Graduate Programs in Mechanical Engineering and Mechanics
January 22, 2021
Today’s agenda

• About Lehigh University
• MechE department overview
  • Grad student and faculty achievement
  • PhD degree: Path and financial support
  • Master of Science (MS) degree: Multi-track options
  • Destinations of graduates
  • Admissions overview
• Student Panel
  • Personal insights into Lehigh’s MechE program
• Q&A/Discussion
Located in Pennsylvania’s beautiful Lehigh Valley, Lehigh is one of the most distinguished private research universities in the U.S. Through academic rigor, an entrepreneurial mindset, and collaborative opportunities, we challenge our students to become the leaders of the future. With five distinguished colleges and an ideal student-to-faculty ratio (9:1), Lehigh offers world-class academic opportunities on one of the nation’s most beautiful campuses. [lehigh.edu]
About Lehigh Mechanical Engineering

Our community
• 120 graduate students (48 MS, 72 PhD)
• 26 faculty

Research clusters
• Controls and robotics (6 faculty*)
• Fluid mechanics and flow-structure interaction (7)
• Mechanics of Materials (6)
• Thermo-Heat Transfer (5)
• Biomechanics (5)

Research may theoretical, computational, experimental... or a combination of these

*Some faculty belong to more than one research cluster
About Lehigh Mechanical Engineering

Experimental Facilities
• 12 MechE research laboratories

Computational Capabilities
• Lehigh’s computational clusters, Sol and Hawk, provide 4156 compute cores with a theoretical peak performance of 198.5 Tflops

Interactions/Links
• 11 national and international labs and centers
Graduate Student Awards and Recognition

Graduate students win Fellowships:
- National Science Foundation Graduate Fellowship
- Amelia Earhart Zonta International Fellowship
- International Institute of Education Fellowship

Grants/Fellowships for national/intl research projects and stays at major centers:
- Princeton Plasma Physics Laboratory
- Los Alamos National Laboratory
- European Organization for Nuclear Research
- University of Zurich (CERN)
- Air Force Research Laboratory
- Cambridge University (DAMPT)
- Army Research Laboratory
MechE faculty awards

- Faculty have received **more than 45 awards** for outstanding accomplishments from professional societies and federal agencies
- 13 prestigious NSF CAREER Awards and DoD Young Investigator Awards

### Most recent NSF CAREER recipients

- Ganesh Balasubramanian
- Arindam Banerjee
- Hannah Dailey
- Justin Jaworski
- Keith Moored
- Nader Motee

Support from national agencies including:

- National Science Foundation
- National Institutes of Health
- Department of Energy
- Advanced Research Projects Agency
- DoD
Path to PhD Degree

- **Completion of coursework**
  Eight courses including five core courses completed with a minimum average GPA (Qualifying Procedure)

- **Formulation of research proposal**
  Identification of major unknowns in a new field then development of proposed research in the format of a leading national agency (General Examination)

- **Collaboration on dissertation research**
  Original (new) research contributions to your field with guidance from your faculty advisor

- **Completion of total credit hour requirement**
  Minimum of 72 credit hours (credits for courses and dissertation) after BS degree, or 48 credit hours after MS degree acquired elsewhere
Financial Support for PhD Students

- **Presidential or University Fellowship**
  No associated obligations

- **Rossin Fellowship**
  No associated obligations

- **Research Assistantship**
  Research with guidance from a faculty adviser

- **Teaching Assistantship**
  Assistance with teaching a course in collaboration with a faculty instructor; opportunity to develop teaching and leadership skills through participation in the Teaching Practicum Program

- **Combination of Rossin Fellowship, Research Assistantship, and/or Teaching Assistantship**
Master of Science (MS) Degree*

Multi-Track Options

10 courses (30 credits) for all tracks:

- **Thesis Track**
  *Focus on Research*: Counts for 2 courses

- **Project Track**
  *Focus on Design, Development, or Applied Research*: Counts for 2 courses

- **Applied Engineering Track**
  *Focus on Deep MEM Knowledge Base through coursework*: Counts for 2 courses

- **Interdisciplinary Track**
  *Focus on development of expertise in another discipline (concentration area) as a complement to an MEM core*: Counts for 4 courses

*All MS degree options must also satisfy generic University level masters degree requirements*
Master of Science (MS) Degree

Interdisciplinary Track

Concentration Areas

• Aerospace
• Computational Mechanics
• Energy
• Robotics and Automation
• Management Science and Engineering
• Machine Learning and Data Mining
• Environmental Policy
• Technical Entrepreneurship
• Self-Designed Concentration
The Rossin College’s online masters degree program in mechanical engineering was recently ranked second in the nation by the independent online guide Best Masters Programs (BMP.)

BMP’s analysis, which aims to "help working professionals find a program with a real return on investment and career impact," considered tuition rate (IPEDS data), potential salary (College Scorecard data), and student satisfaction (Niche student reviews).
Career paths: MS graduates

Durlav Mudbhari
Stress Engineer
Gulf Aerospace Systems
MS Lehigh 2017

Elana Abrams
Mechanical Engineer
Gyre9 (prod. dev. firm)
MS Lehigh 2019

Xiangxingyu (Lucas) Lin
Endurance Testing Engineer
Daimler Greater China Ltd
(Parent company, Mercedes Benz)
MS Lehigh 2014
Destinations of MS and PhD grads

Booz | Allen | Hamilton

Carnegie Mellon University

CORNING

SHENZHEN INSTITUTE OF ADVANCED TECHNOLOGY
CHINESE ACADEMY OF SCIENCES

Electrikus

University of Zurich UZH

OAK RIDGE National Laboratory

BOSCH

COLUMBIA UNIVERSITY MEDICAL CENTER

Scaled Composites

Gulfstream

LOCKHEED MARTIN

GE

PRINCETON PLASMA PHYSICS LABORATORY

SIEMENS

Universität München

APPLE

BERKELEY LAB

Lawrence Berkeley National Laboratory

PPPL

BOEING

Sandia National Laboratories

ARL

MIT

Product Design & Development

CURTISS-WRIGHT

LEHIGH UNIVERSITY

Department of Mechanical Engineering and Mechanics
Lehigh’s Center for Career and Professional Development

Ali Erk
Associate Director
Graduate Student
Career Development
alison.erk@lehigh.edu

Click the image above or visit https://careercenter.lehigh.edu for more
Lehigh’s Office of Graduate Education & Life

Click the images above or visit https://grad.lehigh.edu for more
Graduate Admissions

- Deadline for consideration of financial support: Jan 15
- Final deadline for fall admission: July 15
- GRE not required for 2021 admission
- Application waivers available
- Contact Allison Marsteller at alm513@lehigh.edu

For international students:

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