Overview/Purpose

- The slides in this deck provide a picture of the U.S. engineering workforce and the role of underrepresented minorities in that workforce. Relative representation of women and minorities is shown in various engineering occupations; engineering salaries are shown in comparative perspective; and several slides show the representation of women and minorities among U.S. engineering school faculties.

- Many slides have two versions: one with and one without data labels. The graphics are “cleaner” without the labels, yet there are some audiences for which such labeling might be important.

- As with other decks, the set is not necessarily meant to be a self-contained, sequential presentation but, rather, a deck from which users may select slides for any number of presentations. The repetition, therefore, provides users with many choices to present data.

- Attribution: Please indicate that the source of these slides is the National Action Council for Minorities in Engineering, Inc. (NACME), Department of Research, Evaluation, and Policy. The NACME web address is: www.nacme.org, where the slides can be accessed and downloaded. Updated slides and additional decks covering new themes will be made available on an ongoing basis.

- **Terminology notes:** URM = underrepresented minority, which includes African Americans, American Indians and Alaska Natives, and Latinos. When the term “American Indian” is used, it references “American Indians and Alaska Natives,” consistent with U.S. Census Bureau definitions. Asian/Pac. Isl. = Asian and Pacific Islanders are people of these descents who are U.S. citizens and permanent residents and do not include people of Asian origin who are in the United States predominantly for educational purposes. “Foreign” is used to refer to “temporary residents.” Latinos can be any race: the category generally includes people of all racial backgrounds who indicated that they were “Hispanic.” “Non-Latino White” refers to people who did not indicate Latino background and did indicate “White” as a racial category.
Engineers Make Up 1.8 Percent of the U.S. Workforce – 78 Percent, of Engineers Are Non-Latino White – 87 Percent of Engineers Are Male

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent Female</th>
<th>Percent Black</th>
<th>Percent Hispanic</th>
<th>Percent Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total U.S. labor force (1)</td>
<td>139,877,000</td>
<td>47.3%</td>
<td>10.7%</td>
<td>14.0%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Professional and related (1)</td>
<td>30,690,000</td>
<td>57.5%</td>
<td>9.4%</td>
<td>7.1%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Engineering managers (2)</td>
<td>144,210</td>
<td>8.7%</td>
<td>2.5%</td>
<td>3.3%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Engineers (2)</td>
<td>1,698,802</td>
<td>12.3%</td>
<td>4.5%</td>
<td>5.5%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Engineering technicians (2)</td>
<td>681,036</td>
<td>17.5%</td>
<td>7.0%</td>
<td>8.7%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Sales engineers (2)</td>
<td>28,848</td>
<td>4.0%</td>
<td>1.6%</td>
<td>5.2%</td>
<td>7.8%</td>
</tr>
<tr>
<td>All engineering occupations (2)</td>
<td>2,552,896</td>
<td>13.4%</td>
<td>5.0%</td>
<td>6.2%</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

Note: Female includes females of all race/ethnic categories. Likewise, the race/ethnic category data includes females and males within those categories.

One-Fourth of the U.S. Workforce is African American or Latino, but Only 13 Percent of Engineers and Engineering Technicians Are from These Categories


Note: Core STEM includes computer and mathematical scientists, architects and engineers and life, physical and social scientists. Total STEM, broad definition includes Core STEM plus STEM managers and health care practitioners and technical occupations.
One-Fourth of the U.S. Workforce is African American or Latino, but Only 13 Percent of Engineers and Engineering Technicians Are from These Categories

U.S. and STEM Labor Forces by Race/Ethnicity, 2008

- **Engineers and engineering technicians**:
  - Non-Latino White: 77%
  - Asian American: 10%
  - African American: 6%
  - Latino: 7%

- **Core STEM**:
  - Non-Latino White: 75%
  - Asian American: 13%
  - African American: 6%
  - Latino: 6%

- **TOTAL STEM, Broad definition**:
  - Non-Latino White: 75%
  - Asian American: 11%
  - African American: 8%
  - Latino: 6%

- **TOTAL U.S. Labor Force**:
  - Non-Latino White: 70%
  - Asian American: 5%
  - African American: 11%
  - Latino: 14%


Note: Core STEM includes computer and mathematical scientists, architects and engineers and life, physical and social scientists. Total STEM, broad definition includes Core STEM plus STEM managers and health care practitioners and technical occupations.
African Americans, Latinos and American Indians Account for 26 Percent of the U.S. Workforce, but Are Far Below This Level in Engineering Jobs

There Are More Than 2.5 Million Engineers and Engineering Technicians in The U.S. Workforce

Relative Sizes of Engineering & Engineering Technician Occupations, 2008 (n = 2.5 million)

- Engineering, surveying & mapping tech.: 18%
- Drafters: 6%
- Civil: 13%
- Electrical, electronics & computer: 15%
- Mechanical: 12%
- Industrial, incl. health & safety: 7%
- Aerospace: 5%
- All other eng. & eng. tech.: 24%

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Just Over 1 Million Engineers and Technicians Are in Civil; Electrical and Electronics; Computer, and Mechanical Occupations

Number of Engineers and Engineering Technicians by Field, 2008

Source: NACME analysis of data from The 2010 Statistical Abstract of the United States.
Just Over 1 Million Engineers and Technicians Are in Civil; Electrical and Electronics; Computer, and Mechanical Occupations
Just Over 1 Million Engineers and Technicians Are in Civil; Electrical and Electronics; Computer, and Mechanical Occupations

U.S. and STEM Workforces by Sex, 2008

- Engineers and Engineering Technicians
- Core STEM
- TOTAL STEM, Broad Definition
- TOTAL U.S. Labor Force

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.

Note: Core STEM includes computer and mathematical scientists, architects and engineers and life, physical and social scientists. Total STEM, broad definition includes Core STEM plus STEM managers and health care practitioners and technical occupations.
Just Over 1 Million Engineers and Technicians Are in Civil; Electrical and Electronics; Computer, and Mechanical Occupations

U.S. and STEM Workforces by Sex, 2008

<table>
<thead>
<tr>
<th>Category</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineers and Engineering Technicians</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>Core STEM</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>TOTAL STEM, Broad Definition</td>
<td>52%</td>
<td>48%</td>
</tr>
<tr>
<td>TOTAL U.S. Labor Force</td>
<td>53%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.

Note: Core STEM includes computer and mathematical scientists, architects and engineers and life, physical and social scientists. Total STEM, broad definition includes Core STEM plus STEM managers and health care practitioners and technical occupations.
Women Are Least Represented in Mechanical Engineering

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Women Are Least Represented in Mechanical Engineering

Percent Women in Engineering and Engineering Technician Occupations, 2008

- Drafters: 24.7%
- Engineering tech. (except drafters): 19.6%
- Chemical: 18.4%
- Industrial, incl. health & safety: 17.4%
- Aerospace: 10.0%
- Electrical & electronics: 9.4%
- Computer hardware: 8.6%
- Surveying & mapping tech.: 7.8%
- Civil: 7.1%
- Mechanical: 5.9%

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Chemical Has the Highest Representation of African Americans in Engineering

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Chemical Has the Highest Representation of African Americans in Engineering

Percent African Americans in Engineering and Engineering Technician Occupations, 2008

- Chemical: 11.0%
- Engineering tech. (except drafters): 9.4%
- Drafters: 6.8%
- Computer hardware: 6.2%
- Aerospace: 6.1%
- Electrical & electronics: 5.1%
- Civil: 4.1%
- Mechanical: 4.0%
- Industrial, incl. health & safety: 2.9%
- Surveying & mapping tech.: 1.4%

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Latinos Are More Highly Represented in Engineering Technician and Drafting Occupations and Least Among the Four Major Engineering Fields

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
Latinos Are More Highly Represented in Engineering Technician and Drafting Occupations and Least Among the Four Major Engineering Fields

Percent Latinos in Engineering and Engineering Technician Occupations, 2008

- Surveying & mapping tech.: 10.3%
- Drafters: 9.9%
- Industrial, incl. health & safety: 9.5%
- Engineering tech. (except drafters): 8.3%
- Aerospace: 8.3%
- Computer hardware: 7.7%
- Civil: 7.3%
- Mechanical: 5.8%
- Electrical & electronics: 5.1%
- Chemical: 2.6%

Source: NACME analysis of data from the 2010 Statistical Abstract of the United States.
African American and Latino Faculty Are Scarce at U.S. Engineering Schools

Faculty by Rank, Sex and Race/Ethnicity, Fall 2010

African American and Latino Faculty Are Scarce at U.S. Engineering Schools

Faculty by Rank, Sex and Race/Ethnicity, Fall 2010

- All Faculty:
  - African American: 23.9%
  - Latino: 13.2%
  - Asian American: 21.2%
  - Women: 8.1%

- Full:
  - African American: 2.5%
  - Latino: 1.8%
  - Asian American: 2.9%
  - Women: 4.5%

- Associate:
  - African American: 4.2%
  - Latino: 3.7%
  - Asian American: 15.2%
  - Women: 3.8%

- Assistant:
  - African American: 22.4%
  - Latino: 31.6%

Since 2001, Relative Representation of African American and Latino Faculty Remained Unchanged; Increased Representation of Asian American and Women

As An Engineers’ Job Responsibility Increases, Sex Gaps in Pay Decreases

Median Salaries of Engineering Workers by Type of Position and Sex, 2009

The Gap in the Top and Bottom Engineers’ Salaries Increases Over the Course of Their Careers

Salaries of Engineers, Non-Supervisory, Bachelor's Degreed by Years Since Baccalaureate Degree, 2010

Note: numbers above top decile are the ratios of the bottom:top deciles.

At the Start of Employment, Engineers’ Salaries Are Similar Regardless of Employer size: There Are No Meaningful Differences in Salaries for Engineers Employed at Medium vs. Large Employers

Among Early Career Engineers, Median Wages Are Highest for Asian Americans but Similar for Both Men and Women from the Other Race/Ethnic Categories.

Median Annual Earnings, Engineers Aged 25-34 (2009)

Engineering Provides Far Higher Earnings for Young African American Workers Than Their Peers in All Other Jobs

Median Annual Earnings, 25-34 Year Old African Americans and U.S. Workers, 2009
(Full-time, year-round workers only)

<table>
<thead>
<tr>
<th></th>
<th>Median Annual Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Engineers</td>
<td>$60,000</td>
</tr>
<tr>
<td>Female Engineers</td>
<td>$70,000</td>
</tr>
<tr>
<td>Male Total U.S.</td>
<td>$30,000</td>
</tr>
<tr>
<td>Female Total U.S.</td>
<td>$20,000</td>
</tr>
<tr>
<td>Male African Americans</td>
<td>$40,000</td>
</tr>
<tr>
<td>Female African Americans</td>
<td>$35,000</td>
</tr>
<tr>
<td>Male All U.S. Workers</td>
<td>$45,000</td>
</tr>
<tr>
<td>Female All U.S. Workers</td>
<td>$35,000</td>
</tr>
</tbody>
</table>

Engineering Provides Far Higher Earnings for Young African American Workers Than Their Peers in All Other Jobs

Median Annual Earnings, 25-34 Year Old African Americans and U.S. Workers, 2009
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</tr>
</thead>
<tbody>
<tr>
<td>Male Engineers</td>
<td>$63,000</td>
</tr>
<tr>
<td>Female Engineers</td>
<td>$64,000</td>
</tr>
<tr>
<td>Male African Americans</td>
<td>$34,200</td>
</tr>
<tr>
<td>Female African Americans</td>
<td>$39,000</td>
</tr>
<tr>
<td>Male Total U.S.</td>
<td>$38,000</td>
</tr>
<tr>
<td>Female Total U.S.</td>
<td>$33,300</td>
</tr>
<tr>
<td>Male All U.S. Workers</td>
<td>$38,000</td>
</tr>
<tr>
<td>Female All U.S. Workers</td>
<td>$33,300</td>
</tr>
</tbody>
</table>

Engineering Provides Far Higher Earnings for Young Latino Workers Than Their Peers in All Other Jobs

Median Annual Earnings, 25-34 Year Old Latinos and U.S. Workers, 2009
(Full-time, yearround workers only)

Engineering Provides Far Higher Earnings for Young Latino Workers Than Their Peers in All Other Jobs

Median Annual Earnings, 25-34 Year Old Latinos and U.S. Workers, 2009
(Full-time, year-round workers only)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Male Engineers</td>
<td>$60,000</td>
</tr>
<tr>
<td>Female Engineers</td>
<td>$67,000</td>
</tr>
<tr>
<td>Male Latinos</td>
<td>$57,000</td>
</tr>
<tr>
<td>Female Latinos</td>
<td>$55,924</td>
</tr>
<tr>
<td>Male Total U.S.</td>
<td>$38,000</td>
</tr>
<tr>
<td>Female Total U.S.</td>
<td>$33,300</td>
</tr>
<tr>
<td>All U.S. Workers</td>
<td>$33,300</td>
</tr>
</tbody>
</table>