laura Scheafer was selected as one of the ASME Graduate Teaching Fellows for the 1998-1999 academic year. The fellowship is intended to encourage high-quality graduate students, especially women, minorities, and the disabled, to pursue an academic career.

Curtis Sharif received a GEM Student Fellowship.

Davin Swanson received an honorable mention in the 1998 National Science Foundation fellowship competition.

Jason Tsai received a 1998 National Science Foundation Fellowship.

Clifton T. Wall won the Richard K. Whitehead Jr. Memorial Award. This award is given to an outstanding mechanical engineering senior who exemplifies high standards of scholarship and service.

Nicole Zirkelback received the Beginning Engineers Fellowship Program Award from the International Gas Turbine Institute of ASME. She also received an award from Texas A&M University by the Association of Former Students for Distinguished Graduate Student Masters' Research Award for 1998.
FELLOWSHIPS

During the period from July 1, 1997 to June 30, 1998, Woodruff School students were awarded more than $2.2 million dollars in fellowships from outside sources for graduate study; in 1996-1997 that amount was $1.52 million. The impressive quality of the graduate student body is demonstrated by the presence of 81 Georgia Tech President's Fellows and 67 winners since 1990 of the prestigious National Science Foundation graduate fellowship.

ARCS (Achievement Rewards for College Scientists) Foundation Atlanta Chapter Scholars
  Stacey Dixon
  Staci Edlund
  Ashley James
  David Wootton

ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) Grant-In-Aid
  Christopher Pascual

ASME (American Society of Mechanical Engineers) Graduate Teaching Fellowship
  Stacey Dixon
  Christopher Pascual

Department of Energy, Intergrated Manufacturing Fellowship
  R. Reid Bailey
  Matthew Bauer
  Stewart Coulter

Department of Energy, Civilian Radioactive Waste Management Fellowship
  Edward Hoffman (NE)

Department of Energy Health Physics Fellowship
  Scott Mosher (NE)

Duke Power Fellowship
  Julia Banks (HP)
  Jeffrey Favorite (NE)

Ford Foundation Graduate Fellowship
  Gena Poe (HP)

General Electric Faculty for the Future Doctoral Fellowship
Benjamin Torres

**GEM (Graduate Education for Minorities) Fellowship**
- Thomas Escoe (MS)
- Celena Evans (MS)
- Brett Fennell
- Christie Gooch (MS)
- Ali Gordon (MS)
- Phillip Harp (MS, Ph.D.)
- Todd Jamison
- Sundiata Jangha (MS)
- Janeen Jones (MS)
- Aneshia Smith (MS)
- Anthony Walker (MS)

**Georgia Tech CIMS (Computer Integrated Manufacturing) Fellowship**
- Melissa Sandlin

**Georgia Tech President’s Fellowship**
- Sophia Acle
- Saleh Alafifi (NE)
- R. Reid Bailey
- Matthew Bauer
- Harris Bergman
- Scott Billington
- Peter Carnell
- Natasha Case
- John Clayton
- Derrick Coffin
- Stewart Coulter
- Frederick Cowan
- Richard Cowan
- Thomas Crittenden
- N. Peter Davis
- Ty Dawson
- Stacey Dixon
- Michael Drexel
- Angel Duty
- Chad Duty
- Staci Edlund
- Jeffrey Ellis
- Dothan Erdahl
- Jeffrey Favorite
Brian Gardner
Donna Geddes
Samuel Graham
Phillip Harp
Jeremy Harvey
Comas Haynes
Samuel Heffington
Stephen Hill
Edward Hoffman (NE)
Andrew Honohan
Sandra Hooko
Chien Hsiung
Courtney James
Daniel Jean

Clifford Johnson
Wayne Johnson
Stephanie Kladakis
Timothy Lieuwen
Josiah Lindsay
Thomas Logan
David Longanbach
Bryan Marshall
Matthew Marston
Lisa Mauck
Robert McGinty
Mark McIntosh
Adam Melch
Jacqueline Menchaca
Bradley Miller
Matthew Miller
Scott Mosher (NE)
Gregory Mumpower
Phillip Nguyen
John Pape

*Stephanie Kladakis, Brian Conklin, and Eric Barth*
Christopher Pascual
Gena Poe (HP)
Christopher Rinehart
James Reeves
Orlando Ruiz
Laura Schaefer
Andrew Scholand
Timothy Stimpson
Jan Stegmann
Thomas Stone
Michele Sutton
Matthew Thompson
Benjamin Torres
Mark Trautman
Thomas Tucker
Donald Upton
Bryan Walsh
Nathan Weiland
Rex Wolf
David Wootton
Adele Wright
Claudia Zettner
Nicole Zirkelback

Glenn Fellowship
Saleh Alafifi
Brad Beadle
Peter Carnell
John Clayton
Derrick Coffin
Thomas Crittenden
Ty Dawson
Michael Drexel
Chad Duty
Staci Edlund
Dathan Erdahl
Bryan Gardner
Donna Geddes
Mark Gillespie
Samuel Graham
Comas Haynes
Samuel Heffington
Sandra Hopko
Daniel Jean
Timothy Lieuwen
Thomas Logan
David Longanbach
Lisa Mauck
Robert McGinty
Mark McIntosh
Gregory Mumpower
Phillip Nguyen
John Pape
Gena Poe (HP)
James Reeves
Christopher Rinehart
Orlando Ruiz
Griffith Russell
Dror Seliktar
Charlotte Song
Jan Stegemann
Jeffrey Thiele
Mark Trautman
Thomas Tucker
Nathan Weiland
Patrick Wilkerson
Rex Wolf
David Wootton
Jun Zhai

Gwaltney Manufacturing Traineeship
Patrick Koch

Fulbright Fellowship
Jan Emblemstav

Hughes Fellowship
Jeremy Harvey

INPO (Institute for Nuclear Power Operations) Fellowship
Julia Banks (HP)
Jeffrey Favorite (NE)
Adam Nielson (HP)

INTEL Graduate Fellowship
Joseph Levert
Yarom Polsky

Kvaerner Fellowship
Yee-Wang Low
Kjartan Pedersen

Lucent Fellowship
Francis Mess

Medtronic Fellowship
Stacey Dixon

NASA Graduate Fellowship
Pat Blanchet
Frederick Cowan
Andrew Honohan
Wayne Johnson
Josiah Lindsay
Calvin Martin

National Defence Science & Engineering Graduate Fellowship
Richard Cowan
Nathan Weiland

NIH Traineeship
N. Peter Davis
Dror Seliktar
Tom Williams

NSF Graduate Fellowship
Sophia Acle
Comas Haynes
William Healy
Stephen Hill
Clifford Johnson
Stephanie Kladakis
Matthew Marston
Angela Minichiello
Jennifer Morrise
tt
Carrie Nottingham
Laura Schaefer
Timothy Simpson
Jeffrey Thiele
Adele Wright
Claudia Zettner

NSF Composites Traineeship
Vatsal Bulsara
Samuel Graham

NSF Tribology Traineeship
Susan Harp
Leonard Lay
Bradley Miller
Nicole Zirkelback

Regents' Opportunity Scholarship
Miodrag Oljaca

Sloan Foundation Doctoral Fellowship
Ali Gordon
Wayne Johnson
Jacqueline Menchaca
Gena Poe (HP)
Orlando Ruiz

Tau Beta Pi Fellowship
Angel Duty
Bryan Walsh

Total Fellowship
Sophie Biz

U.S. Air Force Traineeship
Bryon Bright (MS)
Lawrence Butkus (Ph.D.)
Joel Miller (MS)

U.S. Air Force Palace Knight Fellowship
Paul Hausgen
Ryan Morrissey

U.S. Air Force Palace Acquire Fellowship
Peter Christiansen
U.S. Army Doctoral Traineeship
   Albert Tanner

U.S. Navy Graduate Study Traineeship
   Jesse Aldridge (HP)
   Brandon Davis
   Alexander Dutko
   Anne Palmer
   Gregory Roach (NE)
   Michael Stinson (NE)

Whitaker Fellowship
   Amanda Adams
   Harris Bergman
   Natasha Case
   N. Peter Davis
   Angel Duty
   Bridget Hurley
   Bryan Marshall
   Dror Seliktar
   David Wootton
   Adele Wright

Woodruff Fellowship
   Brad Beadle
   Dathan Erdahl
   Bryan Gardner
   Donna Geddes
   Mark Gillespie
   Samuel Grahan
   Comas Haynes
   Samuel Heffington
   Ai-Ping Hu
   Daniel Jean
   Timothy Lieuwen
   Thomas Logan
   David Longanback
   Lisa Mauck
   Robert McGinty
   Mark McIntosh
   Michael Medaska
   Dana Michaud
Gregory Mumpower
Phillip Nguyen
Adam Nielson (HP)
John Pape
Gena Poe (HP)
James Reeves
Christopher Rinehart
Orlando Ruiz
Griffith Russell
Frer Seliktar
Charlotte Song
Jan Stegemann
Jeffrey Thiele
Mark Trautman
Thomas Tucker
Bryan Walsh
Nathan Weiland
Patrick Wilkerson
Rex Wolf
David Wootton

Woodruff GTL Scholarship
Maria Brathwaite
Xiaoling He
Saiful Mdramli
Emmanuel Sayoc

Woodruff Teaching Internship
Steven Benintendi
R. Scott Coleman
William Healy
Keith Hekman
Timothy Simpson

Yopp Fellowship
Brad Beadle
Brandon Davis
Mark Gillespie
Ai-Ping Hu
Michael Medaska
Dana Michand
Christopher Rinehart
Griffith Russell
Bryan Walsh
Patrick Wilkerson

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DEGREES

Degree Programs

From 1889 when mechanical engineering was the only degree-granting program at Georgia Tech, the number and type of degrees awarded has continued to grow. Today, the Woodruff School offers two undergraduate degrees, and nine graduate degrees. In addition, there is a master's program that can be completed off-site via video-based instruction and there are study-abroad programs at Georgia Tech Lorraine and Oxford University.

Undergraduate Degrees

Bachelor of Mechanical Engineering (B.M.E.)
Bachelor of Nuclear and Radiological Engineering (B.N.R.E.)

Graduate Degrees

Mechanical Engineering
Master of Science in Mechanical Engineering (M.S.M.E.)
Master of Science (M.S.)
Doctor of Philosophy (Ph.D.)

Nuclear Engineering/Health Physics
Master of Science in Nuclear Engineering (M.S.N.E.)
Master of Science in Health Physics (M.S.H.P.)
Master of Science (M.S.)
Doctor of Philosophy (Ph.D.)

Bioengineering
Master of Science in Bioengineering (M.S.B.E.)
Doctor of Philosophy (Ph.D.)

Video-Based Master's Degree Programs

The Woodruff School continues to be a leader in the delivery of its MSME (mechanical engineering) and MSHP (health physics) programs via video. (Tech's video program was started in 1990 and has approximately 450 students.) Admission procedures for the School's video programs are the same as for the on-campus programs. In Fall 1997, 18 HP students were enrolled in video courses. The video program has experienced strong growth since its inception in Fall 1992. In Fall 1997, there were 44 ME students enrolled in video courses. The program in health physics is the largest in the country and produces approximately 10 percent of the nation's MSHP degrees. The Woodruff School anticipates further growth in its video program as the MSME degree is increasingly perceived as the capstone professional degree in mechanical engineering.

Fifteen new students have been accepted to the video-degree program for fall term and three for the winter term. The program continues to grow, with increases in the number of students enrolled and courses offered. To handle the responses to this degree program, we have established a special e-mail address: video.programs@me.gatech.edu.
For detailed information on graduate programs for working professionals in mechanical engineering and health physics, please request the brochure titled, *The George W. Woodruff School of Mechanical Engineering's Video-Based Master's Degree Programs*. Or view it or submit an inquiry on-line at http://www.me.gatech.edu (click on *Woodruff School Publications*).

**Study-Abroad Programs**

**Georgia Tech Lorraine**

Fall 1997 marked the introduction of an MSME program at Georgia Tech Lorraine (GTL), the European campus of Georgia Tech. GTL is located in Metz, France, just a short distance from the borders of Germany, Luxembourg, and Belgium.

In partnership with the Ecole Nationale Supérieure d'Arts et Métiers (ENSAM), the premier mechanical engineering school in France, the Woodruff School offers a dual-degree program leading to a master's degree in mechanical engineering from Georgia Tech and a diploma from ENSAM. Students spend fall and winter quarters at the GTL campus in Metz, followed by two quarters in Paris working full-time on an industry-sponsored research project. The final quarter is spent in Atlanta.

The MSME degree at GTL is granted by Georgia Tech, and the admission and degree requirements are identical to those for students desiring to pursue graduate study in Atlanta. The instruction at GTL is in English, and courses are taught by faculty from Atlanta who go to Metz on a rotating basis. These courses are augmented by courses from the video-based instruction program from the main Tech campus. Students may also take courses offered by the Electrical Engineering faculty at GTL.

The 1997-1998 academic year saw the successful participation of the initial group of 12 ENSAM and 5 Georgia Tech Atlanta students at Georgia Tech Lorraine. These 17 students have returned to Atlanta to complete their master's degrees.

The Georgia Tech Lorraine program was tremendously helpful in the Woodruff School's recruitment of graduate students for the 1998-1999 academic year. This group consists of ten U.S. students (9 incoming and 1 second year student) and seven ENSAM students. The average GPA of the nine incoming U.S. students is 3.73, and they matriculated from institutions, including Georgia Tech, Purdue, Virginia Tech, University of California-Santa Barbara, Illinois, West Virginia, and Wartburg College.

In summer 1998, Georgia Tech Lorraine offered a one-quarter program for undergraduates. It combined mechanical engineering courses taught on site by Woodruff School faculty with humanities and social sciences courses taught by faculty from other units of the University System.

For more information about the Georgia Tech Lorraine program, see the brochure titled, *Bonjour, Georgia Tech: The George W. Woodruff School of Mechanical Engineering Introduces a Graduate Program for Study in France*, go to our web site at http://www.me.gatech.edu (click on *Academic Programs*), or send an e-mail to gtl@me.gatech.edu.

**The Oxford Program**

Each summer since 1994, Georgia Tech undergraduate students have traveled to Oxford, England to study and travel as part of the Oxford Summer Study-Abroad Program. The five-week program is centered around Worcester College, and more than 600 Georgia Tech students have participated since the program began. Usually, two mechanical engineering classes are offered. In addition, there are courses in electrical engineering, history, music, architecture, literature, and internal affairs. Students can take up to 12 credit hours with a maximum of six hours in engineering. The mechanical engineering courses offered in summer 1998 were: Case Studies in Rehabilitation Design, Introduction to Biomechanics, Engineering and Medical Seminars, Biomedical Instrumentation, and the Oxford Seminars. Forty-three mechanical engineering undergraduate students participated in the program in summer 1998. For more details about the program, view the web site at [http://www.ece.gatech.edu/academic/oxford](http://www.ece.gatech.edu/academic/oxford).
Degrees Awarded

This past academic year, the Woodruff School awarded 283 bachelor's degrees and 150 graduate degrees: 113 master's degrees, and 37 Ph.D. degrees. These graduation numbers place the Woodruff School among the top producers of advanced degrees in mechanical engineering in the country. The chart below details the degrees awarded in the Woodruff School this past academic year; next is the breakdown of the bachelor's, master's, and doctoral degrees awarded in mechanical engineering, nuclear engineering, the Schools of the College of Engineering, and the totals in these categories for the Institute from summer 1996 through spring 1998. The next chart shows the number of degrees awarded by the College of Engineering for the past academic year: summer 1997 through spring 1998. Following that is a breakdown of the degrees awarded to males and females in the same categories.

Number of Degrees Awarded 1997-1998

<table>
<thead>
<tr>
<th>Field</th>
<th>Bachelor's Degrees</th>
<th>Master's Degrees</th>
<th>Doctoral Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ME</strong></td>
<td>274</td>
<td>238</td>
<td>97</td>
</tr>
<tr>
<td><strong>NE/HP</strong></td>
<td>9</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td><strong>COE</strong></td>
<td>1,259</td>
<td>1,230</td>
<td>604</td>
</tr>
<tr>
<td><strong>Institute</strong></td>
<td>1,912</td>
<td>1,794</td>
<td>951</td>
</tr>
</tbody>
</table>

Note: Figures represent all data within the School, that is, the figures for the School of Mechanical Engineering include data for the Nuclear Engineering and Health Physics Programs.
### Degrees Awarded for the College of Engineering
by School for Summer 1997 to Spring 1998

<table>
<thead>
<tr>
<th>School</th>
<th>Bachelor's Degrees</th>
<th>Master's Degrees</th>
<th>Doctoral Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>32</td>
<td>59</td>
<td>24</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>129</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Civil and Environmental Engineering</td>
<td>159</td>
<td>137</td>
<td>25</td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>321</td>
<td>186</td>
<td>60</td>
</tr>
<tr>
<td>Industrial and Systems Engineering</td>
<td>279</td>
<td>73</td>
<td>11</td>
</tr>
<tr>
<td>Materials Science Engineering</td>
<td>25</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>283</td>
<td>113</td>
<td>37</td>
</tr>
<tr>
<td>Textile and Fiber Engineering</td>
<td>31</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals for COE</strong></td>
<td><strong>1,259</strong></td>
<td><strong>604</strong></td>
<td><strong>178</strong></td>
</tr>
<tr>
<td><strong>Totals for Institute</strong></td>
<td><strong>1,912</strong></td>
<td><strong>951</strong></td>
<td><strong>263</strong></td>
</tr>
</tbody>
</table>

### Degrees Awarded to Male and Female Students in 1996-1997 and 1997-1998

<table>
<thead>
<tr>
<th>Degree Type</th>
<th>School</th>
<th>1997 - 1998</th>
<th>1996 - 1997</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>B.S. Degrees</td>
<td>Mechanical Engineering</td>
<td>226</td>
<td>48</td>
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<tr>
<td></td>
<td>Nuclear Engineering</td>
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<td>0</td>
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<td></td>
<td>College of Engineering</td>
<td>961</td>
<td>298</td>
</tr>
<tr>
<td></td>
<td>Institute</td>
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<td>519</td>
</tr>
<tr>
<td>M.S. Degrees</td>
<td>Mechanical Engineering</td>
<td>80</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Nuclear Engineering</td>
<td>12</td>
<td>4</td>
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<tr>
<td></td>
<td>College of Engineering</td>
<td>486</td>
<td>118</td>
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<tr>
<td></td>
<td>Institute</td>
<td>724</td>
<td>227</td>
</tr>
<tr>
<td>Ph.D. Degrees</td>
<td>Mechanical Engineering</td>
<td>24</td>
<td>5</td>
</tr>
</tbody>
</table>
Graduate Degrees Awarded

These next pages present a compilation of the master's and doctoral degrees granted by the Woodruff School in the summer 1997, fall 1997, winter 1998, and spring 1998 quarters. You will find the individual's name, the degree and the program in which the degree was granted (for example, MSHP is a master's of science in the health physics program), the student's advisor, the title of the thesis (or a notation that the student took additional coursework and selected the nonthesis option), and the previous school (in most cases, this is the place where the student received the undergraduate degree) attended.

In summer quarter 1997, 34 graduate degrees were awarded. In fall quarter 1997, 35 graduate degrees were awarded; in winter quarter 1998, 32 degrees were awarded; and in spring quarter 1998, 49 degrees were awarded.

**SUMMER 1997 GRADUATES**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Program</th>
<th>Advisor</th>
<th>Thesis Title</th>
<th>Previous School Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson, Jeri L.</td>
<td>PhD NE</td>
<td>Dr. Bernd Kahn</td>
<td><em>In Vitro Dissolution of Strontium Titanate to Estimate Clearance Rates in Human Lungs</em></td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Braddon, Linda G.</td>
<td>PhD ME</td>
<td>Dr. Robert Nerem</td>
<td>The Effect of Shear Stress on a Co-Culture of Fibroblasts, Endothelial Cells with a Biodegradable Polymer</td>
<td>Mercer University</td>
</tr>
<tr>
<td>Conklin, Brian S.</td>
<td>MSME</td>
<td>Dr. David Ku</td>
<td>Viability of Porcine Common Carotid Arteries in a Novel Artery Culture System</td>
<td>San Diego State University</td>
</tr>
<tr>
<td>Dater, Brian S.</td>
<td>MSME</td>
<td>Dr. Ken Cunefare</td>
<td>Structural Acoustic Optimization of an Aircraft Fuselage Using the Complex Method</td>
<td>United States Air Force Academy</td>
</tr>
<tr>
<td>Evans, Celena L.</td>
<td>MSME</td>
<td>Dr. Jon Colton</td>
<td>Non-Thesis</td>
<td>University of Rochester</td>
</tr>
<tr>
<td>Granberg, Richard D.</td>
<td>MSHP-V</td>
<td>Dr. Nolan Hertel</td>
<td>Non-Thesis</td>
<td>Thomas A. Edison State College</td>
</tr>
<tr>
<td>Henry, Sebastien</td>
<td>MSBioE</td>
<td>Dr. Mark Prausnitz (Che)</td>
<td>Microfabricated Device for Transdermal Drug Delivery</td>
<td>Universite De Technologie</td>
</tr>
<tr>
<td>Kenney, Debra M.</td>
<td>Ph.D. ME</td>
<td>Dr. Peter Rogers</td>
<td>A Short Water-filled Pulse Tube for the Measurement of the Acoustic Properties of Materials at Low Frequencies</td>
<td>United States Naval Academy</td>
</tr>
<tr>
<td>Klement, Martin C.</td>
<td>MSME</td>
<td>Dr. Kok-Meng Lee</td>
<td>Development and Analysis of an Absolute Three Degree of Freedom Vision Based Orientation Sensor</td>
<td>University of California-Berkeley</td>
</tr>
<tr>
<td>Klima, Shane K.</td>
<td>MSHP</td>
<td>Dr. Nolan Hertel</td>
<td>Non-Thesis</td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Lin, Shawn</td>
<td>MSME</td>
<td>Dr. Yves Berthelot</td>
<td>A Laser Interferometer for Measurements of Surface Vibrations and Ultrasound</td>
<td>Johns Hopkins University</td>
</tr>
<tr>
<td>Logan, Thomas M.</td>
<td>MSME</td>
<td>Dr. Peter Rogers</td>
<td>Non-Thesis</td>
<td>Stevens Institute of Technology</td>
</tr>
<tr>
<td>Machado, Marcial G.</td>
<td>MSME</td>
<td>Dr. David Rosen</td>
<td>Non-Thesis</td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Martinez, Jose</td>
<td>MSME</td>
<td>Dr. Dan Baldwin</td>
<td>Non-Thesis</td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Minichilli, Angela</td>
<td>MSME</td>
<td>Dr. Ari Glezer</td>
<td>The Development of a Heat Transfer Module (HTM) for the Thermal Management of Electronic Enclosures</td>
<td>United States Military Academy</td>
</tr>
<tr>
<td>Moore, Andrew C.</td>
<td>MSME</td>
<td>Dr. Yves Berthelot</td>
<td>An Improved System for Measuring Optically the Surface Dynamics of a Sample</td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Morabito, Brian J.</td>
<td>MSHP</td>
<td>Dr. Rodney Ice</td>
<td>Quantitation Radiation Induced DNA Breaks By Capillary Electrophoresis</td>
<td>Georgia Institute of Technology</td>
</tr>
<tr>
<td>Morrissey, Ryan J.</td>
<td>MSME</td>
<td>Dr. D. McDowell</td>
<td>Frequency and Mean Stress Effects in HCF of Ti-6Al-4V</td>
<td>University of Iowa</td>
</tr>
<tr>
<td>Murphy, Robert S.</td>
<td>MSME</td>
<td>Dr. S. Sitaraman</td>
<td>Thermomechanical Reliability of the VSPA Package Solder Joints</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Nelson, David W.</td>
<td>MSHP-V</td>
<td>Dr. C. K. Wang</td>
<td>Non-Thesis</td>
<td>University of Wisconsin</td>
</tr>
<tr>
<td>Oxenberg, Tanya P.</td>
<td>MSHP-V</td>
<td>Dr. Nolan Hertel</td>
<td>The Use of Catchboxes to Minimize the Impact to the Environment From Testing Depleted Uranium Penetrators</td>
<td>Virginia Polytechnic Institute</td>
</tr>
<tr>
<td>Pascarella, Nathan W.</td>
<td>MSME</td>
<td>Dr. Dan Baldwin</td>
<td>Advanced Encapsulation Processing for Low Cost Electronics Assembly</td>
<td>Cedarville College</td>
</tr>
<tr>
<td>Peplinski, Jesse</td>
<td>PhD ME</td>
<td>Dr. F. Mistree</td>
<td>Enterprise Design: Extending Product Design to Include Manufacturing</td>
<td>Harvard University</td>
</tr>
<tr>
<td>Sanderson, Terry</td>
<td>PhD ME</td>
<td>Dr. Charles Ume</td>
<td>Thermoelastic Modeling of Laser Generated Ultrasound for Nondestructive Materials Testing</td>
<td>Tennessee Technological University</td>
</tr>
</tbody>
</table>
### Fall 1997 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Program</th>
<th>Advisor</th>
<th>Thesis Title</th>
<th>Previous School Attended</th>
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</thead>
<tbody>
<tr>
<td>Adams, Amanda W.</td>
<td>MSME</td>
<td>Dr. Robert Nerem &amp;</td>
<td>Non-Thesis Detection of Lubricating Film Breakdown in Mechanical Seal</td>
<td>Columbia University</td>
</tr>
<tr>
<td>Anderson, William B.</td>
<td>MSME</td>
<td>Dr. Jacek Jarzynski &amp;</td>
<td>Testing of Friction Temperature Differences For Refrigerant Mixtures</td>
<td>Tennessee Technological University</td>
</tr>
<tr>
<td>Arnsdorff, Carl E.</td>
<td>MSME</td>
<td>Dr. Wayne Book</td>
<td>Non-Thesis Detection of Lubricating Film Breakdown in Mechanical Seal</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Atkinson-Schaefer,</td>
<td>ME</td>
<td>Dr. Sheldon Jeter</td>
<td>Heat Exchanger Mean Temperature Differences For Refrigerant Mixtures</td>
<td>Rice University</td>
</tr>
<tr>
<td>Bauer, Matthew D.</td>
<td>MSME</td>
<td>Dr. David Rosen</td>
<td>Integration of Product &amp; Disassembly Process in Parametric Synthesis</td>
<td>University of Dayton</td>
</tr>
<tr>
<td>Billington, Scott A.</td>
<td>ME</td>
<td>Dr. Tom Kurfess</td>
<td>Sensor &amp; Machine Condition Effects in Roller Bearing Diagnostics</td>
<td>Lafayette College</td>
</tr>
<tr>
<td>Brackin, Marguerite</td>
<td>ME</td>
<td>Dr. Jonathan Colton</td>
<td>Translating the Voice of the Customer Into Preliminary Design Specifications</td>
<td>University of Tennessee</td>
</tr>
<tr>
<td>Butkus, Lawrence M.</td>
<td>ME</td>
<td>Dr. Steve Johnson</td>
<td>Assessing the Structural Integrity of Bonded Joints Using Fracture Mechanics</td>
<td>Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>Chien, Ruijun</td>
<td>ME</td>
<td>Dr. Dan Baldwin</td>
<td>Integrated Product Development Cycle Manufacturing Lab</td>
<td>Zhejiang University, China</td>
</tr>
<tr>
<td>Cohen, Tal</td>
<td>ME</td>
<td>Dr. Robert Cargill</td>
<td>Combined Heat and Mass Transfer in Gas-Liquid Two-Phase Systems</td>
<td>University of Maryland</td>
</tr>
<tr>
<td>Cowden IV, David H.</td>
<td>MSME</td>
<td>Dr. Tom Kurfess</td>
<td>Non- Thesis Micromechanical Modeling Of Fiber Fragmentation In A Single Fiber</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Davis, Jean E.</td>
<td>ME</td>
<td>Dr. Jamin Qu</td>
<td>Micromechanical Modeling Of Fiber Fragmentation In A Single Fiber Medal</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Frick, Ronald W.</td>
<td>MSHP</td>
<td>Dr. Chris Wang</td>
<td>Non- Thesis Combined Heat and Mass Transfer in Gas-Liquid Two-Phase Systems</td>
<td>University of Minnesota</td>
</tr>
<tr>
<td>Heinrich, Russell S.</td>
<td>ME</td>
<td>Dr. A.P. Yoganathan</td>
<td>Assessment Of The Fluid Mechanics Of Aortic Valve Stenosis With In-Vitro</td>
<td>Rensselaer Polytechnic Institute</td>
</tr>
<tr>
<td>Hekman, Keith A.</td>
<td>ME</td>
<td>Dr. S.Y. Liang</td>
<td>Precision Control In Compliant Grinding Via Depth-of-Cut Manipulation</td>
<td>Calvin College</td>
</tr>
<tr>
<td>James, Courtney D.</td>
<td>ME</td>
<td>Dr. Nader Sadegh</td>
<td>Development Of A Robust, Memory Efficient Repetitive Learning Control</td>
<td>Stanford University</td>
</tr>
<tr>
<td>Kennedy, Jonathan E.</td>
<td>MSME</td>
<td>Dr. Abdel-Khalil</td>
<td>Onset Of Flow Instability In Uniformly-Heated Microchannels</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Lee, Seungiae</td>
<td>ME</td>
<td>Dr. Wayne Book</td>
<td>Non- Thesis Interface Mechanics of Chemical Polishing for Integrated</td>
<td>Chosun University, Korea</td>
</tr>
<tr>
<td>Levert, Joseph A.</td>
<td>ME</td>
<td>Dr. Steve Danyluk</td>
<td>Non- Thesis Real-Time Measurement For an Internal Grinding System</td>
<td>Arizona State University</td>
</tr>
<tr>
<td>Longanbach, David M.</td>
<td>ME</td>
<td>Dr. Tom Kurfess</td>
<td>Non- Thesis Comparison and Analysis of Dynamic Shear Localization Behavior</td>
<td>Virginia Polytechnic Institute</td>
</tr>
<tr>
<td>Minnaar, Karel</td>
<td>MSME</td>
<td>Dr. Min Zhou</td>
<td>Comparison and Analysis of Dynamic Shear Localization Behavior in Structural</td>
<td>University of Central Florida</td>
</tr>
<tr>
<td>Morrisette, Jennifer A.</td>
<td>MSME</td>
<td>Dr. Tom Kurfess</td>
<td>The Use of a Piezoelectric Transducer to Improve Precision of a CMM</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Narain, Rajendra</td>
<td>ME</td>
<td>Dr. R.A. Karam</td>
<td>Very Intense Continuous High Flux Pulsed Reactor</td>
<td>Agra University, India</td>
</tr>
<tr>
<td>Nelson, Luis Manuel</td>
<td>ME</td>
<td>Dr. Steven Danyluk</td>
<td>Subsurface Damage in the Abrasive Machining of titanium</td>
<td>University of Iowa</td>
</tr>
<tr>
<td>Nichita, Eldodor</td>
<td>ME</td>
<td>Dr. Farzad Rahmeha</td>
<td>Design Of A Small BWR Reactor Core For Neutronic Design Code Test Purposes</td>
<td>University of Bucharest, Romania</td>
</tr>
<tr>
<td>Norris, Diane C.</td>
<td>ME</td>
<td>Dr. Weston Stacey</td>
<td>Plasma Facing Component Design Concepts In Heat Removal And Stress</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Pape, John A.</td>
<td>MSHP</td>
<td>Dr. Richard Neu</td>
<td>Design And Implementation Of An Apparatus To Investigate The Fretting Fatigue</td>
<td>Hartwick College</td>
</tr>
<tr>
<td>Peiffer, Holger</td>
<td>ME</td>
<td>Dr. Westen Stacey</td>
<td>Design Of A Small BWR Reactor Core For Neutronic Design Code Test Purposes</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Pfeifer, James W.</td>
<td>ME</td>
<td>Dr. Cheng Zhu</td>
<td>Force Dependence Of Cell Bound E-Selection Carbohydrate Ligand</td>
<td>Georgia Tech</td>
</tr>
<tr>
<td>Rarey, Michelle C.</td>
<td>MSME</td>
<td>Dr. Dan Baldwin</td>
<td>Non-Thesis Comparison and Analysis of Dynamic Shear Localization Behavior</td>
<td>University of Miami</td>
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## WINTER 1998 GRADUATES

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Program</th>
<th>Advisor</th>
<th>Thesis Title</th>
<th>Previous School Attended</th>
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<tbody>
<tr>
<td>Alsum, Steven J.</td>
<td>MSME</td>
<td>Dr. Jonathan Colton</td>
<td>Non-Thesis</td>
<td>Calvin College</td>
</tr>
<tr>
<td>Bharadwaj, Rangarajan</td>
<td>MSME</td>
<td>Dr. Farrokh Mistree</td>
<td>Robust Concurrent Design of Automobile Engine Components</td>
<td>Indian Institute of Technology, Madras</td>
</tr>
<tr>
<td>Brown, Andrew M.</td>
<td>Ph.D. ME</td>
<td>Dr. Aldo Ferri</td>
<td>Development of a Probabilistic Dynamic Synthesis Method for the Analysis of Non-Deterministic Structures</td>
<td>Duke University</td>
</tr>
<tr>
<td>Brown, Jason B.</td>
<td>MSME</td>
<td>Dr. Paul Neitzel</td>
<td>A Couette Flow Bioreactor Model for Particle Image Velocimetry</td>
<td>Baylor University</td>
</tr>
<tr>
<td>Davis, Nathan P.</td>
<td>MSME</td>
<td>Dr. Robert Cargill</td>
<td>Non-Thesis</td>
<td>Purdue University</td>
</tr>
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<td>Ehner, Jesse J.</td>
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<td>Application of CPD Probe to Detection of Nanometer-Scale Lubricant on a Hard Disk</td>
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## SPRING 1998 GRADUATES

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<td>Three-Dimensional Measurement of Shrinkage in Stereolithography Rapid Prototyping</td>
<td>University of Cape Town, South Africa</td>
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<td>Health Physics and its Role in Contemporary Emergency Response</td>
<td>University of North Carolina- Charlotte</td>
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<td>University of Michigan</td>
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<td>Dr. Harvey Lipkin</td>
<td>Linear Vibration Analysis Using Screw Theory</td>
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<td>Analysis of Cartesian Stiffness Using Spatial Vector Algebra With Applications</td>
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<td>Claudet, Andre A.</td>
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<td>Data Reduction in Three Dimensional Metrology</td>
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<td>Coulter, Stewart L.</td>
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<td>CAD Methods to Facilitate Automated De- and Remanufacture Assessments</td>
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STUDENT OUTCOMES

According to John Hannabach, Director of Georgia Tech Career Services, there were 1,245 employer recruiting visits to the Georgia Tech campus during this past academic year, and on the order of 80 to 85 percent of those companies list mechanical engineers as one of the disciplines they wish to hire. This means there were far more visits to try to hire mechanical engineers than there were students receiving mechanical engineering degrees from Georgia Tech this year. In fact, he said, "it was the biggest year we've ever had."

The Job Market for Undergraduate Students

The job market for mechanical engineering graduates was excellent this year, and there is the expectation that opportunities will continue to be very good for graduates of the Woodruff School. The dynamism of the job market for mechanical engineering students with a bachelor's degree is reflected in this anecdote told by Regents' Professor and Chair of the Woodruff School, Ward O. Winer:

You might be interested to hear that the student job market in mechanical engineering is probably the hottest that I have seen in the last 35 years. At our Student Banquet this year, I asked a top graduating senior where he was going to work. Much to my surprise, he said he hadn't obtained a job yet. He said there were so many jobs available that he hadn't bothered to look yet. He knew he could pick one up shortly after graduating; and it was just three weeks before graduation. Such a level of confidence I have not seen in seniors in a number of years. I also heard about one student who had 15 written job offers.

The average starting salary for a Woodruff School graduate with a bachelors degree for the period June 30, 1997 to July 1, 1998 was $42,700, which reflected an increase of 5.3 percent over the previous year's average of $40,013.

The Job Market for Graduate Students

Similar to the picture for those with undergraduate degrees in mechanical engineering, the story for students with a master's or doctoral degree in mechanical engineering (nuclear engineering and health physics students are included in these numbers because of the small number of students in this area) appears to be very good. The average starting salaries for those with a master's degree from the Woodruff School are: $48,500, which reflects a 4.8 percent increase over the $46,300 average from the previous year. The average starting salary for those with a doctoral degree is $59,700, which shows a 7.6 percent increase over the previous year's average starting salary of $55,500.
FACILITIES

The research facilities in the Woodruff School of Mechanical Engineering are top notch. In fact, two of the School's buildings were built within the past five years and contain state-of-the-art teaching, research, and laboratory space. Construction is underway on a new building (to be completed by late 1999 or early 2000) that will comprise the third segment of a complex, which will give the Woodruff School the best physical facilities of any mechanical engineering school in the country.

Manufacturing Research Center (MARC)

The first segment of this complex, which opened in November 1991, was the Fuller E. Callaway Manufacturing Research Center (MARC), which houses three Woodruff School research groups: Automation and Mechatronics, Computer-Aided Engineering and Design, and Manufacturing. This building was designed in modular fashion to facilitate interior reconfiguration. The 120,000 square foot facility includes research laboratories, faculty and research offices, shop bays, and an electronics manufacturing laboratory. The new Integrated Acoustics Laboratory (the anechoic chamber) is housed in MARC.

Manufacturing Related Disciplines Complex, Phase I (MRDC I)

The Woodruff School completed its move to the Manufacturing Related Disciplines Complex, Phase I (MRDC I) building in the fall of 1995. This is a modern classroom/laboratory/seminar building that the Woodruff School shares (we have about two-thirds of the space) with the School of Textile and Fiber Engineering. MRDC holds machine shops, instructional laboratories, tribology research labs, manufacturing labs, and the mechanics of materials research labs. There are computer-aided design laboratories for undergraduate design, mechatronics, internal combustion engines, and thermal and mechanical systems, as well as solidification processing. In addition, there is office space for faculty, staff, and graduate students. The CAE lab is located in MRDC I and is designed to meet the growing demand for computer-aided engineering education among mechanical engineering students.

Manufacturing Related Disciplines Complex, Phase II (MRDC II)

In May 1998 ground was broken on the third building in the ME complex (MRDC II), which should be ready for occupancy by winter 2000. The four-story, l-shaped building will be about 135,000 square feet, and will allow the School to consolidate virtually all of its activities into a three-building complex: MRDC I,
II, and MARC. MRDC II will house state-of-the-art research and laboratory facilities in acoustics and dynamics; fluid mechanics; thermal systems; and nuclear and radiological engineering, health physics, and fusion. The building will also have classrooms, an atrium, laboratory space, a high-bay area, and faculty, staff, and graduate student office space. Roughly two-thirds of MRDC II will be used for Mechanical Engineering and one-third will be for the School of Materials Science and Engineering. To watch the construction of this new building, view our web page at http://www.me.gatech.edu and click on Facilities.
The Woodruff School maintains a vigorous publication shop. Our publications are divided into the following categories: brochures, dedications, handbooks, invitations, newsletters, programs, reports, and transcripts. Each of these documents is also available on the web at http://www.me.gatech.edu (click on Woodruff School Publications).

Brochures

- Video-Based Master's Degree Programs for Working Professionals in Mechanical Engineering and Health Physics
- Bonjour, Georgia Tech: The George W. Woodruff School of Mechanical Engineering Introduces a Graduate Program for Study in France
- The Undergraduate Nuclear and Radiological Engineering Program at Georgia Tech
- The Bachelors in Mechanical Engineering
- The 1996 Annual Report Summary

Dedications

- An Event to Honor Mr. Jack Zeigler (BME 1958): Dedication of the Woodruff School Lobbies
- Computer-Aided Engineering Lab Dedication
- Integrated Acoustics Laboratory (IAL) Dedication

Handbooks

- 1997-1998 Undergraduate Handbook in Mechanical Engineering
- 1997-1998 Undergraduate Handbook in Nuclear and Radiological Engineering
- 1997-1999 Graduate Handbook in Mechanical Engineering (quarter system version)
- 1998-1999 Graduate Handbook in Mechanical Engineering (semester system version)
- 1997-1999 Graduate Handbook in Nuclear Engineering and Health Physics (quarter system version)

Invitations

- 1998 George W. Woodruff Distinguished Lecture (Lutz)
- 1998 Harold W. Gegenheimer Lecture Series on Innovation (Hatsopoulos)
- 1997 George W. Woodruff Distinguished Lecture (Vest)
- 1997 Harold W. Gegenheimer Series on Innovation (Adams)
The Woodruff School's Web Address: http://www.me.gatech.edu

The School's web site has undergone a number of significant changes in the past academic year. First, in the summer of 1997 we added a Calendar of Events, which reflects activities by the day and month for such items as: academic deadlines, committee meetings, Ph.D. proposal presentations, Ph.D. thesis defenses, M.S. thesis presentations, social events, special events, faculty candidate
interviews, seminars, lectures, workshops, and conferences. As of this publication date, the ability to search the calendar by date and subject is being finalized. Furthermore, a recently added feature is the ability to perform a site search of the Woodruff School web page. This capability allows the user to search the entire page by keyword descriptors. Go to Theses to get an archival record of the announcement of all master's and doctoral proposal and theses presentations and defenses. By using the on-line feature we are slowly decreasing the number of paper copies that need to be produced in some areas.

All publications produced since 1997 are also found on our web page at http://www.me.gatech.edu (click on Woodruff School Publications or go directly to http://www.me.gatech.edu/me/publicat/Publications.htm). We are also in the process of adding new graphics to the page, such as faculty portraits and additions to the photo gallery. Other upgrades and developments will move the web site into the next millenium, so keep your computer tuned in.

The use of the Woodruff School's home page increased significantly from last year. Over 91,000 visitors were recorded from July 1, 1997 to June 30, 1998. This is nearly 60 percent more than last year (57,000 visitors). These were from over 17,900 unique computers of which only about 3,100 of these machines were at Georgia Tech. This trend is expected to continue as more information is made available via our home page.

Electronic Mail (E-mail)

To get in touch with the Woodruff School via e-mail, use menehp.info@me.gatech.edu for a rapid reply.
FINANCIAL REVIEW

For fiscal year 1998 (July 1, 1997 to June 30, 1998), the Woodruff School's finances were reflected in the number of grants and contracts received from external sources, the budget of the School (state support), and the revenue generated from the Woodruff Endowment. These categories break down as given below. Detailed information on any of these categories is available from the School's Director of Finance, Pete Dawkins, at (404) 894-7400.

Grants and Contracts

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total new funds received on external/internal grants and contracts active during fiscal year 1998 (includes endowment revenue)</td>
<td>$25,071,576</td>
</tr>
<tr>
<td>Endowment and externally funded grant and contract expenditures</td>
<td>$18,162,728</td>
</tr>
<tr>
<td>Internally funded grant expenditures</td>
<td>$485,986</td>
</tr>
<tr>
<td>Total grant, contract, and endowment expenditures</td>
<td>$18,648,714</td>
</tr>
</tbody>
</table>

Number of Grants, Contracts, and Proposals

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of active (external/internal) grants and contracts (includes endowment accounts)</td>
<td>447</td>
</tr>
<tr>
<td>Number of proposals submitted to external agencies</td>
<td>146</td>
</tr>
<tr>
<td>Number of externally funded grants, contracts, and endowments receiving new funds</td>
<td>215</td>
</tr>
<tr>
<td>Number of internally funded grants receiving new funds</td>
<td>25</td>
</tr>
</tbody>
</table>

School Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>State support</td>
<td>$8,577,283</td>
</tr>
<tr>
<td>Sponsored grant support</td>
<td>$12,623,539</td>
</tr>
<tr>
<td><strong>Total budget</strong></td>
<td><strong>$21,200,872</strong></td>
</tr>
</tbody>
</table>

Endowments

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total endowment (market value principal)</td>
<td>$54,137,455</td>
</tr>
<tr>
<td>Endowment-generated revenue available for expenditure</td>
<td>$2,043,020</td>
</tr>
</tbody>
</table>
a Includes direct costs, fringe benefits, and overhead, where applicable.
b Includes direct costs and fringe benefits (overhead, if applicable).
c Includes direct costs but not overhead.
THE WOODRUFF ENDOWMENT

Funds from the George W. Woodruff Trust continue to provide for the enhancement of School of Mechanical Engineering. George W. Woodruff received his degree in mechanical engineering in 1917. He served as a trustee and trustee emeritus of the Georgia Tech Foundation from 1941 until his death at the age of 91 in 1987, and he received the Alumni Distinguished Service Award in 1963. In addition to providing a significant endowment for the School of Mechanical Engineering, his contributions to Georgia Tech provide National Merit Scholarships and scholarships for student athletes in nonrevenue producing sports and are an ongoing source of unrestricted support for the Institute.

The market value of the Mechanical Engineering Woodruff Endowment on July 1, 1997 was $42,627,371. The endowment generated $1,603,284 that was available to the Woodruff School to update and enrich our programs. The expenditures may be categorized as follows: faculty, students, facilities, lectures and seminars, staff, publications, and general projects and supplies. A specific breakdown of the use of these funds follows.

Faculty

■ Funds from the Woodruff Trust are used to endow the George W. Woodruff Chair in Mechanical Systems. This chair is held by Dr. Jerry H. Ginsberg, Professor of Mechanical Engineering and the recipient of the 1998 Archie Higdon Award from the Mechanics Division of the American Society of Engineering Education for being a distinguished educator.
■ Funds developmental leaves for faculty.
■ Funds the Woodruff Faculty Fellows Program, which encourages young professors to build their careers at Georgia Tech by providing seed money ($10,000) for research projects and other discretionary activities. The award is given for a five-year period. In the past academic year, the faculty fellows were: Aldo Ferri, Itzhak Green, Kok-Meng Lee, Steven Liang, Jianmin Qu, and Cheng Zhu.
■ Partially supports the School's participation in the Georgia Tech Lorraine program; including travel support for faculty and students and funds for Michael Wileman, Academic Professional, to work at GTL to administrate the mechanical engineering program and to interact with the French schools in the dual-degree program.
■ Provides funds for the annual Faculty Retreat.

Students

■ During the course of the academic year, approximately 140 graduate student quarters were funded for research and teaching assistants in the Woodruff School; they receive an average rate of $3,500 a quarter.
■ Awards Woodruff Graduate Fellowships to outstanding Ph.D. students; currently there are
38 holders of these fellowships. See Fellowships for a listing of these students.

- Provides funds for the Woodruff Doctoral Teaching Program, which enables graduate students interested in academic careers to team-teach with a senior faculty member; five graduate students (Steven Benintendi, R. Scott Coleman, William Healy, Keith Hekman, and Timothy Simpson) participated in this program in the past academic year.
- Provides funds to recruit new graduate students to the Woodruff School.
- Gives money for the ME Spring Banquet, a yearly gathering of students, staff, and faculty to recognize the accomplishments of Woodruff School students and to honor the Woodruff School's Annual Distinguished Alumnus.
- Partially funds the GT Motorsports competition.
- Provides funds for the Résumé Book, a yearly presentation of the résumés of doctoral students at the School who are close to finishing their degree and are seeking employment.
- Financial support for students to participate in the Georgia Tech Lorraine program. Maria Brathwaite, Xiaoling He, Saiful Mdramli, and Emmanuel Sayoc were the first four recipients of the Woodruff School GTL Scholarship.

Facilities

- Funds for general provisions for various research labs, such as upgrading Professor David Ku’s bioengineering laboratory (SSTC, Room 317).
- Provides funds to improve and furnish School facilities, including the purchase of software for ME 4055, the Experimental Engineering class, and the complete refurnishing of the Administrative Office, including the office of the Chair of the Woodruff School, in the MRDC building.
- Provides funds to obtain remote access for faculty, staff, and some graduate students.
- Funds for a hospitality suite at the American Society of Mechanical Engineers (ASME) National Meeting in Dallas, Texas in November 1997.
Lectures/Seminars

- Funds for activities associated with the Annual Woodruff Distinguished Lecture Series.
- Provides support for the Woodruff Seminar Series. These funds allow the Woodruff School to bring in well-known scholars to present a seminar and to interact with the faculty in small groups.

Publications and Public Relations

- Woodruff School publications are made possible by the endowment, including: reports, brochures, programs, newsletters (both the alumni and the student newsletter), invitations, the Résumé Book, and the Woodruff School's mechanical engineering and nuclear engineering pages in the Peterson's Guide to Graduate Schools.
- Photographic sessions in various Woodruff School laboratories and research sites and of special School events.
- Procurement of the Woodruff School mouse pads for recruiting purposes.
- Advertisements in student newspapers for various school events.

Miscellaneous Projects

- Provides funds for the Woodruff School Advisory Board meetings;
- Helped fund, along with the College of Architecture, an Artist in Residence Program by providing support and work space for metal sculptor, Clark Ashton.
- Funds to improve office equipment.
- Gives money to maintain the Pi Tau Sigma (the mechanical engineering honorary organization) National Office.
- Provides money to furnish faculty, staff, and graduate student offices.
- Provides support to purchase computers for offices and laboratories.

Training

- Funds for both off-site and on-site faculty and staff training programs.

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THE CAPITAL CAMPAIGN

We have come far, but there is no time for complacency. A great deal will be demanded from Georgia Tech in the future, if we are to fulfill our promise to be one of the premier technological institutions in the world. Generations of Tech students, faculty, and staff have worked hard to allow us to reach the position where we can compete with the best. Now, we must prove we can lead in a world growing steadily more dependent on technology. As we look toward a new century, we have a unique opportunity to redefine our role locally, nationally, and internationally. The Campaign for Georgia Tech is a means to that end.

G. Wayne Clough,
President, Georgia Tech

ME Tops Sixteen Million Dollars

The Woodruff School of Mechanical Engineering has raised more than 16 million dollars toward its $30 million Campaign goal. This amazing progress has been attained during the first three years of The Campaign for Georgia Tech: The Threshold of a New Era. Leading our success are the 104 individual donors who have participated in the Campaign. Corporate contributors have been generous, making up 20% of the $16.2 million total.

Opportunities abound to create a "new era" for the Woodruff School. A top priority is adding endowed chairs to attract and retain eminent faculty. Making a permanent mark on the School through a naming opportunity provides visible recognition for posterity. Scholarships, fellowships, and instructional laboratories round out the top five priorities. The School’s Campaign Council is being led by Parker H. "Pete" Petit. Other Council members include: Honorary Chair Paul Duke, Tom Barrow, G.B. Espy, Robert Hill, Bob Millikan, Charles Ray, Oliver Sale, and Larry Ybarondo. The faculty representatives are Gene Colwell and Sam Shelton.

Has anyone talked with you about the Campaign? For a full briefing on our goals and progress, please call Caroline Gaines Wood, at (404) 894-0762.

Caroline Gaines Wood: New Director of Development

Caroline Gaines Wood is the Woodruff School's new Director of Development. She leads the Woodruff School of Mechanical Engineering's fundraising efforts.
Since she started in March 1998 she has spent some time meeting faculty and staff members and becoming familiar with the School. When asked about her reaction to her job, Caroline said, "Now that I am at the Woodruff School, I can see how the generous gifts of our alumni are put to work, and I am constantly reminded of the loyalty and dedication of Georgia Tech alumni."

Caroline has been with Georgia Tech since 1991, most recently as Associate Director of Annual Giving for the GT Alumni Association. She started at Tech as a Rambler in Financial Planning and Services. After one year, she went to the Alumni Association in the Roll Call office, first as Phonathon Coordinator. Before coming to Tech, she received a B.A. in communications from Vanderbilt University in 1989, and worked for a year as a recruiter for Management Search International.

At the Alumni Association, Caroline directed the $1,000 to $10,000 level volunteers in solicitation, oversaw a 100% growth in the matching gifts program, and managed the 70-member volunteer class representative program. She also was responsible for event planning, which included the Presidents' annual formal dinner acknowledging $1,000 donors, the Phoenix Club ($10,000 to $20,000) dinner, and the Roll Call volunteer training program for 500 volunteers.

Caroline was born and raised in Cleveland, Mississippi. She would love to hear from you about your giving plans. Please call her at (404) 894-0762 or send an e-mail to caroline.wood.@me.gatech.edu.

The Donor Commemorative Exhibit

An exhibit to commemorate Woodruff School donors is on permanent display in the third floor lobby of MRDC 1. The contemporary structure, featuring etched glass and fiber optics lighting, recognizes contributors who have made gifts to Mechanical Engineering of at least $100,000 during both the Centennial Campaign and the current Campaign.
DONORS

This list includes donors who have designated gifts to the Woodruff School from July 1, 1995 through June 30, 1998. All gifts are credited to the Campaign for Georgia Tech.

Alumni and Friends

Nelson D. Abell, ME'44
John H. Adams, ME'66
T’Lene B. and Joe H. Anderer, ME'47
Gilbert A. Bachman, ME'46
Jim R. Borders, ME'83
Melvin W. Carter, CE'49
Phyllis H. Clack
Mr. and Mrs. George Clem
Mimms I. Cleveland, ME'47
Charles M. Davis, IM'55
Minnie E. Dean
Leslie E. Delgrosso
Jan Emslevsag, MS'95
Dorothy R. Eschenbach,
George W. Fleming, Jr., ME'47
Mr. and Mrs. John J. Gasser, Sr.
Harold W. Gegenheimer, ME'33
Thomas A. Glaze, IE’70
Jack F. Glenn, ’32
Christopher F. Hammond, ME’34
J. Charles Headrick, ME’71
Robert G. Hill, ME’58
Mr. and Mrs. William P. Hynish
Virginia F. Jackson
Mr. and Mrs. Douglas R. Johnson
John G. Johnson, ME’59
Mr. and Mrs. Patrick Johnson
William S. Johnson, Sr., CHEM’45
Kevin C. King
Wayne H. Knox, ME’73
James C. Leathers, ME’55

Catherine A. Lill
David Lowell, ME’91
Mr. and Mrs. Ellis MacDougall
Helen K. Maddox
Kathleen L. Maher, ME’83
J. R. Markley, ME’56
Clinton S. Mathews, ME’63
Robert J. Millikan, ME’59
Isaac E. Murray, Jr., ME’49
Ronald E. Ohi
Carter N. Paden, Jr., IM’51
Lorine Payne
Doris Peterson
Parker H. Petit, ME’62
Charles L. Ray, Jr., ME’70
Barbara Eschenbach Ruddy
Cecila D. Smith, IMGT’79
Joel S. Spira
William L. Thacker, ME’67
Harvey Toub
Mr. and Mrs. T. C. Trivers
Mr. and Mrs. William E. Trumbo
Kam Chuen Tse, CE’71
Hal B. Tucker, EE’49
Carlos E. Vidales, ME’77
Frank K. Webb, ME’38
Thomas F. Williams, Jr, ME’50.
James E. Winer, ARCH’82
Jack M. Zeigler, ME’48
Mr. and Mrs. Gary D. Zweifel
Anonymous (5)

Faculty and Staff Contributors

Janet Allen
L. Dennis Ballou
Yves H. Berthelot
William Z. Black
Wayne J. Book
Berdinus A. Bras
James W. Brazell
T. E. Clopton
Jonathan S. Colton
Gene T. Colwell
Steven Danyuk
Royal F. Dawkings
Prateen V. Desai
Stephen L. Dickerson
Kenneth Dollar
Geoffrey G. Eichholz

Catherine C. Inabnit
Sheldon M. Jeter
Bernd Kahn
Alan V. Larson
Mian Long
David L. McDowell
Farrokh Mistree
E. Kathleen Neitzel
G. Paul Neitzel
Robert M. Nerem
Connie C. Parish
Jianmin Qu
Peter Rogers
Raymond P. Vito
Cheng Wang
William J. Wepfer
Corporate and Foundation Contributors

3M Corporation
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Advanced Tissue Sciences
Aerospace Industries Associations
Alcoa Foundation
Allied Signal, Inc.
Allison Engine Company
American Heart Association
American Nuclear Society
American Performance Parts Warehouse
American Society of Mechanical Engineers
Amoco Foundation, Inc.
AMP Circuits
Applied Medical Resources
ARCS Foundation, Inc.
AT&T
Atlanta Market Center
Audio Engineering Society Education Foundation
Automated Systems International, Inc.
Babcock & Wilcox
Baldwin Technology Company, Inc.
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Bard Urological Society
BASF Corporation
Baxter Healthcare Corporation
Boeing Defense & Space Group
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CarboMedics, Inc.
Chevron USA
Chrysler Corporation
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Cummins Engine Company, Inc.
David & Ruth Coleman Charitable Foundation
Dickerson Vision Technologies, Inc.
Digital Equipment Corporation
Dow Chemical Company Foundation
Duke Energy Corporation Foundation
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Eastman Kodak Company
Emory University
Engelhard Corporation
Equifax Foundation
Exxon Company, USA
Fisher Controls International, Inc.
Ford Motor Company
Foundation For The Carolinas
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General Motors Corporation

Georgia Association of Fire Chiefs, Inc.
Georgia Power Company
Grandview Foundation, Inc.
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Levenson Foundation, Inc.
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Lubrizol Corporation
Lucent Technologies
Lutron
Marion Merrell Dow, Inc.

Medronic, Inc.
Milliken & Company, Inc.
Mobil Foundation, Inc.
National Electrical Carbon Corporation
NEC Corporation
O'Neal Steel, Inc.
Pi Tau Sigma
Plastech Corporation
Procter & Gamble Company
Psiphics Technologies, Inc.
Racing Communications
RELTEC Schlumberger Foundation, Inc.
Scientific-Atlanta, Inc.
Shaped Wire, Inc.
Shell Oil Company Foundation
SME Manufacturing, Engineering Education Foundation
Square D. Foundation
St. Jude Medical, Inc.
Star Enterprise
SulzerMedica
Texaco Foundation
Timken Company
Torrington Company
Total Raffinage Distribution
Union Camp Corporation Charitable Trust
United Technologies Corporation
Van Owen Group Acquisition Co.
Wallenburg Foundation Wellman, Inc.
Westin Peachtree Plaza
Whitaker Foundation

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THE ADVISORY BOARD

The Woodruff School Advisory Board usually meets once a year in the fall. Members are invited to join the Board so that its composition reflects the varied scope of mechanical engineering in industry, the health-related professions, and the academic community. The purpose of the Advisory Board is to recommend strategic direction for the School, suggest broad-based curriculum revisions, and consult with the Chair and faculty on issues that are important to the Woodruff School.

Two areas of interest to the Board this year were the ABET accreditation visit in fall 1997, and the Regents' mandated conversion of the Georgia Tech calendar from quarters to semesters in fall 1999. The advisory board meeting was convened in October 1997.

Members of the Board

Mr. Kerry E. Adams (1958)

Executive Vice President
Southern Company Services, Inc.
Birmingham, Alabama

Mr. Cary D. Baldwin (1967)
Manager, Human Resource Replacement
United Technologies
West Palm Beach, Florida

Dr. David B. Bogy
Chairman, Department of Mechanical Engineering
University of California, Berkeley
Berkeley, California

Mr. James R. Borders (1983)
President, Novare Group
Mr. Michael H. Camp (1964)
Director of Manufacturing
General Motors de Mexico, S.A. de C.V.
Mexico

Dr. Goodman B. Espy, III, M.D (1957)
President, OB-GYN Associates
Marietta, Georgia

Dr. Richard Goldstein
Regents' Professor & James J. Ryan Professor
Department of Mechanical Engineering
University of Minnesota
Minneapolis, Minnesota

Dr. James E. Hill (1966)
Division Chief, Building Environment Division
National Institute of Standards and Technology
Gaithersburg, Maryland

Mr. Robert G. Hill (1958)
President, Wave Air Corporation
Atlanta, Georgia

Dr. Artis Jenkins (1984)
Technical Manager, Lucent Technologies
Norcross, Georgia

Mr. John G. Johnson (1959)
Vice President, Quality & New Products
Harris Corporation
Melbourne, Florida

Mr. William S. Johnson (1949)
Phoenix, Arizona

Mr. Willard B. McBurney (1952)
President/Owner, McBurney Corporation
Norcross, Georgia

Mr. Robert J. Millikan (1959)
Vice President, Engineering & Technology
Georgia-Pacific Corporation
Atlanta, Georgia

Mr. Parker H. Petit (1962)
Chairman & CEO, Healthdyne, Inc.
Marietta, Georgia

Mr. Charles L. Ray (1950)
Marietta, Georgia

Dr. Dennis L. Riddle
Business Manager, Composite Fabrics
Milliken & Company
LaGrange, Georgia

Mr. Oliver H. Sale, Jr. (1958)
Chairman, FESCO International
Norcross, Georgia

Mr. Paul Schutt
Chief Executive Officer
Nuclear Fuel Services Inc.
Norcross, Georgia

Mr. Warren D. Shiver (1964)
Partner, Newcomb & Boyd
Atlanta, Georgia

Dr. Nam P. Suh
Department Head, Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, Massachusetts

Mr. William L. Thacker, Jr. (1967)
President & Chief Executive Officer
TEPPCO
Houston, Texas

Mr. Donald P. Traviss (1968)
Consultant
Sewickley, Pennsylvania

Mr. Michael S. Tuckman (1965)
Executive Vice President
Duke Power Company
Charlotte, North Carolina

Dr. J. Ernest Wilkins, Jr.
Distinguished Professor of Applied Mathematics and Mathematical Physics
Clark Atlanta University
Atlanta, Georgia

Dr. Larry Ybarrando (1964)
Chief Executive Officer
SCIENTECH, Inc.
Idaho Falls, Idaho

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Flyers

BSNRE/ACM

Facts about the Woodruff School

Student Organizations in the Woodruff School

Back to Publications
Georgia Tech's B.S. Degree in Nuclear and Radiological Engineering and the Academic Common Market (BSNRE/ACM)

The BSNRE/ACM provides an opportunity for students from southeastern states whose state universities do not offer a BSNRE degree (or its equivalent) to pay Georgia in-state tuition. In some cases, it is less expensive to attend Georgia Tech as a BSNRE/ACM student than to go to a state university in your home state.

Out-Of-State Tuition Waiver

- Pay Georgia In-State Tuition
- **Save Money:** For the 2000-2001 academic year, the difference between in-state and out-of-state tuition is $7,278; thus, the ACM provides a potential savings of more than $29,000 over a four-year period

To Qualify for the BSNRE/ACM

If you are a resident of Delaware, Kentucky, Louisiana, South Carolina, Virginia, or West Virginia:
● Apply for admission and be accepted into the BSNRE Program at Georgia Tech.
● After you are admitted, contact your ACM State Coordinator (see the attached list) and ask to be certified in the ACM.
● Complete and submit residency confirmation forms to your ACM State Coordinator.

If you are a resident of **Alabama, Arkansas, Mississippi, or Oklahoma:**
● Apply for admission and be accepted into the BSNRE Program at Georgia Tech.
● After you are admitted, contact your ACM State Coordinator (see the attached list) and request that your state be included in the Georgia Tech BSNRE/ACM Program.
● If your ACM State Coordinator agrees to participate, then complete and submit residency confirmation forms to your ACM State Coordinator.

**To Maintain ACM Status**

● Have "good academic standing," as defined by Georgia Tech's Rules and Regulations;
● Make satisfactory progress toward the BSNRE degree;
● Graduate within five years (six years for co-op students).

**Contact:**
Professor John Valentine
(404) 894-3745
john.valentine@me.gatech.edu
There are a number of groups for you to join in the Woodruff School. These organizations offer you a unique opportunity to learn about the many facets of mechanical engineering, let you meet practicing professionals, and they also provide valuable service to the School. You are strongly encouraged to participate in one or more of these groups. For general information, view www.me.gatech.edu/me/students/organizations.

**HONOR SOCIETY**

**Pi Tau Sigma -** [www.me.gatech.edu/pts](http://www.me.gatech.edu/pts)

Pi Tau Sigma is the national honorary society of mechanical engineers. Invitations to join are extended to junior and senior mechanical engineering students who have distinguished themselves by high academic achievement. The Georgia Tech Chapter holds several meetings a semester to organize its service projects, such as the Academic Study Program which helps students in several Mechanical Engineering courses. Pi Tau Sigma also presents three awards each year to the outstanding mechanical engineering students in the sophomore, junior, and senior classes. The Society sponsors the Mechanical Challenge, a jeopardy-style competition with questions similar to the ones in the GRE and EIT exams. Dr. Janet Allen is the faculty advisor.

**PROFESSIONAL SOCIETIES**
American Nuclear Society (ANS) - cyberbuzz.gatech.edu/ans

The student section of the ANS is the link for prospective nuclear engineers with their chosen profession. Membership provides students with a subscription to the Society magazine, Nuclear News, technical paper reprints at a reduced rate, and eligibility for special student loans and scholarships. The section holds monthly meetings which feature presentations by practicing engineers. Dr. Farzad Rahnema is the faculty advisor.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) - www.ashrae.org

The ASHRAE is an international professional and technical society devoted to promoting the art and science of heating, refrigerating, air-conditioning, ventilation, and allied technologies. The student chapter meets twice a semester. Membership includes a subscription to the monthly magazine, The ASHRAE Journal. Dr. Sheldon Jeter is the faculty advisor.

American Society of Mechanical Engineers (ASME) - www.me.gatech.edu/asme

The student section of the ASME is the link for prospective mechanical engineers with their chosen profession. Membership provides students with a subscription to the Society magazine, Mechanical Engineering, technical paper reprints at a reduced rate, and eligibility for student loans and scholarships. The section holds monthly meetings which feature presentations by practicing engineers and sponsors several annual events such as the Spring Picnic. The award-winning chapter is one of the largest student groups on campus. Dr. Jeffrey Streator is the faculty advisor.
SAE International - www.me.gatech.edu/sae
SAE International strives to further research, development, design, manufacture, and utilization of vehicles which operate on land and sea, and in air and space. The student section is one of the largest in the country and attracts excellent speakers and presentations for its meetings, which are held four to six times a semester. gt motorsports and GT Off-Road are subgroups of the section. Membership in the student section includes a subscription to the monthly technical journal, Automotive Engineering. Dr. Ken Cunefare is the faculty advisor.

Society of Manufacturing Engineers (SME): cyberbuzz.gatech.edu/sme
The Society of Manufacturing Engineers is an international professional society dedicated to serving its members and the manufacturing community through the advancement of professionalism, knowledge, and learning. Members have access to the resources needed to compete in today’s rapidly changing manufacturing environment. The student chapter meets regularly and sponsors plant trips and events such as building a bridge out of toothpicks. Dr. William Singhose is the faculty advisor.

STUDENT COMPETITION GROUPS

gt motorsports - www.me.gatech.edu/gtmotorsports
gt motorsports was founded in 1986 by a group of students who felt they could gain valuable experience by applying their classroom knowledge to real-world problems. Each academic year the team conceives, designs, builds, and tests a single seat formula race car to compete in the annual SAE Formula Competition in Pontiac, Michigan. The students are responsible for every aspect of the car, including fundraising to finance the program. Beginning in summer 2000, the team competed in the international formula competition held in Birmingham, England, winning the competition in 2001 and 2002. In December 2003, the team went to Australia and won the overall competition. Dr. Ken Cunefare is the faculty advisor.
GT Off-Road (Mini-Baja Team) - cyberbuzz.gatech.edu/minibaja

GT Off-Road is a group of mechanical engineering, industrial design, industrial engineering, and management students. The team designs and builds a single seat vehicle from scratch. Members are trained in machining skills and make the parts they design. The only standard for the competition is a 10 hp Briggs and Stratton engine. In June 2000 the team competed in their first competition. Mini-Baja racing is under the auspices of SAE, but they race on a dirt track. Dr. Ken Cunefare is the faculty advisor.

RoboJackets - robojackets.org

RoboJackets competes in national and international robotics competitions, promotes robotics at Georgia Tech, and helps students learn skills necessary to build robots. Teams work on projects such as Battlebots, Vacubots, and the Intelligent Ground Vehicle Competition. The group also works with high schools and community groups as part of the FIRST competition. RoboJackets sponsors the Lego Robot Competition, where Georgia high school students learn how to build remote-controlled robots. Dr. Imme Ebert-Uphoff is the faculty advisor for RoboJackets and Dr. Wayne Book is the FIRST faculty advisor.

UMBRELLA GROUP

Woodruff School Student Advisory Committee (WSSAC) - www.me.gatech.edu/sac

WSSAC is the umbrella organization in the Woodruff School and is open to all students. Joining this group is the best way to become part of the decision-making process in the Woodruff School. WSSAC advises the faculty and administration on issues that directly affect the students. Each year they sponsor two major events: the Undergraduate Research Fair and the Woodruff School Spring Banquet. They publish a newsletter (Mechanical Engineering News) each semester, help interview candidates for faculty positions, and work to improve faculty and student relations. Dr. David Sanborn advises the group.