



THAYER SCHOOL OF  
**ENGINEERING**  
AT DARTMOUTH

**Joseph J. Helble, Ph.D.**  
**Dean & Professor of Engineering**  
Joseph.J.Helble@dartmouth.edu  
p 603.646.2238 f 603.646.2580

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President of the United States  
The White House  
1600 Pennsylvania Avenue NW  
Washington, DC 20500

Dear Mr. President:

Dartmouth College's Thayer School of Engineering intends to build on its long history of project-based learning to prepare graduates who are well-prepared to be engineering leaders developing solutions to Grand Challenge problems. Specifically:

*(1) Creative Learning Experience Connected to Grand Challenges*

All Dartmouth engineering students undertake a two-term, team-based, interdisciplinary capstone design project as part of their education. Students are required to develop creative solutions to design challenges provided by external clients. No two projects are alike. Each year, a subset of projects is in "Grand Challenge" areas such as low-cost solar systems, clean water, or better medicines. Dartmouth will commit to increasing by 10% the number of projects in these areas and denoting such projects prior to their selection by students. Students will also have the opportunity to undertake Honors Thesis research in a designated Grand Challenge area.

*(2) Authentic interdisciplinary experiential learning with clients and mentors*

Because of the structure of our program, in which all students gain deep immersion in the liberal arts by earning a Bachelor of Arts (A.B.) degree (prior to or coincident with the ABET-accredited B.E. degree), and because all capstone projects have external clients and require students to address issue of business, ethics, and communications, all students develop expertise in this area.

*(3) Entrepreneurship and innovation experience*

As part of the required course ENGS 21: Introduction to Engineering, all students develop a rudimentary business plan and working knowledge of the steps needed to take a technology to market. Dartmouth will provide opportunity for students to develop deeper expertise including continuation of a project from this or other course as an independent study that leads to the filing of a patent application, successful completion of a graduate course on innovation and entrepreneurship, or the start-up of a new venture through project work in the Dartmouth Entrepreneurial Network (DEN) incubator.

*(4) Global and cross-cultural perspective*

Students will develop experience with global issues by participating in a Dartmouth study-abroad program that is one academic term or longer in length. Students will develop expertise by participating in an engineering exchange program with our current partners in Thailand or Hong Kong, by conducting a capstone design project that requires design and time-in-country for an international client, or by participating in a Dartmouth Humanitarian Engineering (DHE) design and implementation trip in the developing world.

*(5) Social consciousness through service learning*

Students will gain experience through successful completion of at least one community based project, such as mentoring teams in the FIRST Lego League program, or undertaking an engineering project that addresses a community need, as just two examples. Students will develop expertise through successful completion of ENGS 71: Structural Analysis, which undertakes team-based engineering design projects for local non-profits, or through selected capstone projects that address local community needs, or through participation in a DHE engineering project in the developing world. Dartmouth commits to increasing the number of such project opportunities available to our students each year.

Sincerely,

Joseph J. Helble, Dean