Integrating CSS into University Curriculums

What’s Going on at North Carolina State University

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Transportation organizations were civil engineer dominated in the past. Now Multidisciplinary approach needed

Civil Engineering Magazine:
“A growing demand for a new kind of civil engineer – flexible, more broadly educated and better prepared to meet the challenges of the future.”
Much effort to introduce CSS to transportation professionals in government and private agencies

Slower integration into university curriculums

Knowledge of CSS can enhance new graduates entering transportation field

CSS Efforts at North Carolina State University

Integrating CSS into undergraduate and graduate courses

CSS Academy

CSS Graduate Course

North Carolina State University

949 students are enrolled in Civil Engineering

188 students graduated with a degree in Civil Engineering (2004)
  112 with a BS
  60 with a MS
  16 with a PhD

10 Graduate students graduated with a degree in the Transportation area (2004)
  8 with a MS
  2 with a PhD
Integrating CSS into Undergraduate and Graduate Courses

- Highway Design Graduate Course
- Undergraduate Roadway Design Course
- Construction Degree Option
- Humanities and Social Sciences

Context Sensitive Solutions
New Civil Engineering Graduate Course on CSS

- Course development funded in part by FHWA
- Goal: introduce CSS principles and practices to civil and environmental engineering graduate students interested in transportation careers
- Implementation by Fall 2006 at NC State University
- Post 2006: available to CE programs nationwide

CSS Graduate Course

- FHWA Sponsorship
- Academic Advisory Committee
- Course to be offered Fall '06 at NCSU
- Six other Universities receive funds to modify course to be taught there
- Course materials to be available to all in academic Community
Context Sensitive Solutions
CSS Summer Academy for Undergraduates

- Participation in two-week academy with CSS class instruction, field trips
- Paid summer internship at NCDOT, supporting environmental activities
- Students prepare and report on case studies of CSS applications in current NCDOT projects

CSS Academy

- Students jobs where they can see CSS applied
- 12 days of CSS instruction (classroom and field trips)
- Researched case studies
- Presented case studies to CTE, NCSU, and NCDOT

Education Needs

- Many CSS principles not explicitly covered in Civil Engineering
- More Classroom Materials

Faculty members conversant in CSS
Context Sensitive Solutions

Constraints

- Faculty well versed in CSS
- CE Curriculums full – little or no room for addition
- CSS not seen as “fundamental” to CE
- Difficult to offer “interdisciplinary” courses
- CSS skills not specifically sought in job market

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