



AUBURN
UNIVERSITY

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Auburn ASCE

Montgomery Branch Meeting
April 12, 2016

Outline

- Auburn ASCE Events
- Concrete Canoe Competition
- Steel Bridge Competition
- OutCELL Project
- Questions

2015-2016 Officers



President
Whitney Shannon



Vice President
Kelsey Doan



Secretary
Heidi Schutzbach



Treasurer
Davis Northcutt



Historian
Lindsey Davenport



Canoe Captain
Samantha Dixon



Steel Bridge Captain
Veronica Ramirez

Faculty Advisor



Dr. Marshall

General Body Meetings



- Every other Thursday
 - Davis 155
 - 6:30 PM



Career Series Lunch

- Every Tuesday
 - Ramsay 314
 - 12:30 PM



Tailgates

- Most Home Games
 - Harbert Lawn



Golf Tournament

- Hole-in-one contest



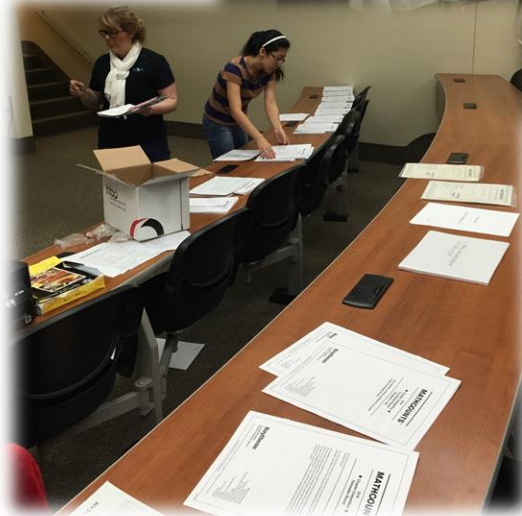
Community Service

- NSBE's "A Walk for Education"
 - October 24
 - "Soils Magic" demonstrations



Community Service

- MathCounts
 - Columbus Technical College



Community Service

- E-Day
 - February 26
 - Gumdrop Bridges



Career Fairs

- Every Fall and Spring semester
 - Cost: \$350 to attend 1 or \$600 to attend both
 - AU Hotel and Conference Center



Young Alumni Panel and Social



Alabama Student ASCE Leadership Conference

- Hosted by UAB
 - February 6



Pittsburgh WSCL

- Workshop for Student Chapter Leaders
 - February 12-13
 - Pittsburgh, PA



Auburn ASCE 2016-2017

- New officers with a new Constitution
 - New positions made for our chapter
- Auburn will be hosting the Alabama Student ASCE Leadership Conference
 - Date TBA
- Southeast Conference at FAU in Boca Raton, FL
 - March 17-18, 2017

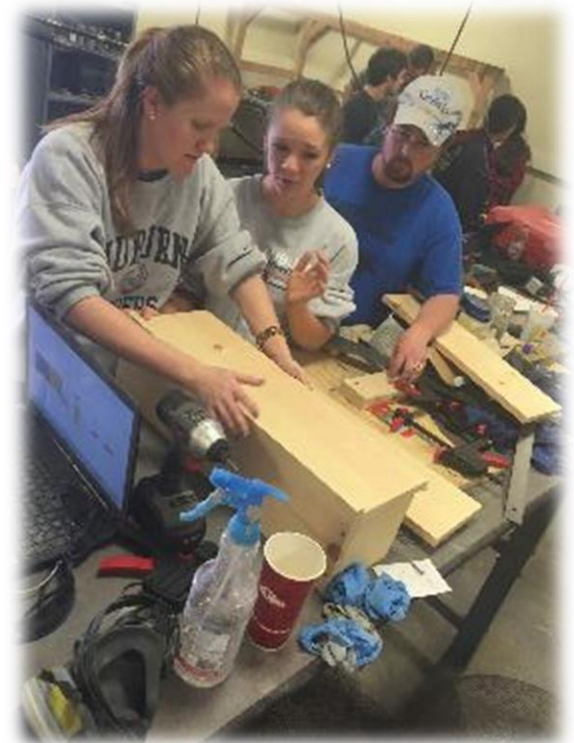
Southeast Regional Conference

- Tuscaloosa, AL
 - March 10-12
 - Concrete Canoe
 - Steel Bridge
 - Small Competitions



Fiber Reinforced Beam

- Tested for flexure strength
- Portland Cement
- Must predict what load it will fail at.
- Score affected by amount of fiber in beam



Surveying

- Given state plane coordinates for 3 points.
- 2 points were marked, and the third had to be found
- 30 minute time limit
- 3rd Place



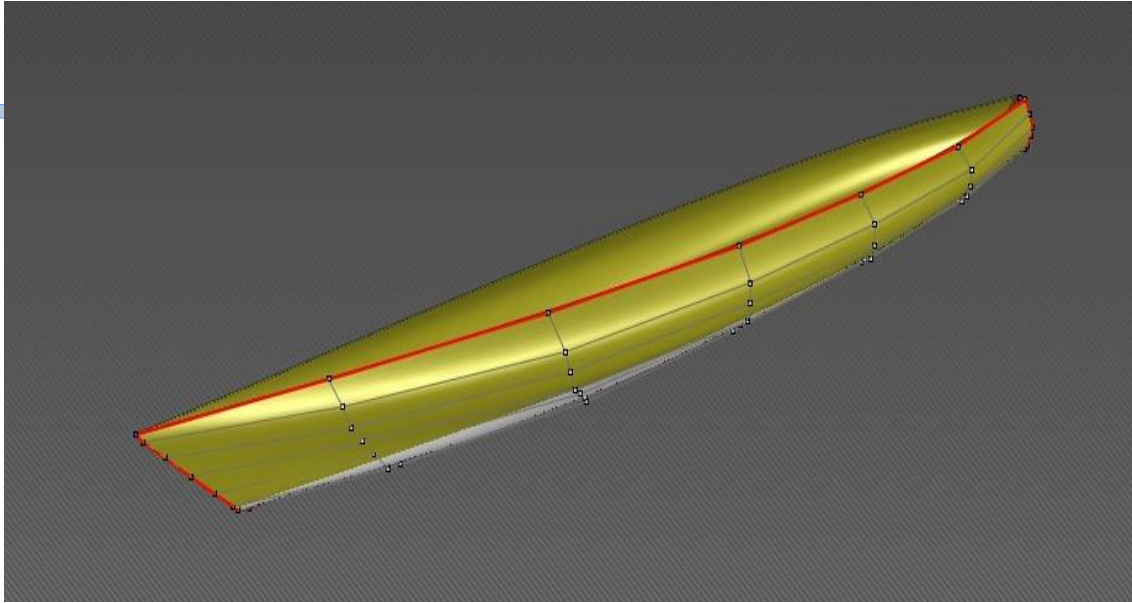
Visual Display



T-Shirt



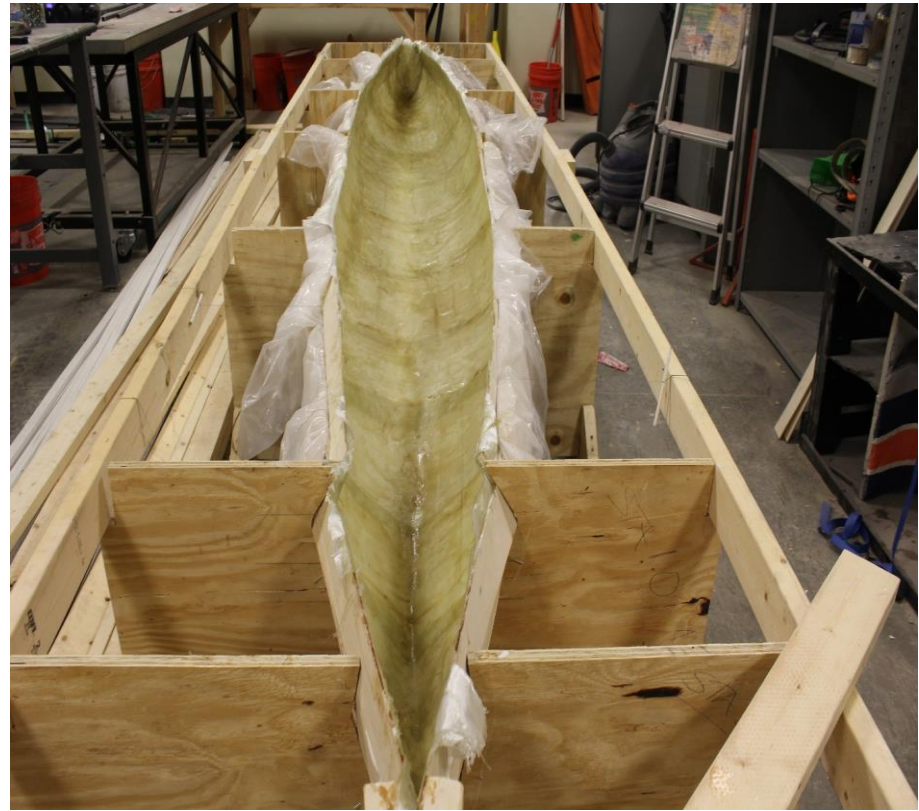
Concrete Canoe, *pegAUsus*



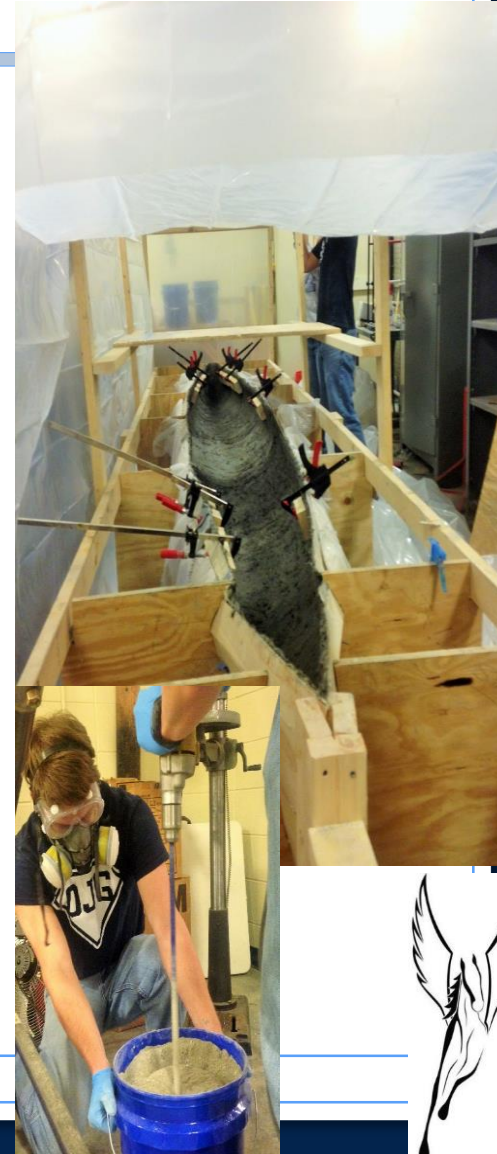
Concrete Canoe, *pegAUsus*



Concrete Canoe, *pegAUsus*



Concrete Canoe, *pegAUsus*



Steel Bridge (Before Conference)



Steel Bridge (Before Conference)



Steel Bridge (At Conference)



Auburn OutCELL



AUBURN UNIVERSITY

DESIGN & CONSTRUCTION OF THE AUBURN UNIVERSITY ASCE OUTCELL: OUTDOOR CIVIL ENGINEERING LEARNING LAB



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SERVICE PROJECT OVERVIEW

OutCELL is an important part of the mission of the Auburn University Samuel Gibbs College of Engineering. The Auburn ASCE service team undertook a unique opportunity to provide an educational asset to the Auburn community that will be available year-round and free of charge to classes, scout troops, camps, and to the general public. The team designed and constructed the Outdoor Civil Engineering Learning Lab (OutCELL), a 0.25-acre water-front facility which features educational stations intended to appeal to students of all ages as well as a constructed wetland that serves both functional and educational purposes. The team collaborated with the City of Auburn Parks & Recreation Department to incorporate the educational center into a prime location at the trailhead of the future Soupathatchee Greenway/Bikeway, a system of bike and kayak trails along the Soupathatchee Creek.

EDUCATIONAL DISPLAYS

The team designed, constructed, & installed eleven permanent passive visual educational displays to engage OutCELL visitors in civil engineering features located on-site. Topics include:

- Water Quality Engineering
- Sedimentation Engineering
- Treatment Wetlands
- Storm Drainage Design
- Stormwater Hydrology
- Storm Hydrology
- Channel Engineering
- Low Impact Development
- Material Hydrology
- Ponds & Sediment Control
- Transportation Engineering



OUTCELL CONSTRUCTION PHASES – STUDENTS AT WORK



PROJECT SCHEDULING

Activity	Start	Finish	Notes
Conceptual Planning	10/20/11	11/15/11	ASCE
Final Design & Construction	11/15/11	12/15/11	ASCE
Construction	12/15/11	1/15/12	ASCE
Wetland Installation	1/15/12	2/15/12	ASCE
Channel Building	2/15/12	3/15/12	ASCE
Wetland Planting	3/15/12	4/15/12	ASCE
Wetland Protection	4/15/12	5/15/12	ASCE
Final Construction	5/15/12	6/15/12	ASCE

PROJECT OUTCOME & FUTURE GOALS

- The OutCELL will become a long-standing asset to the community, not only to provide STEM centered education for K-12 students, but also to beautify the Greenway/Bikeway and improve the water quality of the Soupathatchee Creek.
- ASCE students will work with teachers, counselors, and troop leaders to tailor civil engineering related lesson plans to accommodate the specific goals of their groups for their OutCELL visit.
- The Auburn University ASCE Chapter has developed provisions for the use, future funding, and oversight of this project for years to come.

WETLAND DESIGN

Key Wetland Design Parameters

Contingency Discharge Rate	1.25 cfs
Period of Design Stormfall Event	24-hr 1% AEP
Wetland Storage Volume	1,375 cu ft
Channel of Design Stormfall Event	25-cu-ft 1% AEP
Channel Velocity	1.0 ft/s
Period of Vegetation Success	10 years



The service team designed and constructed a stormwater treatment wetland system as the main educational feature of the OutCELL. Team members collaborated to complete every stage of the construction process including conceptual planning, fundraising, surveying, engineering design, managing grading operations, installing erosion and sediment control practices, and installing over 300 wetland plants. The three-bay stormwater treatment system provides an ideal vehicle for lessons on erosion & sediment control, water quality, watershed hydrology, and low impact development. Furthermore, the wetland serves to actively improve the quality of sediment-laden stormwater draining to the site from an adjacent unpaved county road prior to flowing into the Soupathatchee Creek.

ENVIRONMENTAL IMPACT

The OutCELL constructed wetland will provide several environmental benefits:

- Help with capture and remediation of first flush stormwater pollutants.
- Increase heterogeneity of floodplain habitat (non-fish amphibian refuge).
- Improve water quality to the Soupathatchee Creek, which is home to several endangered freshwater mussel species.



FUNDING AND SUPPORT

The service team collaborated with 18 organizations to raise a total of \$4000 in addition to \$37,545 in goods and services. This was used towards developing the site and acquiring educational content and displays. Remaining funds will be used to develop materials for lesson plans, such as model bridge and stream quality assessment kits.

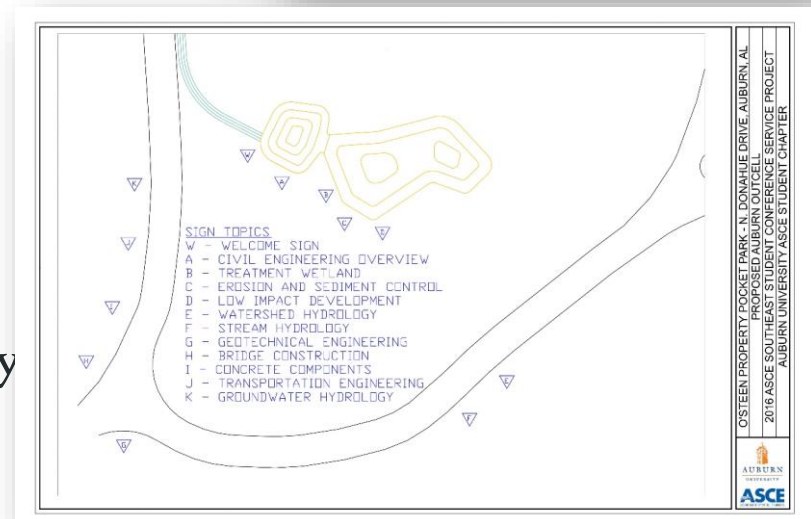
Project Contributions & Donations		Project Costs	
Category	Amount/Value	Category	Cost
City of Auburn Land Grant	\$0.00	Construction Materials	\$1,200
Department of Geology	\$11,500	Design Fees/Professional Fees	\$950
Transfer & Sediment Control	\$625	Plant and Material Cost	\$300
Wetland Services	\$1,150	Material Materials	\$300
Wetland Services	\$4,000	Misc. Material & Sediment Control	\$400
Small Business Contributions	\$21,500	Small Project Costs	\$2,345

PARTNERS & SPONSORS



OutCELL Project Overview

- OutCELL – Outdoor Civil Engineering Learning Lab
 - Environmental, geotechnical, hydraulics, hydrology, materials, structural, and transportation engineering
- 2016 Service competition
 - First place finish
- Collaboration with City of Auburn
 - Saugahatchee Greenway-Blueway Project



Timeline

- November
 - Project decided on
 - Collaboration with City of Auburn established
- December
 - Plans drafted
 - Outreach to potential sponsors
- January
 - Site survey
 - Plans approved
 - Tree removal
 - Excavation
- February
 - Planting & landscaping
 - Sign installation
- March
 - Present (and win!) at conference



Final Results



Pre-construction



Post-construction



Future Plans

- Continue to work with the City of Auburn, Save Our Saugahatchee, Inc. to maintain and improve the OutCELL
- Create lesson plans and work with interested groups to tailor activities to their goals
- Add exhibits including the Steel Bridge and Concrete Canoe from conference

