College of Engineering Overview

“College of Engineering”

Gary S. May, Dean
IPST Members Meeting
April 11, 2012
Georgia Tech Background

- Top 5 engineering with computing, sciences, business, architecture and liberal arts; all engineering programs are ranked in the top ten, nationwide, of their respective disciplines.
- Top producer of respected, well qualified engineers in the United States.
- Major research institution: Newest member of the Association of American Universities (AAU); a recent recognition of the Institute’s stature as a major research institution.
- According to latest National Science Foundation data, ranked 28th nationally and 6th among public universities without a medical school in Research & Development; 25th overall in federal R&D among nearly 700 colleges and universities.
- Strengths: quality, diversity, interdisciplinary, industry, national recognition, global reach, technology transfer, incubation, and commercialization.
About the College

Largest and most diverse College of Engineering in the country

Degrees Conferred in 2010-2011 – 2,899

Faculty – more than 430 faculty members

Alumni – more than 70,000 worldwide

More than 100 interdisciplinary centers

Space – 1.6 million square feet of space in 50 campus buildings
Gary S. May, Dean of Engineering

BEE: Georgia Tech, 1985
MS: EECS, UC-Berkeley, 1988
PhD: EECS, UC-Berkeley, 1991

Joined ECE faculty in 1991

Executive Assistant to President G. Wayne Clough, 2002-2005

Steve W. Chaddick School Chair, ECE, 2005-2011

Appointed Dean effective July 1, 2011 after national search
CoE Schools

Daniel Guggenheim School of Aerospace Engineering

Wallace H. Coulter Department of Biomedical Engineering

School of Chemical and Biomolecular Engineering

School of Civil and Environmental Engineering

School of Electrical and Computer Engineering

H. Milton Stewart School of Industrial and Systems Engineering

School of Materials Science and Engineering

George W. Woodruff School of Mechanical Engineering
CoE Programs

Through 8 Schools, CoE offers:

• 11 Undergraduate Majors
• 26 Master’s Programs
• 18 Doctoral Programs
• Prep for Law, Dentistry, Medicine
• Professional Master’s
• Joint Degrees
Rankings

CoE graduate and undergraduate programs ranked 4th and 5th in nation, respectively, by *U.S. News and World Report*

Tech 7th among public universities by *U.S. News and World Report*

• In top 10 for more than a decade
• Tied for 2nd among public universities in poll of high school guidance counselors

Times Higher Education World University Rankings

• 1st among southern public universities
• 5th among public U.S. universities
• 24th among the top 200 universities in the world
# U.S. News Graduate School Rankings

Industrial - 1st  
Aerospace – 4th  
Biomedical – 2nd  
Civil – 3rd  
Chemical – 10th  
Computer - 6th  
Electrical – 5th  
Environmental – 6th  
Materials Science – 7th  
Mechanical – 6th  
Nuclear – 5th

| #1       | Massachusetts Institute of Technology  
           | Cambridge, MA |
|----------|----------------------------------------|
| #2       | Stanford University  
           | Stanford, CA |
| #3       | University of California, Berkeley  
           | Berkeley, CA |
| #4       | Georgia Institute of Technology  
           | Atlanta, GA |
| #5       | California Institute of Technology  
           | Pasadena, CA |
| #5       | University of Illinois – Urbana –  
           | Champaign  
           | Urbana, IL |

5th ranked undergraduate program
CoE Student Profile

Average freshman engineering SAT score = 1398

In the fall, more than 8,400 undergraduate students and 3,900 graduate students enrolled. 2011-2012: 55% students from GA/45% Non-GA

24% of CoE students are women

Men and women from the College of Engineering participating in NCAA Division-1 sports (ACC Conference) = 123

College of Engineering Presidential Scholars = 190
Student Trends

50% of Tech students study a foreign language as an elective

About one third have an international experience before graduating compared to a national average of 1 to 2%

First year retention rate is 95%. 80% of students graduate within six years

80% of participants in the Co-Op program are engineering student – more than CoE 2,500 students in fall

69% of President’s Undergraduate Research Awards went to CoE
CoE Faculty

Total tenure track faculty count = 437

23 Regents' Professors and 100 named chairs or professorships

One Institute of Medicine (IOM) member, a Guggenheim Award winner, and 15 Georgia Research Alliance Eminent Scholars

28 members of the National Academy of Engineering on Tech faculty

161 College of Engineering faculty have received NSF CAREER awards

45% of total Georgia Tech tenured/tenure-track faculty are in CoE
GT Research Awards

FY 2011
$568.0 Million

U.S. DoD 19%
U.S. Navy 5%
U.S. Air Force 6%
National Science Foundation 15%
U.S. Dept of Commerce 1%
U.S. Dept of Energy 3%
U.S. Dept of Education 1%
U.S. Dept of Transportation 1%
Homeland Security 1%
NASA 1%
U.S. Dept of Health & Human Services 8%
Gov't Owned/Contractor Op Facilities 1%
Industrial 13%
Colleges/Universities 7%
Other Federal Agencies 2%
Foreign 2%
Miscellaneous 4%
State & Local Govt 4%

Awards by Sponsor
FY 2011
$568.0 Million
COE Research

1,231 new contracts and grants for a value of $202.1M in FY11

National Centers of Excellence include:
  Rotorcraft Center of Excellence
  Center of Cancer Nanotechnology Excellence
  Phosphor Technology Center of Excellence
  University Center of Excellence for Photovoltaics Research and Education


*as reported to ASEE
GT produces more than 400 invention disclosures annually. The majority are from CoE

Ranked 3rd among the state’s patent producers

Spins off an average of 10 new companies a year

In the past decade, companies have attracted more than $1 billion in venture capital
Economic Development

GEORGIA TECH INNOVATION & ECONOMIC IMPACTS

- **Licenses**
  - 32 new licenses
  - 10 new options
  - 85 innovations licensed
  - 464 active licenses

- **Innovations and Patents**
  - 409 new innovations
  - 255 patent applications filed
  - 49 US patents awarded

- **Research**
  - $644 million expended
  - $383 million in federal research
  - $49 million in industry research

- **Startups**
  - 59 operational startups
  - 8 new startups

*Fiscal year 2010*
Innovation, Entrepreneurship & Public Service

Become an Innovation Hub

Nominate COE faculty for state, national & global leadership positions

Establish leadership programs and curricula

Establish venture fund for engineering outreach

Be a leader in research commercialization
The InVenture Prize @ Georgia Tech

Five of the six finalist teams feature engineering majors and 16 of the 20 students competing were CoE students. Top three winners all from CoE

The two winning inventions from either individuals or teams will be selected and will receive:

- A cash prize of $15,000 for first place or $10,000 for second place.
- A free U.S. patent filing by Georgia Tech's (each valued at approximately $20,000) for both the first and second place winners.
- Automatic acceptance to the summer 2012 Class of Flashpoint, a Georgia Tech startup accelerator program.
Industry Relations

Georgia Tech is one of the top ten universities receiving funds for industry-sponsored research.
We are Global

We have a presence in Ireland, Shanghai, France, and many other locations throughout the world.

Georgia Tech Ireland

Georgia Tech Shanghai

Georgia Tech Lorraine (France)
Educating the Engineer of 2020

Strong analytical skills
Practical ingenuity, creativity, innovative
Good communication skills
Business, management skills
High ethical standards, professionalism
Dynamic / agile / resilient / flexible
Lifelong learner
Able to put problems in socio-technical
  & operational context
Adaptive leader
Solutions to Global Challenges

We are creating solutions for:

Making solar energy economical

Improving environmental and economic sustainability

Providing access to clean water

Improving the urban infrastructure

Advancing health informatics

Curing diseases

Securing cyberspace
Parting Thought ...

“The best way to predict the future is to invent it.” - Alan Kay