

2010 G. B. Gunlogson Student Environmental Design Competition Open Format

The purpose of the Open Gunlogson Student Environmental Design Competition is to encourage undergraduate students to participate in the design of a relevant engineering project and to provide an arena of professional competition for environmentally and biologically related design projects. This competition is complementary to the AGCO National Design Competition, which focuses on agricultural and food related projects, while Gunlogson focuses on environmentally and biologically related projects.

The competition consists of two parts: (1) Submission of a design report to be judged by an expert panel, and (2) Participation by the three teams earning the highest report scores in a presentation competition at the ASABE Annual International Meeting. Awards will be based on the overall score, which is a composite of project, written, and oral scores.

Awards will be presented at the ASABE Annual International Meeting awards program. Cash awards of \$500, \$300, and \$100 will be presented to the first, second and third place entries.

Eligibility

1. Contestants shall be Student Members of ASABE and undergraduates at the time their design projects are conducted (i.e., student members prior to January 30, 2010).
 - Candidates will be declared ineligible for the competition if more than two semesters have elapsed between the awarding of their undergraduate degree and the submission deadline. For example, students that graduated with B.S. degrees in Spring 2009 are ineligible for the 2010 competition.
 - Membership in a local Student Branch will not substitute for Student Membership in ASABE.
 - Projects may be conceived and executed by multiple contestants. All members of the design groups must be eligible as outlined above.
 - A maximum of 3 teams are allowed from each department. Faculty design advisors are recommended to select the top three teams from their design courses to participate in the Open competition. If more than three entries are submitted from any department, design course advisors and/or department chairs will be consulted to select the accepted entries; if input is not received from advisors or department chairs by 3 days after the submittal deadline, the first three entries received will be accepted.
2. Papers submitted for the K. K. Barnes Student Paper Awards Competition or in the AGCO National Design Competition may not be entered in this Student Design Competition.

Competition Entry Requirements

All projects must involve the application of engineering design for an environmental or biological application. It is expected that designs will reflect a wide spectrum of approaches ranging from management practices development, to equipment design, to bioreactor or ecological system design. Regardless of the specific approach, engineering design is the process of devising a machine, component, system, or process to meet a desired need. It involves analysis, synthesis and decision-making processes (often iterative), in which the basic sciences, mathematics and engineering sciences, and technology are applied to convert resources optimally to meet a stated objective. Sociological, economic, aesthetic, legal, ethical, etc. considerations can – and often must – be included as part of the design process.

Report Requirements

Design projects are to be fully documented in a written report submitted as a single portable document format (pdf) file. **The report is limited to 15 pages, excluding appendices; appendices are limited to an additional 5 pages (if absolutely necessary).** The report must include drawings and/or specifications that describe the design, as well as extensive or substantial test or performance data obtained from (1) a prototype or physical model of the machine or critical component, and/or (2) a computer simulated test of the system or process.

Deadlines

- Please send an e-mail to the Competition Coordinator at *reinhold@egr.msu.edu* stating your team's intention to compete as early as possible. Notification of intention to compete is **April 2, 2010**. Entries that are submitted without intent to compete will be subject to a 5 (of 100) point penalty. Once students notify the Competition Coordinator of their intent to compete, they will be invited to the competition website which will be used for entry submittal, posting of FAQs, etc.
- Entries are to be submitted by through the competition ANGEL site by **Friday, April 30th at 10:00 PM EST.** The pdf file should be no more than 5 megabytes in size. If large graphics have been inserted into the pdf file, you will need to re-convert to a new pdf file to reduce the file size to 5 megabytes.
 - File should be saved as "University Abbreviation" "One to three word title". For example, "LSU Horse gait" or "UTK Nitrogen removal"
- Teams should submit an image file of their school's logo by April 30, 2010.
- An e-mail documenting receipt of the report will be returned to teams by May 6th, 2010 at 5 pm. If you do not receive a receipt, contact the Competition Coordinator.

Selection of Winners Phase I: Each written submission will be judged by at least three judges in accordance with the Student Design Competition score sheet. Judges

shall then forward scores to the Awards Coordinator for selection of top three teams, based on the scores submitted by the judges. If number of submissions exceeds that which is reasonable for one person to judge, a tiered approach to selection will be adopted (e.g., submissions will be divided into two groups and top 5 submissions from each group will be judged by a third set of judges).

Phase II: The top three teams will be invited to attend the ASABE International Meeting to participate in the oral presentation portion of the competition. Should any of the top three be unable to participate, the next ranking entries shall be invited.

- *Although only the top three entries from Phase I will make oral presentations at the ASABE Annual International Meeting, the remaining entries will be provided with poster space at the meeting, and a poster viewing time will be scheduled for these entrants.*

Judges will evaluate the oral presentations of participants and may choose to reevaluate the previously awarded "project" scores. Scores are distributed as shown on attached scoring sheet. Decision of the judges is final.

Awards

- Awards will be presented at the ASABE Annual International Meeting awards program.
- Awards of \$500, \$300, and \$100 will be presented to the first, second and third place entries. The method of distributing the prize money to design team members shall be determined by the respective members of each team. All participants of the first, second, and third place entries shall receive certificates of recognition.
- The Academic Department of the first, second and third place entries will receive a wall plaque. The wall plaque will include the names of the design team and their faculty advisor(s).

Disposition of Entries

ASABE reserves the right to keep one copy of each of the award entry reports and to publish entries in whole or in part in Society publications. ASABE also reserves the right to utilize photographs or videos of the competition and any competitors to promote and publicize the competition.

STUDENT DESIGN COMPETITION SCORE SHEET

| | | |
|--|-------------|-----|
| I. Project | | |
| A. Need and Benefit to the Environment and Society | | 5 |
| B. Approach and Originality | | 6 |
| C. Definition of Design Objectives and Criteria | | 5 |
| D. Extent of Analysis and Synthesis of Alternatives | | 10 |
| E. Evidence of Sound Evaluation and Adherence to Good Engineering Design, and Safety Consideration | | 10 |
| F. Adequacy of Drawings and Specifications | | 7 |
| G. Appropriateness of Tests and/or Performance Data | | 7 |
| H. Achievement of Objectives | | 10 |
| | TOTAL | 60 |
| II. Written Report | | |
| A. Organization, Clarity, and Ease of Reading | | 10 |
| B. Effective Use of Graphics, Illustrations, etc. | | 5 |
| C. Neatness, Accuracy and Style | | 5 |
| | TOTAL | 20 |
| III. Oral Presentation | | |
| A. General Effectiveness and Audience Appeal | | 8 |
| B. Organization and Information Flow | | 5 |
| C. Quality and Adequacy of Visuals | | 5 |
| D. Compliance with 10 Minute Limit | | 2 |
| | TOTAL | 20 |
| | GRAND TOTAL | 100 |
| IV. Written Comments (Optional with Judges) | | |

STUDENT DESIGN COMPETITION FORMAT FOR ENTRIES

The first three pages are required (These pages are not included in 15 pg limit). Students are **highly recommended** to use the attached cover sheet for the first two pages.

1. **Title Page.** The cover page of the entry shall state:
 - the project title,
 - full name(s) of the contestant(s),
 - ASABE student member number(s),
 - e-mail address of the corresponding author,
 - name of the department and school,
 - name(s) of the advisor(s) for the project,
 - expected date(s) of graduation,
 - signatures of contestant(s), advisor(s), and the student branch faculty advisor (department head if no student branch exists), and the date of signing.

2. **Second Page.** The second page shall contain:
 - The project title,
 - a 200 - 300 word abstract of the project report, and
 - acknowledgements, which must include specific contributions of all other individuals, organizations and/or companies that have made any supportive contributions to the project such as drafting, typing, prototype construction, photo or art work, financial support, etc.

3. **Third Page.** The third page shall contain the table of contents.

Organization & Length. Each report should be organized under appropriate headings. The presentation should follow a logical pattern and conform to good technical writing standards. Strive for brevity and clarity. **Report is limited to 15 pages, excluding three required pages (above) and appendices; appendices are to be included only if absolutely necessary and are limited to 5 pages.** Drawings and/or specifications and test data should be presented as appropriate.

Appropriate Format

The Competition Coordinator will check each design report as it is received for the appropriate format as specified in **FORMAT FOR ENTRIES** given above. At the discretion of the Competition Coordinator, entries which do not meet the specified format will be returned to the authors without further judging. Students are highly recommended to use the attached cover sheet for the first two pages.

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Project Title: _____

Corresponding Author Email _____

Contestants:

Name

Signature _____ Date

ASABE member #

Graduation date

Name

Signature _____ Date

ASABE member #

Graduation date

Name

Signature _____ Date

ASABE member #

Graduation date

Name

Signature _____ Date

ASABE member #

Graduation date

Department:

School:

Faculty advisor:

Name

Signature _____ Date

Student branch advisor/department head:

Name

Signature _____ Date

Project Title: _____

Abstract:

Acknowledgements: