

# **Institutional Constraints & Opportunities: *Virginia Tech Perspective***

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# Typical Challenges

- **Lack of tradition**
  - Less than 1% of US students study abroad — though 57% of HS graduates expect to!
- **Tuition and program costs**
  - Foreign tuition vs US tuition
  - Exchange of tuition credits vs paying the local tuition
- **Dual degree programs**
  - Student workload in the range of 100%-200%
- **Joint degree programs**
  - Will often require changes to state or country laws and/or regulations
- **Hardly any US students functionally speak a second language**
  - Full immersion programs vs English-only programs
  - Lack of available language training
    - Foreign LITERATURE vs Foreign LANGUAGE
- **Joint courses / projects**
  - Different calendars, delivery schedules, instructor standards and expectations, student preparation, hardware and software resources
  - Avoid marginalized junior partners

# Virginia Tech Activities

- **Joint course on Global Collaborative Engineering Design**
  - Virginia Tech (USA), Technische Universität Darmstadt (Germany), Howard University (USA), ITESM Monterrey (Mexico), Shanghai Jiao Tong University (China)
- **Global student design projects**
  - 2 semesters, 160+ students, 13 universities, 8 countries  
Australia, Brazil, Canada, China, Mexico, South Korea, Sweden, USA
- **BSME senior year abroad**
  - Technische Universität Darmstadt
- **Dual BSME degree consortium**
  - Royal Institute of Technology (Sweden) and Technische Universität Darmstadt
  - 16 months abroad; Senior year at 2nd degree institution
  - Operational proficient in two languages; Conversational proficient in one language
- **Dual MSME degree**
  - Technische Universität Darmstadt; Fully symmetric (pay tuition locally)
  - One year at each university (order is student's choice); Open to non-VT/TUD BSME graduates
- **Joint Dr.-Ing.degree in Mechanical Engineering**
- **NSF REU in Automotive Technologies**
  - Virginia Tech & Technische Universität Darmstadt
- **Joint doctoral research center on autonomous vehicles**

# Virginia Tech Activities

- **Regional centers**
  - Switzerland
  - Dominican Republic
  - Mexico
  - **India**
  - South Africa
- **Virginia Tech Center for Education and Research in India**
  - First US university to deliver degrees on the ground in India
    - 28 graduates in April 2006
  - World-class research facilities in target areas
    - Info/Bio/Nano/Automotive technologies
    - Local academic and industry partners

# Big Question

- We have thus far designed education abroad opportunities for our students based on intuition
- We now need to determine qualitatively the value added by the various types of education abroad experiences so we can optimally allocate our resources and efforts:
  - International projects and/or courses (no travel)
  - Internships / work abroad
  - One-week travel-abroad excursions
  - Three-week faculty-lead travel-abroad courses
  - Semester abroad with home-university curriculum
  - Semester abroad with host-university English-only programs
  - Semester (or year) abroad with full submersion

# Thank you!

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# Virginia Tech

- Virginia's land-grant university (founded in 1872)
- 8 colleges (soon to add Medical, Dentistry, and Pharmaceutical)
  - Agriculture & Life Sciences, Architecture & Urban Studies, Business, Engineering, Liberal Arts & Human Sciences, Natural Resources, Science, and Virginia-Maryland Regional College of Veterinary Medicine
- 21,348 undergraduate students (BS, BA)
- 6,407 graduate students (MS, MA, PhD, DVM)
- 1,262 faculty members (tenure-track)
- \$130M in sponsored research (50th in USA, including medical)
- \$855M budget
- \$338M endowment

# Virginia Tech

## College of Engineering

- 8th largest BS program in USA
- 13th largest MS program
- 19th largest PhD program
- 350 faculty members
- 12 departments
- 5,715 BS students
- 964 MS students
- 638 PhD students
- \$67M in sponsored research

- Aerospace & Ocean Engineering
- Biological System Engineering
- Civil and Environmental Engineering
- Chemical Engineering
- Computer Science
- Electrical & Computer Engineering
- Engineering Education
- Engineering Science & Mechanics
- Industrial & Systems Engineering
- Materials Science & Engineering
- Mechanical Engineering
- Mining & Minerals Engineering
  
- School of Biomedical Engineering & Science (with Wake Forest University)

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## Department of Mechanical Engineering

- 2nd largest BS program in USA (approximately 275 graduates / year)
- Top 5-6% rank (US News & World Report)  
*255 ABET accredited ME programs in the USA*
- 40 faculty members
- 116 graduate assistants
- \$6 million in sponsored research
- 740 BS students (years 2-4)
- 124 MS students (84% US citizens)
- 53 PhD students (56% US citizens)