**NSF STEP AWARD: BRIDGES TO ENGINEERING SUCCESS FOR TRANSFERS**

http://www-me.engr.ccny.cuny.edu/bridges/index.html

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**Participating Colleges**

- City College of New York (CCNY)
- Eugenio Maria de Hostos Community College (HCC)
- Borough of Manhattan Community College (BMCC)

**Project Objectives**

- Increase in the number of students enrolling in, retained in and graduating from Bachelors degree programs in Engineering
- Improved preparation in academic skill areas providing the foundation for success in upper division Engineering coursework
- Enhanced readiness for research participation at the upper division level in Engineering
- More seamless and successful transitions between community and senior college Engineering programs

**Courses to be coordinated**

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-Calculus</th>
<th>Chemistry 1</th>
<th>Physics 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Calculus 1</td>
<td>Freshman Engineering Design</td>
<td>Physics 1</td>
</tr>
<tr>
<td>Year 2</td>
<td>Calculus 2</td>
<td>Drafting</td>
<td>Introduction to Computing</td>
</tr>
<tr>
<td>Year 3</td>
<td>Calculus 3</td>
<td>Statics</td>
<td>Thermodynamics</td>
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<tr>
<td>Year 4</td>
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</tbody>
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**Project Activities**

1. Coordination and improvement of early required courses
   - Redesign early STEM courses for identical learning outcomes.
   - Inclusion of collaborative, small-group work into first- and second-level STEM courses
   - Infusion of high interest research topics into more general presentations of science, mathematics and engineering fundamentals.
   - Use of new technology tools to enhance learning of STEM fundamentals

2. Research Training
   - Expansion of research opportunities in faculty laboratories for freshmen and sophomore students
   - Summer research program for pre-transfer students

3. Connecting campus cultures
   - Summer orientation week for transfer students
   - Design competitions linking senior and community college students

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**Evaluation**

- **Baseline:** 2005-06 enrollments and graduation statistics.
- **Goal:** To increase the number of students majoring and graduating in pre-engineering at partner institutions and in engineering at CCNY

**Enrollment metrics:**

- After two years:
  - 5% increase in pre-engineering at HCC and BMCC
  - 5% increase in engineering at CCNY

- After four years:
  - 10% increase in pre-engineering at HCC and BMCC
  - 10% increase in engineering at CCNY

**Graduation metrics:**

- After two years:
  - 5% increase in pre-engineering at HCC and BMCC
  - 5% increase in engineering at CCNY

- After four years:
  - 10% increase in pre-engineering at HCC and BMCC
  - 10% increase in engineering at CCNY

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**Co-PI:** Dr. Maria Tamargo, Dean of Science, CCNY
**Co-PI:** Prof. Feridun Delale, Chairman, Dept of ME, CCNY
**Co-PI:** Dr. Carlos Molina, Dean, HCC
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