



Great Lakes Conference 2014

American Society of Civil Engineers
University of Illinois at Urbana-Champaign

Dear Great Lakes Student Chapter:

This is Mailer II of the Great Lakes Conference 2014. Please read the following information carefully as it contains pertinent information and rules about the competitions. This information may not be repeated in subsequent mailers, so do not delete this mailer.

Enclosed in this mailer:

- Individual Registration
- Topic for Environmental Competition
- Topic for Materials Competition
- Surveying Competition Rules
- Quiz Bowl Rules
- Introduction to Mystery Design
- Technical Paper Competition Rules

Regarding the concrete canoe competition, the electronic paper submissions (6 CD's) must be postmarked by March 14, 2014. Each CD must contain a PDF of the design paper and engineers notebook along with a Microsoft Word (or equivalent) file for each one. In addition, please include the Microsoft Excel version of the concrete mixture design. Please refer to the 2014 NCCC rules if you have any questions.

If you have any questions about the conference, please direct them to asceglc2014@gmail.com. Frequently asked questions will also be posted to <http://publish.illinois.edu/asceglc2014> along with other information such as mailers and schedules.

We look forward to seeing you in the spring,

Mark Keller
ASCE Student Chapter President
GLC 2014 Chair



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Individual Registration

Individual registration will be sent out as an online form on January 1, 2014 and will close on February 1, 2014. The fee is \$60 per attendee, which covers conference t-shirt, Friday lunch, Saturday lunch, banquet meal, and conference program. Please send one check made out to American Society of Civil Engineers per school to ASCE Student Chapter, 205 N. Mathew St., Urbana, IL 61801. Also attach a complete roster with this payment.

Late Registration

Any registration postmarked after February 1, 2014 must pay a late registration fee of \$25 on top of the original fee. Any students, faculty, or friends that arrive at the conference without pre-registering must pay the late registration fee at check-in. To be eligible to attend the banquet, one must register when school picks up conference materials on Thursday, April 10th.



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Environmental Engineering Competition

The environmental engineering competition will be centered on oil spill cleanup. The competition will have teams bring a system they designed to remove oil from a given amount of water in the time provided. The designs will be judged by the amount of oil removed from the water, the cost efficiency of the design, as well as a short presentation about their design in front of the judges. Exact details and specifications will be sent out with the next mailer.



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Materials Competition

The materials competition will consist of two parts and will focus on the development of two concrete mixture designs for two unique target applications. The competition will involve submission of two 6" × 12" cylinder specimens and their corresponding mix design sheets.

The exact rules will be released in the third mailer. This is done intentionally to limit the amount of time for development and testing. The goal is to use engineering judgment to efficiently design a concrete mixture for a given target application.



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Surveying Competition Rules

Participants:

- Each school may enter only one crew.
- Each crew must have three members with a designated crew chief.
- Each team member must be a registered participant of the 2014 ASCE Great Lakes Student Conference.

Skills needed:

- Instrument operation
- Coordinate geometry and trigonometry computations
- Survey note keeping

Event Description:

1. Construction layout: Given two points on a road alignment, lay out a circular horizontal curve.
2. Leveling: Perform a differential leveling circuit.
3. Instrument setup: Set up a total station instrument over a point.

Rules:

1. Construction layout:
 - a. At the scheduled time, each crew will receive essential alignment information from the judges. The crew will then have an hour and a half to perform layout calculations and plan their work. At the end of the hour and a half, the crew will have an hour and a half to complete the layout task.
 - b. Staking materials will be provided.
 - c. Upon completion of the layout survey, the crew will submit complete field notes to the judges.
 - d. The judges will check the staked positions for accuracy.
 - e. Points will be awarded based on the accuracy at each staked location and the quality of the submitted field notes.
 - f. Elapsed layout time will be used as a tie breaker.

- g. Each crew must bring its own equipment, listed here.
 - i. 1 non-robotic total station
 - ii. 1 prism rod with prism
 - iii. 1 tripod
 - iv. 1 folding 6 foot ruler
 - v. 1 hammer
 - vi. 1 steel tape
 - vii. plumb bob
 - viii. NCEES approved calculators (<http://ncees.org/exams/calculator-policy/>)
 - ix. Reflective vests
 - x. 2 way radios
2. Leveling:
- a. Each crew must determine the elevation of multiple assigned points using a closed leveling circuit.
 - b. The time limit for the leveling circuit and all related computations will be 30 minutes.
 - c. Upon completion of the survey, the crew will submit complete field notes to the judges.
 - d. Points will be awarded based on the circuit closure and the quality of the submitted field notes.
 - e. Elapsed layout time will be used as a tie breaker.
 - f. Each crew must bring its own equipment, listed here.
 - i. 1 automatic optical level
 - ii. 1 level rod
 - iii. 1 tripod
 - iv. NCEES approved calculators (<http://ncees.org/exams/calculator-policy/>)
 - v. Reflective vests
 - vi. 2 way radios
3. Instrument setup:
- a. Within the 15 minute time limit, all 3 members of each crew must set up a total station over an assigned point.
 - b. This event will commence as a relay race. Each crew member must carry the equipment from a starting position to the assigned point, set up the instrument properly over the point, allow the judge to check the setup, return with the equipment to the starting position, and pass the equipment to the next crew member.
 - c. Timing will start when the first crew member leaves the starting position and will end when the last crew member returns to the starting position.
 - d. Timing will stop while the judge checks each instrument setup.
 - e. Points will be awarded based on elapsed time and setup accuracy.
 - f. Each crew must bring its own equipment, listed here.
 - i. 1 non-robotic total station
 - ii. 1 tripod
4. Programmable calculators, laptop computers, and data collectors are prohibited for competition use.
5. Judges have the right to prohibit the use of any equipment that may give a crew an unfair advantage.

6. Consultation with faculty, professional engineers, professional land surveyors, or spectators will be grounds for disqualification from the competition.
7. A blank field book will be provided to each crew. All calculations and data entry must be shown in the field book. Scratch paper will be provided as needed and must be returned to the judges.



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Quiz Bowl Competition Rules

Participants:

- Each school may enter only one team.
- Each team can have up to four members.
- Each team member must be a registered participant of the 2014 ASCE Great Lakes Student Conference.

Skills needed:

- Broad knowledge of various civil engineering topics
- Quick and decisive thinking
- Teamwork and collaboration

Event Description:

1. General Round: Each team will answer forty multiple choice questions worth 1 point each.
2. Final Round: Top five teams from general round will answer ten multiple choice questions worth 2 points each.
3. Placement Tie Breaker (if necessary): Teams in a tie will submit a numeric based question evaluated by accuracy.

Rules:

1. General Round:

- a. At the scheduled time, each team will be assigned a quiz station.
- b. One multiple choice answering device will be provided to each team.
- c. Questions will be revealed one at a time on a projector for all teams to view and answer at the same time.
- d. Answers will be revealed immediately after each question deadline is reached.
- e. The amount of time allowed per question will be announced once the question is revealed, answers submitted after the time allowed will not be accepted.
- f. Teams will submit one answer to each question using their device.
- g. A total of forty multiple choice questions will be asked.

- h. Judges will tally the total number of points received by each team, each question answered correctly is worth one point.
- i. The teams with the five highest number of points will move on to the final round. In the event of a tie between teams in fifth place, all teams tied for fifth place will move on to the final round.
- j. Each team is allowed to bring graphing calculators, however no cell phones or computers will be allowed.
- k. Teams will be provided with scratch paper and writing utensils for quick calculations if necessary.

2. Final Round:

- a. The top five teams determined from the general round will be assigned new stations if necessary. Points from the general round will carry on to this round.
- b. A total of ten difficult multiple choice questions will be asked one at a time.
- c. Time allowed per question will be announced prior to revealing each question, answered submitted after the time allowed will not be accepted.
- d. Each correct question will be worth a total of two points.
- e. Judges will tally the total number of points received by each team during the final round and add the total to the number of points received during the general round.
- f. Teams will be placed based on the total number of points received in both rounds combined.
- g. In the event of a tie between 1st, 2nd, and/or 3rd place a tiebreaker question will be asked.
- h. Teams are allowed to use the same materials allowed in the general round, with the same provided materials as well.

3. Placement Tiebreaker (If necessary):

- a. In the event that a tie exists between two teams for 1st, 2nd, and/or 3rd place following the Final round one precision based question will serve as the tie breaker.
- b. Teams will be given one sheet of paper to record one numerical answer.
- c. Prior to the question being revealed the amount of time will be announced that each team has to provide an answer.
- d. Teams are allowed to use the same materials as described in the previous rounds.
- e. The team with the more precise numerical answer to the correct value will win the tie.
- f. If teams have the same accuracy for their numerical answer, then another numerical question will be asked until the tie is broken.
- g. The first place team will receive an award, second and third place teams will be acknowledged during the award ceremony.



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Mystery Design Competition Rules

Participants:

- Each school may enter only one crew.
- Each crew may have as many members as they wish on their crew.
- Each team member must be a registered participant of the 2014 ASCE Great Lakes Student Conference.

Skills needed:

- An engineering mind

Event Description:

1. Design of a simple civil engineering project using basic household items.

Rules:

1. Rules will be held secret until Thursday, April 10th. The rules will be provided with a set of practice materials. These will be picked up when teams arrive for registration.
2. Only the materials provided can be used in construction of the project. No outside tools (scissors, rulers, tape, etc.) are allowed.



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Technical Paper Presentation Competition

TOPIC: “Natural Disasters – What are the Civil Engineer’s Responsibilities?”

The following can be used to stimulate, but should in no way limit, the discussion:

In the built environment, there has been and will continue to be ongoing development in areas that are prone to natural disasters. From floods and storms to earthquakes and forest fires, natural disasters are costly both in terms of human suffering and financial resources. Despite the risks associate with building in such areas, demand for public and private development in them continues to grow. As stewards of the built environment, what responsibility do civil engineers have in this continued growth? Consider the following ethical questions.

- What are the ethical responsibilities for planning future civil engineering projects in natural disaster prone areas?
- What are the potential ethical issues in determining design codes, recommendations and parameters to prevent damage in natural disasters?
- What are the ethical issues involved when attempting to predict natural disaster frequency or return periods?
- What are the ethical obligations of civil engineers when advising clients engaged in development in natural disaster prone areas?

RULES:

1. Papers are not to exceed 2,000 words in length, must be written by only one person, and should not have appeared in any publications other than in school or ASCE chapter publications. Reference citations of the papers should conform to the official ASCE *Authors' Guide to Journals and Practice Periodicals*. A complete bibliography should also be included, if appropriate.
2. Authors must be undergraduate students and both ASCE Student Organization members and ASCE national student members in good standing at the time of submission to be considered.

3. One electronic copy of the paper should be submitted to **Raphael Stern** at **stern5@illinois.edu**. Papers must be **received** by **Friday, March 7, 2014**.
4. Each author will be expected to make a 5-minute* oral presentation on the paper. Up to five minutes of questioning by the judges will be allotted following each presentation. (*Allowance of + or – 5 seconds without penalty.)
5. The paper portion of the competition constitutes 50% of the final score, while the oral presentation accounts for the remaining 50% of the score.

SELECTION:

Winners will be selected by a panel of at least three (3) judges to be identified by the host school. Prizes for winners are as follows: **First place \$100, Second place \$60, Third place \$40.**

Note: Submission for the ASCE Student Conference Paper Competition does not constitute an entry for the National Daniel W. Mead Student Contest. While the paper topic is the same – and the same paper may be submitted for both contests – they are two separate events and require two separate submissions. For a complete set of rules for the 2010 National Daniel W. Mead Student Contest, please visit <http://www.asce.org/students>.