

How Academic Institutions Can Provide Solutions to Help Meet Infrastructure Needs

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Increased focus on infrastructure



Groups advocating change include...



Education for Sustainable Development

United Nations Decade (2005-2014)



US PARTNERSHIP
DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT
UNITED NATIONS DECADE (2005-2014)



UNESCO-Cousteau
Ecotechnie Programme



National Council for Science and the Environment
Improving the scientific basis for environmental decisionmaking



P3: People, Prosperity and the Planet Student Design Competition for Sustainability



HIGHER EDUCATION ASSOCIATIONS
SUSTAINABILITY CONSORTIUM



*Association for the Advancement
of Sustainability in Higher
Education*

Engineering groups include...



AMERICAN SOCIETY FOR ENGINEERING EDUCATION
FOUNDED IN 1893

ASCE a better world by design



**National Society of
Professional Engineers®**

ABET

Leadership and Quality Assurance in Applied Science,
Computing, Engineering, and Technology Education

How is sustainability being addressed?

- Individual efforts/courses
- Collaborative centers
- Special degrees

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My thoughts...

- Teaching
- Research
- Service

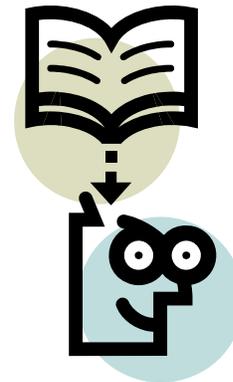


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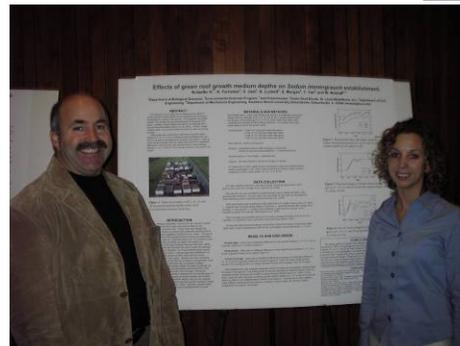
Teaching

- ❑ Include both theory/fundamentals and practice
- ❑ Realize it's interdisciplinary but...
- ❑ Integrate construction and O&M considerations into design
- ❑ Consider policy aspects
- ❑ Offer continuing education



Research

Conduct research into how to improve designs, improve O&M, etc.



Service

Includes to profession and communities



In a nutshell...

“One of the great failures in engineering education has been the inability of graduating students to integrate all they have learned — science, mathematics, engineering fundamentals — in the solution of real-world engineering problems. ... We give students tools for their engineering toolbox — knowledge, hardware, software — but fail to teach them how to integrate and master these tools to solve an engineering problem. This shortcoming is exacerbated in industry as practicing engineers are pressured to deliver hardware quickly and cheaply. Result: They fall back on trial-and-error design.”

Kevin Craig, Contributing Editor -- Design News, November 5, 2007
Mechatronics “Dumbing down the Engineer”

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