2017 ASCE Carolinas Conference

October 17th, 2016

Dear ASCE Carolinas Conference Student Chapters:

Hello! We hope this mailer finds the students and faculty of your chapter doing well and enjoying the 2016-2017 academic year. The American Society of Civil Engineers Student Chapter here at The University of North Carolina at Charlotte is honored to host you for the 2017 ASCE Carolinas Conference. Everyone here at UNC Charlotte has been working very hard to prepare each event and venue, in order to provide you an engaging and meaningful conference. We are excited to invite each of you to this year's conference, to be held **Thursday, March 30th – April 1st**, in the beautiful growing city of Charlotte, North Carolina. And with that, we present you Mailer I.

This correspondence will serve as **Mailer I**, which is the first of three information packages that each university will receive as the 2017 ASCE Carolinas Conference approaches. Please make sure you keep these packages for your records and carefully read and distribute the information provided, because the following mailers will not reiterate the same information and will instead be used to provide updates regarding Conference. In Mailer I, we have provided you with the following information:

- Mailer I Confirmation Receipt
- Tentative Conference Schedule
- Hotel Accommodation Information
- Competition Guidelines
- Summary of Deadlines

Please confirm receipt of this mailer by completing and submitting the Attached *Mailer I Confirmation Receipt* via email to 2017ASCEconference.uncc@gmail.com no later than November 15th, 2017.

Lastly, please check out our conference website at (http://asceconference.uncc.edu/). This website will serve as your way to register for the conference and to ask questions about the conference.

Best,

Darin A Basso

Darin Basso
2017 ASCE Carolinas Conference Chair

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Mailer I Confirmation Receipt

Please complete and submit this document to Darin Basso at 2017ASCEconference.uncc@gmail.com no later than November 15, 2016

School Name:

_____

Faculty Advisor(s):

_____

Faculty Advisors' Phone Number:

_____

Faculty Advisors' email:

_____

Conference Chair Contact (Student):

_____

Student Conference Chair Contact Phone Number:

_____

Student Conference Chair Email:

_____

Estimated number of students, faculty and guests attending the 2017 conference: _____

Competition Event Participation: Please indicate (with a check) whether or not your student chapter plans to participate in the following events:

Competition	Yes	No
Concrete Canoe		
Steel Bridge		
ASCE Mead Paper		
Hydraulics		
Environmental		
Transportation		
Freshmore Challenge		
Structural Event		
Quiz Bowl		
Surveying		
Geo-Tech		

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Conference Schedule

Thursday, March 30, 2017

5pm-6pm	Conference Registration Check-in	EPIC Building, UNC Charlotte
6pm-7pm	Business Meeting	EPIC Building, UNC Charlotte
8pm-10pm	2017 Welcome Social	TBD
8:30pm	Concrete Canoe – Captain's Meeting	TBD

Friday, March 31, 2017

7am-8am	Concrete Canoe – Set Up	Lake Norman
7am-9am	Breakfast	Lake Norman
9am-3pm	Concrete Canoe – Racing	Lake Norman
9am-1pm	Surveying	Lake Norman
9am-10am	T-shirt Set Up	Lake Norman
12pm-2pm	Lunch	Lake Norman
6pm-7pm	Steel Bridge – Captain's Meeting	EPIC Building, UNC Charlotte
7pm-10pm	Senior Social	TBD

Saturday, April 1, 2017

6am-8am	Steel Bridge – Set Up	Hauser Alumni Pavilion, UNC Charlotte
7am-9am	Breakfast	EPIC Building, UNC Charlotte
8am-9am	Steel Bridge – Aesthetics	Hauser Alumni Pavilion, UNC Charlotte
8am-3pm	Steel Bridge – Competition	Hauser Alumni Pavilion, UNC Charlotte
8am-11am	Hydraulics	TBD, UNC Charlotte
9am-11am	Concrete Canoe – Presentations	EPIC Building, UNC Charlotte
9am-12pm	Geotechnical	TBD, UNC Charlotte
9am-12pm	Freshmore Challenge	EPIC Building, UNC Charlotte
9am-12pm	Structural Event	TBD, UNC Charlotte
10am-12pm	Environmental	EPIC Building, UNC Charlotte
11am-2pm	Civil Engineering Career Expo	EPIC Building – Lobby, UNC Charlotte
12pm-2pm	Lunch	EPIC Building/Hauser Alumni, UNC Charlotte
1pm-3pm	Concrete Canoe – Display Judging	EPIC Building, UNC Charlotte
2pm-3pm	Mead Paper	EPIC Building, UNC Charlotte
2pm-4pm	Transportation	EPIC Building, UNC Charlotte
2pm-4pm	Quiz Bowl	EPIC Building, UNC Charlotte
7pm-10pm	Banquet and Award Ceremony	TBD, UNC Charlotte

NOTE: All events on UNC Charlotte Campus will be later updated with Room Numbers.

(times subject to change)

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Hotel Accommodations

For 2017 Carolina Conference, here are a few local hotel options that can be utilized for your stay in Charlotte. Below you can find a few hotel options that are located near UNC Charlotte campus.

Drury Inn & Suites Charlotte University Place

415 West W.T. Harris Blvd. Charlotte, NC 28262

Phone: 704-593-0700

Website: https://www.druryhotels.com/Reservations.aspx?groupno=2283101

Please make your reservations by **Friday, March 10, 2017** to receive the group rate listed below. When making reservations please refer to the group number, 2283101.

Rates shown are based on double occupancy and will be adjusted for rooms utilizing more than 2 people per room. ($10 will be added per night per person)

1 King Bed Deluxe: $90.00 per night

2 Queen Beds Deluxe: $90.00 per night

Hilton Charlotte University Place

8629 JM Keynes Drive, Charlotte, NC 28262

Phone: 704-547-7444

Website: http://www3.hilton.com/en/hotels/north-carolina/hilton-charlotte-university-place-CLTHUHF/index.html

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Hampton Inn Charlotte - University Place

8419 North Tryon Street, Charlotte, NC 28262

Phone: 704-548-0905

Website: http://hamptoninn3.hilton.com/en/hotels/north-carolina/hampton-inn-charlotte-university-place-CLTUVHX/index.html

Courtyard Charlotte - University Research Park

333 West W.T. Harris Blvd. Charlotte, NC 28262

Phone: 704-549-4888

Website: http://www.marriott.com/hotels/travel/cltun-courtyard-charlotte-university-research-park/

Holiday Inn Charlotte – University

8520 University Executive Park Drive, Charlotte, NC 28262

Phone: 800-465-4329

Website: http://www.hicharlotteu.com/

Concrete Canoe Competition

National Competition Rules

The rules for the ASCE Concrete Canoe Competition are written and governed by ASCE Nationals. Each participating school should have already received an official copy of the rules from ASCE. Any school who has not received an official copy of the rules should contact the host school, UNC Charlotte, immediately.

The rules can be found on the official ASCE website here:

http://www.asce.org/rules-and-regulations/

National question forum for Concrete Canoe competition can be found here:

https://www.facebook.com/ASCENCCC/

Submittal:

As per ASCE National Concrete Competition Rules, the electronic submission shall be considered the official and final version of both the Design Paper and Engineer's Notebook. Teams must submit five (5) bound copies of the design paper (in accordance with ASCE National Concrete Canoe Competition Rules, Section 6.3) to arrive no later than 5:00PM, March 10, 2017, at the following address:

Brett Q. Tempest, Ph.D.
Dept. of Civil & Environmental Engineering
EPIC Building, Room 3327
9201 University City Blvd
Charlotte, NC 28223

Steel Bridge Competition

National Competition Rules

The rules for the American Institute of Steel Construction (AISC) Steel Bridge Competition are written and governed by ASCE Nationals and AISC. Each participating school should have already received an official copy of the rules from AISC.

The rules can be found on the official AISC website here:

http://www.aisc.org/content.aspx?id=780

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Mead Paper Competition

National Competition Rules

The rules for the Daniel W. Mead Competition Paper are written and governed by ASCE National. Each school should have received an official copy of the rules from ASCE. Any school who has not received an official copy of the rules should contact the host school, UNC Charlotte, immediately.

The topic for the 2017 Mead Paper Competition is:

"Is it ethical for university engineering faculty to teach technical subject matter to engineering students without obtaining professional licensure?"

The rules can be found on the official ASCE website here:

http://www.asce.org/mead-student/

Carolinas Conference Competition Rules

The rules for the Daniel W. Mead Competition Paper are identical to those for the national competition. To compete at the Carolinas Conference, students must submit their final paper via e-mail (the file must be in PDF format) to arrive no later than 5:00PM, March 10, 2017, to the following e-mail address:

jgergely@uncc.edu

Competing students will also be required to give a formal presentation in person during the conference. MS PowerPoint software will be available for student presentations, if desired.

Scoring

The overall score for the competition shall be as indicated below:

Paper	50 %
Presentation	50 %

The judging shall be subjective as determined by the head judge of the competition.

*Remember, in order to qualify for any 2017 national ASCE competition, Steel Bridge or Concrete Canoe, each school must write and present a Mead Paper at the 2017 Carolinas Conference, along with the criteria of qualifying for the Steel Bridge or Concrete Canoe competition.

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Hydraulics and Fluid Mechanics Competition

Objective:

The object is to design and build a device that can hold an object above the specified heights, while remaining in contact with only water. The challenge will be moving the device and object over the determined course based on the specific gravity of the object.

Rules:

- One team per school can compete. Each team may consist of up to four students.
- Students will design a device to hold an object above a minimum height of 4 feet. This can be achieved by a container of water, or via water jets.
- Teams will race with the device and the object over a course which varies based upon specific gravity. The location in which the race will take place will be flat, i.e. Parking Deck, Football Stadium or another suitable location.
- During the race the object must stay in contact with only water at all times.
- The device to be constructed may have wheels, however to move the device there cannot be any type of propulsion. The only way the device will be allowed to move across the race distance, is through physical effort by 1 or more members of the team.
- If a vessel is used to suspend the object, then its bottom must always stay below a maximum height of 3 feet.
- Objects must have a volume between a minimum volume of 12 cubic inches (roughly a baseball), and a maximum of 20 cubic inches (roughly a softball).
- The object must be negatively buoyant, with a minimum specific gravity of 1.05.
- There is no restriction on the shape of the object.
- The race distance will be between 100 and 400 yards, based upon the measured specific gravity of the object. Objects with higher density will be awarded with a shorter race distance. Below is a table to show race distances based on specific gravity.

Specific Gravity	Distance to be Travelled
1.05 – 1.2	400 yd.
1.21 – 1.4	300 yd.
1.41 – 1.6	200 yd.
s.g. > 1.6	100 yd.

- The race will include staggered starting locations and a common finish line.
- Teams finish the race when their object reaches the finish line.

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- The water/mixture must be nontoxic.

Scoring:

Teams will be graded on the quality of their presentation (A = 1, A-/B+ = 2, B = 3, C = 4) and according to the placing at the race (first place = 1, 2nd place = 2, 3rd place = 3, etc.). Teams will then be ranked according to their cumulative score (presentation + race). The winner will be the team with the lowest overall score. Judges on the course will ensure that the object and the device meet the height limits and will stop teams mid-race until which time the height limits are met.

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Environmental Engineering Competition

Introduction:

The removal of particles and organics is typically the first step of drinking water treatment. It prepares the water for more efficient treatment by subsequent processes.

Object:

The objective is to design and build a process for removal of particles and organics from the water source. The water source will be provided by the host school, UNC Charlotte. The challenge is to see which team can filter the provided water most effectively.

Rules:

- One team per school can compete with a team of up to four undergraduate students.
- Teams will be given an hour to build and demonstrate the effectiveness of their process.
- No outside materials can be used. All materials will be provided and have a cost associated with them. **NOTE: Cost of items will be updated in Mailer #2**.
- All of the provided water must run through the system and will be weighed by the judges after.
- Effectiveness will be based on pH, alkalinity, turbidity, UV absorbance at 254 nm, total organic carbon, and total suspended solids.
- From the treated water, teams must collect a sample into a provided vial for analysis by the judges and collect a sample into a beaker for a visual demonstration.

Provided Supplies:

- Jar test setups
- Clear pipes of different diameter to construct column filters
- Pipe stand
- Mesh to hold filter media
- Duct tape
- Sand
- Gravel
- Anthracite
- Granular activated carbon
- Powdered activated carbon

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- Aluminum sulfate
- Ferric chloride
- Beakers
- Vials with labels for collecting the sample for testing
- Carboys
- pH strips
- Sodium bicarbonate
- Acetic acid
- Serological pipettes with aspiration bulbs
- Weighing balance and supplies
- Membrane filters

Scoring:

The winning team will have the best efficiency-to-cost ratio.

For absorbance and Turbidity: the score will be based on percent removal of each parameter, for example 90% removal of turbidity gives a score of 9. Two scores for each parameter will be averaged.

For pH: if the pH is outside the limits (6-8), the number of points of which it is out of the expected range will be subtracted from the combined score of absorbance and turbidity.

For volume recovered: the water collected after the treatment will be weighted by the judges. The amount of water collected will then be divided by the initial amount of water to get the volume recovered ratio. The volume recovered ratio will be multiplied by the number recovered above.

For cost: To get the efficiency-to-cost ratio the above score will be divided by the cost of the supplies used for the system.

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Transportation Competition

Introduction:

Teams will be presented a transportation problem and asked to develop a solution. The problem will be provided at the time of the challenge. Each team will apply principles of transportation planning, traffic operations, and highway design to respond to the design problem. The response will be primarily qualitative, thus teams should focus on development of an innovative conceptual design that would provide a long-term transportation solution. Teams will be allocated two hours to prepare a proposed conceptual solution, organize submittal materials, and prepare a 5-minute presentation. Team presentations will be delivered to a panel of judges for review, which could include a short question and answer period.

Objective:

To develop a conceptual design solution, organize submittal materials, and prepare a presentation for transportation improvements and/or recommendations.

Rules:

1. One team per school, each team may consist of up to four undergraduate students.
2. All teams will receive the same problem at the same time.
3. All concept designs will be developed in U.S. Customary Units.
4. All concept designs will be drawn by hand, so use of computers will not be allowed. No web access will be allowed, that includes use of smart phones or any other means.
5. You are allowed to bring handheld calculators, manual drafting equipment, and drawing scales.
6. It is highly recommended that you bring the following reference material as it will not be provided at the time of the competition:
    a. 2011 AASHTO Green Book
    b. Current edition of the MUTCD
    c. FE reference handbook
    d. Transportation Engineering Textbook
    e. NCDOT Complete Streets Planning and Design Guidelines (link to document: Complete Streets Guidelines and the appendix: Complete Streets Appendix)

Eligibility:

Teams are not allowed to solicit help from individuals not participating as team members during the competition; otherwise the team will be disqualified.

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Scoring:

The panel of judges will listen to all presentations, review all submitted materials, and determine team rankings for this competition event.

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Structural Competition

Concrete Baseball Bat

Introduction:

Teams will design and construct a baseball bat made of concrete. Given the requirements below, teams will have a chance to produce the most cost and strength efficient bat and apply the bat to a practical application. Teams will compete to hit balls the farthest. The best overall score will win the competition.

Construction Rules:

- This competition is for undergraduate students only. General guidance from other sources is encouraged but all the work is completed by undergraduate students.
- Bat length must be between 28" and 34". No portion of the bat can be larger than 6" in width. This will be tested with a box (similar to steel bridge competition) where the inside dimension of the box will be 6"x6"x34" (WxHxL). The bat must look like a bat, meaning the handle of the bat must be at least ½ the diameter of the barrel of the bat and there must be a taper between the barrel of the bat and the handle.
- Reinforcement fibers and meshes are allowed and encouraged for safety.
- Each bat must have at least one reinforcement bar (1/2" max.) spanning the length of the bat with a minimum of ½" cover on all sides.
- Molds will not be provided to schools to allow creativity of design.
- No paint, tape, or external coatings of any kind are permitted; the bat must look like it is made from concrete. **Magic marker is allowed, only for identification**. Please mark the bat with school identification on the barrel of the bat. Figure 1 shows terminology and an example of identification.
- Each school can enter only one bat for the competition.
- A separate exact duplicate section must be made of the barrel of the bat (the part where the bat will hit the ball). This section must be 24" long and will be tested for flexural strength and compared to flexural strength estimates. The span length will be approximately 18" and testing will be similar to ASTM C78/C78M. Violations of not exact duplication will result in disqualification.
- A professional concise 2 (two) page report must be turned in at time of competition. This report must describe your design, flexural strength estimate, construction, and overall cost to make this bat. For cost, please include a section for materials, construction cost, and labor of all items including the mold. (Generally assume: Student = $10/person/hr,

Contracted Professional = $100/person/hr; Any donated items must be priced as if you purchased them) Include concise and professional calculations and photographs of the construction process in the appendix of the report (not included in the 2 page limit).

- Points will be given on a variety of factors (see Scoring Section on next page). As engineers, it is important to always find the most efficient solution to a problem, therefore judged factors include cost, weight, batting effectiveness, and professionalism.

Competition Rules:

Each team will have the opportunity to hit a softball off a tee a maximum of 10 times (5 times for male batter, 5 times with a female batter, and teams must alternate batters, between males and females, between hits.) or until the bat loses its structural integrity (per judge's discretion due to safety). Each ball will be allowed one foul, which includes a missed swing or coming to rest out of bounds. Gloves, batting helmets (not hard hats), and safety glasses are required and <u>will not</u> be provided by host school.

Scoring:

Possible Points	Judged Item
20	Initial overall bat appearance
20	1 point per 'in play' ball
20	2 page report (described above)
20	Flexural strength estimate compared to actual flexural strength
20	Costs (described above, cheapest bat = most pts)
20	Weight of bat prior to competition (lightest = most pts)
20	Accumulated distance of 'in play' balls (Longest tot. dist. = most pts)
Total possible points: 140 pts	

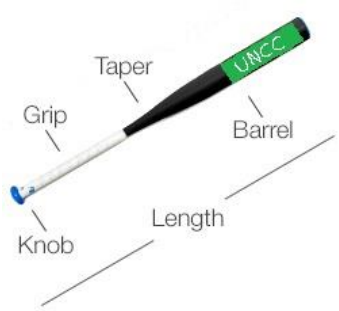

Figure 1. Baseball bat terminology and example of identification.

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Freshmore Challenge

Introduction:

At past conferences, your ASCE chapter has probably seen the tallest flag flying around at past Carolina Conference events (*ahem* GO CHARLOTTE). Since there has been a lack of competition for the 'tallest flag', we have designed an event to ultimately give each school a flagpole to fly their own colors at Carolina's Conference and show of some school spirit. However, it won't be as easy as just putting it together. Each team will compete to be the fastest team with the best teamwork in order to deduce locations of flagpole parts from clues. At every destination, each team must compete in a series of challenges, some mental and some physical, and only when they are completed will they learn of their next location. Good luck!

Objective:

Be the first team to visit each location, complete that location's task, retrieve parts of the flagpole, get to finish line, construct the flagpole, and raise your school's colors.

Requirements:

Each school will need to bring their own flag (3' x 5').

Rules:

- Teams can be made up from 2-8 freshmen/sophomore students for each school's team. Only one team is allowed per school.
    a. UNC Charlotte's team will be handicapped due to hosting location.
- All participants must follow pedestrian traffic laws of Charlotte, North Carolina.
- Host school will provide materials for flag pole.
- Once received, materials for flag pole must never touch the ground until the final location. Violations will be recorded and will result in added course time.
- Challenges at each location will be described to the team upon arrival, then a clear indication as to when they may begin will be given. There will be multiple volunteers at each location to assist the teams with questions.
- Final build instructions will be provided. The first team to complete the pole and raise their flag in the fastest time (including violations) will win.
- Everyone will be able to keep their pole if they so choose. You must provide your own means of transportation for the pole.

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Quiz Bowl

Introduction:

Teams will play Jeopardy with categories that include all aspects covered by the FE exam for Civil Engineers.

Objective:

Teams will play in a double elimination style tournament. The winning team will be the last team standing.

*Brackets will be made once teams are committed to playing.

Rules:

- Teams can consist of 3-4 individuals.
- Only FE approved calculators can be used.
- The team with first selection, to gain possession of the board will be randomly selected.
- The team with possession of the board will be able to select the first category.
- After the category is selected, the first question from the selected category will appear
- If the possession team answers correctly, the team will remain in control of the board, and will be able to select the next category/question.
- Teams will buzz in to answer questions, the first team to buzz in will be able to answer first. (the method as to how the teams buzz in is to be determined)
- After a team buzzes in they will have to immediately provide an answer to the question. If a team buzzes in and does not immediately provide an answer it will count as incorrect.
- If a team answers the question incorrectly, they will lose half of the points designated by the question. A team's score cannot go below zero.
- If a team answers incorrectly, the second team to buzz in will have a chance to steal the question and answer the question for half of the points designated by the question. If the team answers correctly control of the board is then acquired. There is no penalty for answering the stolen question incorrectly.
- If neither team answers correctly, control of the board is lost, and moves to the team directly to the left of the team who previously controlled the board.
- The team/teams, depending on bracket orientation, which have the highest score will advance. (number of teams that advance depends on bracket orientation, which means there could possibly more than one winner in a given round)

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- Teams must answer in the form of a question. If the team fails to do so, the answer will be counted incorrect.
- Point values for the questions, in each category will range from 100-500, and will increase in difficulty in accordance with higher point values. The questions must be answered in each category lowest point value first, i.e. 100, then 200 etc.
- There will be one daily double per round.
- When the daily double appears the team which selected the question will be allowed to wager up to their current score, or 500 pts; whichever is higher. (the daily double cannot be stolen by another team if answered incorrectly)
- If the team answers the daily double correctly they will be rewarded with the amount of points that were wagered.
- If the team answers the daily double incorrectly, they will lose the amount of points which were wagered.
- At the end of a round/game there is a tie between two teams who would advance, there will be a single question given which will be the tie breaker.

Surveying Competition

Introduction:

This competition is to test teams on basic surveying techniques such as distance measurements, levelling, and traversing.

Objective:

Teams will compete to test their ability to basic surveying techniques. The winning team will be the team with the most points at the end of the competition.

Rules:

- Each school may enter one team of four members.
- It is recommended to provide your own equipment if at all possible, due to limited resources.
- The equipment should include (not limited to):
  - Tripod
  - Philadelphia Rod
  - Auto Level
  - Total Station
  - Engineering Tape (100ft)
  - Plumb Bob
  - Field Book
  - Calculator (No programmable calculators)
  - Prism with Pole
- Judges will have a right to disallow the use of any equipment that may give a team an unfair advantage.
- Consultation with any person other than the member of your team is not allowed.
- Each team should come prepared for inclement weather. In case of inclement weather conditions, each team will take a written problem solving test covering surveying principles.

Event:

The competition will consist of all or minimum two of the following events:

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- **Distance Measurement:** Each team will tape and pace several distances between fixed points.
- **Leveling:** Each team will calculate the elevation of several turning points between one benchmark to another benchmark.
- **Traverse:** Each team will find the interior angles of a traverse that is made by a series of fixed points.

All measurements and calculations must be recorded in a field book using professional standards.

Each event will have a maximum allowed time and will be announced at the competition.

Scoring:

Each event will be judged 80% on accuracy and 20% based on the time taken to complete. In an event of tie between any two teams, the team with best accuracy will be awarded the higher place.

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Geotechnical Competition

Objective:

The objective of the UNC Charlotte GeoPile competition is to design a wooden pile and install it in a mechanically stabilized earth (MSE) retaining wall in which Kraft paper is used as the reinforcement. The competition objectives for students are to:

- Design an MSE wall by maximizing its surcharge for a given amount of reinforcement material;
- Design and fabricate a wooden pile to be installed in the MSE backfill by maximizing its uplift load, which will be installed in the MSE backfill; and
- Participate, share best practices and learn from others in the regional conference at the UNC Charlotte.

For Complete list of rules please visit http://www.asceconference.uncc.edu/

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T-Shirt Competition

Carolinas Conference Competition Rules

Each school participating in this event may submit only one T-Shirt. The T-Shirt may have writing and artwork anywhere on the shirt. All artwork must be original artwork created by the students. No photographs may be used. The T-Shirt theme should be focused on a connection with the 2017 conference theme and an original slogan should also be used. 50% of the T-Shirt competition score will be based on aesthetics and creativity and 50% will be based on the creativeness of the slogan and its connection to the conference theme.

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Questions and Answers

In order to promptly and efficiently answer any questions pertaining to the conference, please submit ALL questions for any event or general conference questions to the UNC Charlotte 2017 ASCE Carolina's Conference website:

https://asceconference.uncc.edu/faqs

Please refer to the above website for ALL answers directed to submitted questions.

Please be patient as we are updating the website regularly.

IMPORTANT CONFERENCE DATES:

Mailer 1 Receipt Confirmation Deadline…….	November 15, 2016
Mailer 2 sent…….	January 15, 2017
Mailer 3 sent……	March 17, 2017
Early Registration……	October 15, 2016 - February 3, 2017
General Registration……	February 4, 2017 - March 17, 2017
Late/Day of Registration…….	March 18, 2017 - April 1, 2017

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