school of sustainable engineering and the built environment
our vision

To be an acknowledged, worldwide innovator in producing leaders, pioneering solutions, and new knowledge for the betterment of human-kind.

We will be the leading source of Civil, Sustainable, Environmental and Construction engineers and managers in the U.S. Southwest.
our mission

To educate students and develop new knowledge and understanding in order to advance engineering and construction processes to achieve sustainability in the built environment.

We do this by focusing on five thematic thrust areas:

- Sustainability
- Energy
- Health
- Security
- Education
data snapshot

**enrollment**
- 1,392 total enrollment
- 1,054 undergraduate students
- 338 graduate students
- 211 M.S./126 Ph.D.

**student profile**
- 25/1138 ACT/SAT
- 11% Barrett Honors students
- 23% female
- 22% international
- 34% underrepresented minority

**faculty**
- 44 tenured and tenure-track faculty
- 6 lecturers
- 3 research faculty
- 1 professor of practice

**Scholars:** Udall, Fulbright, Eisenhower

**Global Engagement**
- Engineers Without Borders, Bridges to Prosperity, US/Mexico Border Water Training Program
goals and comparisons

- Bachelor's Enrollment (1,340)
- Master's Enrollment (400)
- Doctoral Enrollment (160)
- Faculty (47)
- Research Expenditures ($15M)
- Research $ Per T/TT Faculty ($321K, weighted)
- Total degrees /year (475)

1,392 fall 14 enrollment
3 new faculty

16% increase over 2013-2014

11 major agreements FY14
1 new patent
9 invention disclosures
<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Research Awards</th>
<th>Research Expenditures</th>
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<tbody>
<tr>
<td>Overall enrollment for AY 2014 has increased 16 percent over AY 2013 to 1392 students; graduate student enrollment increased 29 percent to 338 students.</td>
<td>Research awards for CY 2014 are projected at $10.5 million which is a 35 percent increase over CY 2013</td>
<td>Research expenditures for CY 2014 are projected at $10.7 million, which is an increase of 32 percent increase over CY 2013.</td>
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<tr>
<th>Research Funding Sources</th>
<th>Federal</th>
<th>State &amp; Local</th>
<th>Industry</th>
<th>Foundations/Nonprofit</th>
<th>Other</th>
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<tbody>
<tr>
<td></td>
<td>56%</td>
<td>2%</td>
<td>24%</td>
<td>10%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Competitors: Illinois, Berkeley, Stanford, GT, UT Austin, Purdue, MIT, Michigan, VT, CM (top ten), + UCSD, UC Boulder, Cal-Tech

Current USNWR ranking: 35 (2013), with peers Iowa, UF, Ohio State, Rice, Notre Dame, Duke

Centers: SMART Center, CESEM, QESST (ERC)

Some metrics are comparable to top 20
A number of steps need to take place to move Civil Engineering towards the top 20 in US.
5-10 year outlook on getting top 20 is doable.
transportation materials and systems expertise at asu

**Transportation systems:**
Yingyan Lou*, Assistant Professor
Xuesong Zhou*, Associate Professor
Mikhail Chester*, Assistant Professor

**structures and materials:**
Kamil Kaloush, Associate Professor
Ed Kavazanjian, Professor
Shane Underwood*, Assistant Professor
Mike Mamlouk, Professor
Barzin Mobasher, Professor
Narayanan Neithelath*, Associate Professor
Claudia Zapata, Assistant Professor
Sandra Houston, Professor
Matt Witczak, Professor Emeritus

**construction, project planning and delivery:**
G. Edward Gibson, Jr., Professor
Sam Ariaratnam, Professor
Mounir El Asmar*, Assistant Professor
Pingbo Tang*, Assistant Professor
David Grau*, Assistant Professor
Al Chasey, Associate Professor
Wylie Bearup*, Professor of Practice

**planning:**
Michael Kuby, Professor
Aaron Golub*, Assistant Professor
Alan Murray, Professor
Patricia Mariella, Director

*Recent hires (within the past three years)*
transportation materials and systems expertise at asu (cont’d)

**logistics and simulation:**
Pitu Mirchandani, Professor
J. Rene Villalobos, Associate Professor
Ron Askin, Professor
Arnold Maltz, Associate Professor

**water and air quality:**
James Anderson, Research Professor
Zhihua Wang*, Assistant Professor
Matt Fraser, Professor
Enrique Vivoni, Associate Professor

*Recent hires (within the past three years)
university transportation center (UTC) project

- first USDOT UTC project at ASU
- subcontracted to Univ. of Maryland, UTC title: "National Center for Strategic Transportation Policies, Investments, and Decisions"
- Strategic goal: economic competitiveness
- dates of performance: 1/1/14 to 6/30/17
- expenditure total (ASU): $825K
- faculty involved:
  - Kamil Kaloush (lead PI)
  - Xuesong Zhou
  - Pitu Mirchandani
  - Mounir El Asmar
  - Shane Underwood
  - Mike Chester
  - Yingyan Lou
faculty intellectual property engagement

**Sustainable Engineering and the Built Environment**
- 37% have filed an invention disclosure
- 22% have filed multiple invention disclosures

**Electrical, Computer and Energy Engineering**
- 68% have filed an invention disclosure
- 52% have filed multiple invention disclosures

**Engineering of Matter, Transport and Energy**
- 55% have filed an invention disclosure
- 42% have filed multiple invention disclosures

**Computer, Informatics, and Decision System Engineering**
- 52% have filed an invention disclosure
- 40% have filed multiple invention disclosures

**Biological and Health System Engineering**
- 68% have filed an invention disclosure
- 56% have filed multiple invention disclosures

**Benchmark**
- Pooled data: Cornell, MIT, Penn, Purdue, Texas A&M, Wisconsin
- 3,241 faculty scientists and engineers
- 17-year period analyzed
- Only 35.8% disclosed an invention

**Fulton Engineering**
- 56% have filed an invention disclosure
- 42% have filed multiple invention disclosures

*Thursby, Jerry G. and Thursby, Marie C., Patterns of Research and Licensing Activity of Science and Engineering Faculty (2003).*
Two separate SSEBE efforts were chosen to move forward for site visits in October (one with SSEBE researchers in the lead and one will be part of a three university effort in a support role). Well over 100 pre-proposals submitted in this competition, only 9 were chosen to continue to site visit (with two of those associated with our faculty). If selected, the NSF ERC program provides funding for up to 12 years with total funding in the $15-20 million range during the first six years. The first NSF ERC awarded to ASU was the QESST Center two years ago, with Matt Fraser serving as its Executive Director.

- Ed Kavazanjian and his team, entitled: “NSF ERC for Bio-Mediated and Bio-Inspired Geotechnics”

- Paul Westerhoff and his team, who will be part of a Rice and Yale initiative entitled: “NSF Engineering Research Center for Off-Grid Nanotechnology Enabled Water Treatment (NEWT)”
world-class facilities
Civil, Environmental and Sustainable Engineering

SSEBE advisory boards

ENVIRONMENTAL ENGINEERING

Dave Mahaffay (EAB Chair)
Senior Vice President
Black & Veatch

GEOTECHNICAL ENGINEERING

Larry Hansen
Vice President
AMEC

HYDROSYSTEMS

Jonathan Fuller
Principal
JE Fuller Hydrology & Geomorphology, Inc.

TRANSPORTATION SYSTEMS

Jennifer Toth
Director of Transportation
Maricopa County

TRANSPORTATION/MATERIALS

Paul Burch
Chief Pavement Design Engineer
ADOT

CONSTRUCTION ENGINEERING

Chris Kmetty
Construction Engineering Manager
Markham Contracting, Inc.

GENERAL

Jim Geiser
Principal
Prelude Engineering Consultant Services

Andrew Johnson
Engineering Supervisor
Salt River Project (SRP)

Bruce Larson
Principal/Senior Project Manager
Wesland Resources, Inc

Les Olson, PE, R.L.S.
President
Coe & Van Loo Consultants

Willie Paiz, CCM
Regional Operations Manager, Construction Management Services
CH2M Hill

Kent Dibble
President
Dibble Engineering
this conference’s impact

• 11th ASU Pavements/Materials Conference
• 350+ participants
• Matt Witczak Faculty Endowment now is over $26k
• Will pay out next July for the first time!
• Will enable our faculty in this area discretionary funds to support pavement program and students

Thank you!!
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