



# 2008 14<sup>th</sup> Annual SECME Regional Olympiad

Created 11/12/2007

**Saturday, March 29<sup>th</sup>, 2008**  
**University of Florida**  
**College of Engineering**  
**Gainesville, Florida**

## INTRODUCTION

The University of Florida College of Engineering and the Florida Alpha Chapter of Tau Beta Pi, The National Engineering Honor Society, are pleased to invite you to participate in the 2008 Fourteenth Annual SECME Regional Olympiad to be held at the University of Florida in Gainesville, on March 29<sup>th</sup>, 2008. We are very excited about this year's competition. We will be holding the same events that your teams will see at the national competition, as well as other competitions your students will enjoy.

Our regional competition is intended to serve as a learning experience for each of your teams before they attend the national competition. Each event will be judged by engineering students and professors at the University of Florida. The judges will be available after each event to offer advice to the contestants to help improve their designs before the national competition arrives.

### IMPORTANT CHANGE NOTICES

Included in this package are the comprehensive rules and guidelines for the 2008 SECME Regional Competition and the SECME National Competition. Please read the enclosed guidelines carefully, as certain rules have been changed. In particular, please note the following changes:

- 1) **BANNERS:** The national competition will be holding a banner competition, so we have updated the guidelines for our banner competition to coincide with national rules. If your team wins at the Regional Olympiad, your banner will already be within the guidelines for the national competition!
- 2) **EGG DROP:** Last year we had very few Egg Drops that successfully protected the egg. Therefore we have relaxed the rules slightly to allow for more creative entries, as well as more successful drops! Please make sure entries are within this year's guidelines, as we plan to disqualify all entries created outside the provided requirements.
- 3) **LIAISONS:** This year we will be pairing each school with a Liaison to better facilitate communication between UF and the SECME programs. The Liaisons will be UF Engineering students responsible for
  - a. scheduling visits from our volunteers to your schools,
  - b. reminding you of deadlines, and
  - c. ensuring all entries are submitted in a timely manner.

You will be assigned a Liaison at the Teacher Workshop or via email if you cannot attend.

If you have any recommendations to better improve the Regional Olympiad, please contact me at your convenience. We look forward to your school's participation in the 2008 Thirteenth Annual SECME Regional Olympiad!

Austin Cooley  
SECME Coordinator 2008  
[secme2008@gmail.com](mailto:secme2008@gmail.com)

## IMPORTANT DATES AND DEADLINES

Fri. January 18, 2008	<u>Last date</u> for <b>School Registration</b> forms to be postmarked and returned (page 4).
Fri. February 8, 2008	All essay entries must be received at the University of Florida to ensure that they can be judged, returned, and corrected before they must be turned in to the National Olympiad.
Fri. February 8, 2008	<u>Last date</u> for <b>Student Registration</b> forms to be postmarked and returned. <i>No teams will be accepted after this date.</i>
Fri. February 22, 2008	<u>Last date</u> to register team correction/substitutions. Any student not registered by this date <i>will not be allowed to participate</i> . New students may submit essays at this time.
Sat. March 29, 2008	2008 Fourteenth Annual SECME Regional Olympiad

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## CONTACT

**Jonathan F.K. Earle**  
Associate Dean of Student Affairs  
312 Weil Hall  
P.O. Box 116550  
Gainesville, FL 32611-6550  
Tel: (352) 392-2177  
Fax: (352) 392-9673  
Email: [jearl@eng.ufl.edu](mailto:jearl@eng.ufl.edu)



**SECME**<sup>INC.</sup>

**2008 FOURTEENTH ANNUAL SECME REGIONAL OLYMPIAD  
SCHOOL REGISTRATION FORM**

**SCHOOL INFORMATION**

School: \_\_\_\_\_

Please Check One:  Elementary     Middle     High    County: \_\_\_\_\_

Coordinator / Contact Person: \_\_\_\_\_

Day Phone: (\_\_\_\_) \_\_\_\_\_    Fax: (\_\_\_\_) \_\_\_\_\_

Evening Phone: (\_\_\_\_) \_\_\_\_\_    Email: \_\_\_\_\_

Number of Teams Competing: \_\_\_\_\_    Number of Students Attending: \_\_\_\_\_

Number of Female Students: \_\_\_\_\_    Number of Male Students: \_\_\_\_\_

Number of Advisors/Chaperones: \_\_\_\_\_ (T-shirts will be provided for only two advisors.)

**REGISTRATION FEES:** A \$50 school registration fee is required. This flat rate will include the registration fees for the school and all of its participating students and advisors.

School Registration Fee (\$50.00)    Amount Enclosed: \$ \_\_\_\_\_

Make checks payable to: University of Florida College of Engineering - SECME  
**Please do not send cash.**

**REGISTRATION MATERIALS SHOULD BE FORWARDED TO:**

**Jonathan F.K. Earle**  
Associate Dean of Student Affairs  
312 Weil Hall  
P.O. Box 116550  
Gainesville, FL 32611-6550

\_\_\_\_\_  
Signature of Coordinator/Contact Person

\_\_\_\_\_  
Date

Please make copies of this form as necessary and submit by January 18, 2008.

# Student Registration Forms

Student Registration Forms will be attached to the end of this document. Student Registration Forms, along with final team rosters, must be postmarked or faxed by **February 8, 2008**. No additional teams will be accepted beyond this date. In the event that a registered student cannot attend, a substitution can be made. However, a school is **not permitted** to increase the total number of students attending after **February 8, 2008**.

The College of Engineering expects that all coordinators will have in their possession emergency contact information for each attending student.

If any participating students have special needs, please notify the SECME Coordinator when submitting the Student Registration Forms.

# GENERAL INSTRUCTIONS

To be eligible to compete at the 2008 Fourteenth Annual SECME Regional Olympiad, each school must be registered and in good standing with SECME headquarters in Atlanta. To be eligible to win the overall competition, a team must enter all of the following contests:

1. Banner Competition
2. Poster Competition
3. Essay Competition
4. Mousetrap Car Competition
5. Mathematics Examination

Since the goal of SECME is to encourage the development of mathematical and technical skills, *we require all students to participate in the Mathematics Examination.*

Each event will be divided into three categories: elementary school, middle school, and high school. Winners will be determined for each competition based on the rules and guide lines established in this booklet.

- Elementary School students will only compete against other Elementary School Students.**
- Middle School students will only compete against other Middle School Students.**
- High School students will only compete against other High School Students.**

For the 2008 Thirteenth Annual SECME Regional Olympiad, each school must comply with the following provisions: (Note: A team is not a school.)

- ❖ Each team must consist of three (3) members.
- ❖ Each Registered team must participate in all mandatory events.
- ❖ Each student may be in only one team.
- ❖ A maximum of 1 team of two (2) members will be allowed only if there are not enough people to form complete teams
- ❖ In fairness to the smaller schools, only the top three (3) scoring teams from each school will be used in the calculation of the overall winner.
- ❖ **No Substitutions between teams are permitted on the day of SECME.**

## DESIGN PROJECTS ( Mousetrap Car, Egg Drop and Water Rocketry Competitions)

Each design project must be packaged separately and turned in at the time of check-in the morning of the competition. The packaging must protect each design from any damage that could occur during normal handling and transportation.

Each package must be clearly labeled with the following information:

- ❖ Team Name
- ❖ Names of Students on Team
- ❖ Coordinator Name
- ❖ School Name and Address

## DESCRIPTION OF EVENTS

The rules relating to the Essay, Poster, Banner, and Mousetrap Car competitions can be found in the National Rule Packet (pages 7 – 23). You can access this document from either [www.secme.org](http://www.secme.org) (click on the Competition Guidelines button) or <http://grove.ufl.edu/~secme> (click on National Rule Packet). Below is the essential information related to the Regional Competition.

Only winning Middle and High school teams will physically travel to nationals, but winning Poster and Essay entries for Elementary will be sent to Nationals, where the first place winner receives a \$100 cash prize.

### **BANNER COMPETITION – Elementary / Middle / High Schools; MANDATORY @ Nationals**

Each school is allowed one (1) banner entry. The **guidelines in the National Rules should be followed (pgs. 22-23)**. Each school banner will be displayed during the opening and closing ceremonies. Because of difficulty in hanging, we request that you do not put a pole on your banner.

### **ESSAY COMPETITION – Elementary / Middle / High Schools; MANDATORY @ Nationals**

Each school is allowed to submit one (1) essay per **student**. The essay is to be based upon the theme and guidelines **as shown in the National Rules (pgs. 18-19)**. The essays must be received by **February 8<sup>th</sup>, 2008**. Submit one (1) copy of each student's entry to:

#### **Jonathan F.K. Earle**

Associate Dean of Student Affairs  
312 Weil Hall  
P.O. Box 116550  
Gainesville, FL 32611-6550

### **POSTER COMPETITION – Elementary / Middle / High Schools**

Each school may submit one (1) poster per **student**. **Students, with minor guidance from the teachers**, must construct a design/poster that encompasses the theme. **Please see the National Rules for guidelines (pgs 20-21)**. Note: At our competition, posters do not need to be in a poster frame. They **do**, however, need to be regulation size at the time of the competition, and matted with construction paper or other suitable “framing” material. This is because winning entries will be immediately framed and sent to Nationals after the Regional Olympiad.

### **MOUSETRAP CAR COMPETITION – Middle / High Schools**

Each team is allowed to enter one (1) Mousetrap Powered Car per team. This must be the team that the students have been with for the rest of the competition day. Switching teams or making substitutions will result in disqualification for the entire competition. Each entry must include the following to be eligible to place:

- ❖ Mousetrap Car – Fully constructed and must make at least one (1) run.
- ❖ One (1) set of technical drawings for the Mousetrap Car.
- ❖ Technical Report for the Mousetrap Car.

**Please refer to the National Rules (pgs 7-17) for guidelines** on constructing the Mousetrap Car and required documents.

**MATHEMATICS COMPETITION – Elementary / Middle / High Schools; Mandatory**

Each student attendee *MUST* participate in the mathematics examination. Students will compete in the math course in which they are currently enrolled. In the event they are not currently taking a math class, students must take the test for the math level they completed most recently. It is the school coordinator’s responsibility to insure the students are registered for the proper examination. Mathematics examinations shall be written in accordance to the Florida Sunshine Standards. All tests shall be scored by University of Florida SECME officials according to the number of questions answered correctly. In the event of a tie, the student who has the most correct questions in a row, beginning with question one (1) will have the “higher” score.

**SPELLING COMPETITION – Elementary Schools**

The spelling competition will be an orally administered and written response test. Each team of three (3) will be given an answer sheet and must agree upon one (1) answer for each spelling word. This must be the team that the students have been with for the rest of the competition day. Switching teams or making substitutions will result in disqualification for the entire competition. All tests shall be scored by University of Florida SECME officials according to the number of questions answered correctly. In the event of a tie, the team that has the most correct questions in a row, beginning with the first word will have the “higher” score.

Note: Answers should be written in all CAPITAL letters.

**CEREBRAL CHALLENGE – Elementary / Middle / High Schools**

Each team of three (3) will compete in this event. Questions will contain subject matter from the following areas: science, technology, engineering, and nature.

**Cerebral Challenge Rules**

Requirements: Each team must consist of three people. This must be the team that the students have been with for the rest of the competition day. Switching teams or making substitutions will result in disqualification for the entire competition.

Procedure:

- 1) All teams will answer every question on the screen by using the remote response system
- 2) There is no penalty for a wrong answer
- 3) Coaching from anyone outside the team will disqualify the question and its points.
- 4) Challenges to a question should be brought to the attention of the staff at the end of the competition
- 5) The moderator will judge the accuracy of the response to each question. The moderator is the final judge of all challenges and scoring.

## **WATER ROCKETRY COMPETITION – Middle / High Schools**

Each team is allowed to enter one (1) Water Rocket Vehicle per team. This must be the team that the students have been with for the rest of the competition day. Switching teams or making substitutions will result in disqualification for the entire competition. Students will design and manufacture a water rocket using a 2-Liter bottle as the pressure vessel.

### **Rules**

1. A maximum number of 3 student members are allowed per team.
2. Each team is required to submit a completed entry form and water rocket prior to launch.
3. On the day of competition, but prior to launch, each actual operating rocket entry must pass a visual inspection and height requirement in order to be eligible to compete. Entries that fail inspection will be given ONE opportunity to make modifications to pass inspection, prior to the beginning of the rocket launching competition.
4. The pressure vessel must be one clear 2 liter bottle. (NO green bottles allowed for the pressure vessel.)
5. Water and air pressure are the sole sources of propellant.
6. **Do not use metal, glass, or spikes to construct the rocket. Use of these materials will automatically disqualify the team from the competition.**
7. **The tip of the rocket should be rounded or flat, like the bottle cap, approximately 1” across.**
8. The **objective** of the contest is for each team to launch a rocket propelled by water and air to reach as high as possible. The launch angle, which can be adjusted from approximately **45 – 60 degrees**, will be kept the same for all rockets launching during the competition. Each rocket will be launched using 12 ounces of water and at 60 psi of air pressure. **The “hang time” of the rocket is defined as the time from when the rocket leaves the launch pad until the time it reaches the ground.** This time will be measured by three independent judges, and the average time recorded will be used for the “hang time”.
9. The score for this competition will be normalized to the team with the longest hang time.

### **EGG DROP COMPETITION – Elementary School Only**

Each school must submit one (1) Egg Drop Project per team. This must be the team that the students have been with for the rest of the competition day. Switching teams or making substitutions during the competition will result in disqualification for the entire competition. The contestants shall design and build a container that will prevent an uncooked chicken egg (Grade A Large) from breaking when dropped from an initial height of 15 meters. The container must have no dimension longer than 25 cm. The maximum weight, including the egg, cannot exceed 100 grams. Contestants must be able to remove the egg without damage. A maximum of 30 seconds will be allowed to place the egg in the container and remove it. Each entry must be clearly labeled with the following:

- Names of students on team
- Team name
- Grade level of each student
- Coordinator's name
- School name and address

Any material may be used in the design, as long as the structure meets the design and contest rules outlined.

Design and contest rules state that no kits or pre-made designs may be used. The structure must be the individual's invention. There cannot be anything hanging off of the structure. **NO PARACHUTES!** The structure must land in a designated target area. No propulsion systems will be allowed. No gases (i.e. helium) other than air can be present in the structure when it is weighed.

Judges will inspect all containers before they are dropped. Grade A Large eggs will be supplied at the contest; contestants will not be permitted to bring their own egg. Once an egg is weighed-in (with the structure), that egg cannot be exchanged with another egg. The egg must be placed in the container on-site. A maximum of 30 seconds will be allowed to place the egg in the container and remove it. Exceeding these time limits will result in disqualification from the contest. If the egg is damaged during placement in the container, the team will be disqualified. The egg must be undamaged in order for the height value of the drop to be recorded. The egg will be dropped from an initial height of 15 meters; only two drops will be made. The highest drop distance will determine the winner and in the case of a tie, the contestant with the lowest value will be the winner. The value will be based on the following equation:

$$T = \frac{W * L * S}{100 * 25}$$

Where S is the success factor with values:  
S=100 if egg does not break  
S=0 if egg breaks

W= weight of structure with egg (grams)

L= longest dimension (cm)

T=total points value

**Upon receipt of the egg, competitors will be given 30 seconds to secure the egg in place. After the 30 seconds has expired, competitors will not be able to make any adjustments. (This includes taping the structure closed, etc.)**

**Teams cannot receive help from proctors, chaperones, or advisors. Doing so will disqualify the team.**

**Maximum Length (of longest dimension): 25 cm**

**Maximum Mass: 100 grams**

**Containers exceeding the maximum parameters will not be dropped!**

**DESIGN COMPETITION – Elementary / Middle / High Schools**

The design competition is structured so that no beforehand preparation is required of the students. The specifics of the competition will not be announced until the start of the competition. As a result, all teams should be equally able to perform well in the event.

**OVERALL COMPETITION**

Points will be awarded for all events, both individual and team events. The point values for each place are as follows:

<b>Place</b>	<b>Points</b>
1	100
2	80
3	60
4	40
5	20
6	10
7	5
8	0

The team standings will be determined in one of three categories: elementary school, middle school and high school. Trophies will be given to the top teams in each category. In the event of a tie, the team winning the mousetrap car competition will win the overall competition.



**SECME**

**2008 FOURTEENTH ANNUAL SECME REGIONAL OLYMPIAD  
STUDENT REGISTRATION FORM**

School: \_\_\_\_\_

Please Check One:  Elementary  Middle  High County: \_\_\_\_\_

Coordinator / Contact Person: \_\_\_\_\_

Email and Phone#: \_\_\_\_\_

Coordinator T-Shirt Size(s) YS YM YL S M L XL XXL XXXL

**TEAM INFORMATION**

Team Name: \_\_\_\_\_

Team Number: (Start numbering at 1): \_\_\_\_\_

1. Student Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Student Address: \_\_\_\_\_

Parent/Guardian Name: \_\_\_\_\_

Grade: \_\_\_\_\_ T-Shirt Size: YS YM YL S M L XL XXL XXXL

2. Student Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Student Address: \_\_\_\_\_

Parent/Guardian Name: \_\_\_\_\_

Grade: \_\_\_\_\_ T-Shirt Size: YS YM YL S M L XL XXL XXXL

3. Student Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Student Address: \_\_\_\_\_

Parent/Guardian Name: \_\_\_\_\_

Grade: \_\_\_\_\_ T-Shirt Size: YS YM YL S M L XL XXL XXXL