

Integrating CSS
into University Curriculums

***What's Going on at
North Carolina State University***

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The Center for Transportation and the Environment, North Carolina State University



_ Transportation organizations
were civil engineer dominated in
the past.

_ Now Multidisciplinary approach
needed


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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.”*

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- _ 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


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CSS Efforts at North Carolina State University

- _ Integrating CSS into undergraduate and graduate courses
- _ CSS Academy
- _ CSS Graduate Course

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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

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Integrating CSS into Undergraduate and Graduate Courses

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

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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


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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

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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


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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

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Education Needs

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

Faculty members conversant in CSS

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Context Sensitive Solutions

Context Sensitive Solutions in North Carolina



Screens Restoration



I-405



American Tobacco Trail, Durham, NC




Grassy Creek Bridge - Ashe County, NC

1518 Bridge over the Charlotte River, Charlotte, NC

Training for NCDOT

NC Case Studies

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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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