

# HoustonWorks USA & Schlumberger

## 2012 E<sup>2</sup> Engineering Excellence Competition Application



For Additional Information Call: 713.654.1919 X 1212  
Email: [STEM@HoustonWorks.org](mailto:STEM@HoustonWorks.org)



# Schlumberger

November 1, 2011

Dear Parent/Guardian,

Your child is invited to participate in the **Fourth Annual E<sup>2</sup> Engineering Excellence Competition** sponsored by HoustonWorks USA and Schlumberger. Students from elementary, middle, and high schools will have an opportunity to compete during this city-wide event. The competition is open to public, private, charter, and home school students who have an interest in science, technology, engineering, and mathematics (STEM).

The E<sup>2</sup> Engineering Competition provides students with a STEM foundation to successfully compete with their peers, and it encourages them to create and explore a vision of future technology by combining their imaginations with the tools of science. It also provides students an opportunity that requires them to use skills such as problem-solving, research and presentation skills, practical math, science applications, and computer skills.

The E<sup>2</sup> Engineering Competition is an excellent opportunity for your child to demonstrate their creative talents; while at the same time discovering the world of engineering and technology. Through our strong partnership with Schlumberger, your child will connect with professional engineers, and have access to key resources that can help guide them on the pathway of a STEM education.

I am excited about this year's competition, and hopefully, your child will accept our invitation to compete in this year's event. Enclosed, please find detailed information regarding the invitation criteria and guidelines for the competition.

If you have any question(s), please feel free to call Francheska Williams at: 713.654.1919 Ext. 1212. Or you can email her at: [STEM@Houstonworks.org](mailto:STEM@Houstonworks.org).

Thank you for your time,

Sincerely

A handwritten signature in black ink, appearing to read "L.V. Green". The signature is fluid and cursive, with a long horizontal stroke at the end.

Larry V. Green, CEO  
HoustonWorks USA

# 2012 E<sup>2</sup> ENGINEERING EXCELLENCE COMPETITION

## Program Overview

HoustonWorks USA's STEM Institute invites elementary, middle and high school students, who have an interest in engineering to participate in 2012 E<sup>2</sup> Engineering Excellence Competition sponsored by HoustonWorks USA and Schlumberger.

Students will compete during this city-wide event which is aimed at students who have an interest in science, technology, engineering or mathematics.

Each grade level will have different topics focusing on engineering—see the attached packet for more information. Permission slips and additional information for each activity not at the student's school will be provided to you by the school's representative. In order for your child to participate in this exclusive program (which is no cost to you or the school), the following criteria must be met:

- Student must be approved by school representative based on exemplary grades, positive attitude and regular attendance
- Students applications and essays are due **December 2, 2011**
- Students will be notified if they meet the qualifications of the program no later than **December 16, 2011**
- Selected student's projects will be judged during a preliminary competition on **February 4, 2012**
- The top ten projects from each category will be judged on **Saturday, February 18, 2012** on the campus of Rice University

Awards will be given to the winners in each category.

### E<sup>2</sup> Essay Competition:

Phase I of the E<sup>2</sup> Competition consists of an essay competition.

Elementary, middle and high school students from public, charter and private schools throughout Houston and the surrounding area, will be invited to submit an essay exemplifying the impact of engineering in the world around them.

**Elementary Grade Students** (3<sup>rd</sup> – 5<sup>th</sup> Grades) will work with a teacher, mentor or parent to develop a project that exhibits the correlation between **ENGINEERING and ENERGY**. Students will submit an essay (500 words or less) on the topic.

**Middle School Students** (6<sup>th</sup> – 8<sup>th</sup> Grades) will develop a project that illustrates the relationship between **ENGINEERING and AGRICULTURE or ENVIRONMENT**. Students will submit an essay (500 words or less) on the topic.

**High School Students** (9<sup>th</sup> – 12<sup>th</sup> Grades) will highlight the relationship between **ENGINEERING and Video GAMING**. Students will submit an essay (500 words or less) for review.

*Only individual entries are permitted; no group projects will be accepted.*

Submitted essays will be reviewed by a panel of STEM Industry and Education professionals.

### **Essays will be graded on the following criteria:**

- Focus on the assigned topic
- Well documented and organized ideas
- Careful observations and reflections
- Grammar and spelling

Those essays scoring within the highest percentile will be chosen to proceed on to the next level of competition. The goal is to select 40 students from each of the education levels (elementary, middle and high school) to result in approximately 120 students proceeding on to the preliminary competitions. All students submitting an essay will receive a Certificate of Participation.

### **Preliminary Competition:**

The students selected from the essay competition will be invited to proceed on to the Preliminary competition to be held on **Saturday, February 4, 2012**. Students will be required to produce a poster and three dimensional model to illustrate the relationship of engineering and the assigned topic as highlighted in their essay. Participants will present their displays to a panel of three judges who will grade them on innovation & creativity, oral presentation, and the visual presentation as expressed in their table display and poster. The grades will be averaged to determine a single, final grade. Judges will consist of industry and educational professionals in STEM fields.

All participating students will receive a 2012 **E<sup>2</sup>** – Engineering Excellence t-shirt and participation medal. The top 10 students from each education level (elementary, middle and high school) will be selected to continue on to the Finals Competition.

### **Finals Competition**

The top 10 students from each education level (elementary, middle and high school) will be selected to continue to the Finals Competition on **Saturday, February 18, 2012**. Students will present their displays to a panel of three judges for review. The panel will also assess the student essays as part of the grading. Evaluation criteria will be the same as that used in the Preliminary competition.

All participating students in the final competition will receive a medal and a \$15 Movie Pass. 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners will be chosen for each education level to receive special prizes.

### **Program Rewards**

All students participating in the Preliminary competition will receive a 2012 **E<sup>2</sup>** – Engineering Excellence t-shirt and medal. Students participating in the Finals competition will receive a medal to commemorate their accomplishment and a \$15 Movie Pass. Trophies and Prizes will be awarded to the first, second, and third place winners from the elementary, middle and high school levels.

- First place winners will receive an iPad2 and \$100
- Second place winners will receive \$300
- Third place winners will receive \$200

All of the E<sup>2</sup> Competition contestants (middle and high school) will be invited to participate in the HoustonWorks USA STEM Excelleration Experience summer camp. The STEM camp is scheduled for July 9 – 27, 2012 on the campuses of the University of Houston and Texas Southern University.

High school seniors that participate in the E<sup>2</sup> Competition will be eligible to compete for a HoustonWorks scholarship. Scholarships will be awarded based on the scholarship criteria outlined for the HoustonWorks general scholarship. This information and the application packet can be found on the HoustonWorks website at [www.houstonworks.org](http://www.houstonworks.org)

## Program Schedule

### E<sup>2</sup> COMPETITION TIMELINE

<b>November 1, 2011</b>	<b>Applications posted on HoustonWorks USA web site</b>
<b>December 2, 2011</b>	<b>Essays due to HoustonWorks USA offices</b>
<b>December 2 – 16, 2011</b>	<b>Panel grades essays and chooses top 40 in each education level</b>
<b>December 16, 2011</b>	<b>Students selected to proceed to the Preliminary Competition are notified. Certificates of Participation will be sent to students that were not selected.</b>
<b>February 4, 2012</b>	<b>Preliminary Competition – top 40 essay winners per education level will compete</b>
<b>February 18, 2012</b>	<b>Finals Competition – top 10 preliminary competition winners per education level will compete (a total of 30 projects). Nine (9) winners will be selected.</b>
<b>February 24, 2012</b>	<b>Houston Engineers Week Banquet – the first place winners will display their projects and attend the banquet. Informal recognition will be given to winners and E<sup>2</sup> competition.</b>

## Program Requirements

### **Students become competent and confident in:**

- Abstract Thinking
- Self-Directed Learning
- Project Management
- Decision Making
- Problem Solving
- Leadership

### **Oral Presentation Judging Criteria:**

- Clarity of oral presentation
- Knowledge of subject matter
- Enthusiasm for subject exhibited
- Ability to answer grade level questions

### **Visual Presentation Judging Criteria: Poster**

- Visual appearance – neat, easy to read, correct grammar and spelling
- Poster is interesting and presented creatively
- Information is clear and well labeled
- Conclusions are presented & supported by data
- “Memorable” take-home message

### **Visual Presentation Judging Criteria: Table Display**

- Use of technology, display models/boards OR multi-media
- Creativity in design and presentation of exhibit
- Use of recycled materials
  
- **The following will be added by the official scorekeeper to reach a total score:**
  - Essay – possible 20 points – graded prior to competition
  - Itemized budget for cost of materials – (-) minus 5 points if not provided or exceeds \$50 limit

### **Essay Specifications**

- A minimum of 500 words, double spaced with ½ inch margins (note that title page and Table of Contents page will not be counted as part of the 500 words)
- Essay should include a description of how the theme is related to current technological practices or scientific research
- Cover page must identify the school, student name, and teacher contact information
- Footer on each page should include student’s name and school name
- Students may include a supplemental appendix of no more than 5 pages in length. The appendix may include support documentation such as drawings, photos, organization charts, test results, etc. This material should directly support the process described in the primary document

### **Essay Submission Process**

There are two options for submittal of the essay:

1. **Email** - Students are encouraged to submit their essays as an attachment (word document) via email to [STEM@houstonworks.org](mailto:STEM@houstonworks.org)
2. **Hard copy** - Essays that are submitted as hard copy must be **received** no later than 3:00 on December 2, 2011. Copies can be mailed or hand delivered to HoustonWorks USA, Attn: STEM Institute, 2118 Smith Street, Houston, TX 77002.

Faxed copies of essays **WILL NOT BE** accepted. A confirmation will be sent to the parent’s email upon receipt of the student essay. If not receipt acknowledgement is received within 24 hours (weekend hours are excluded), parent should contact **Francheska Williams at 713.654.1919 ext. 1212** to confirm receipt.

### **Display and Interview Guidelines**

- Students are encouraged to avoid using expensive store-bought display boards and structures and opt for more creative and hand-made display props.
- Poster can be no larger than three (3) feet in length.
- Students **must provide an itemized budget** for the cost of materials – maximum \$50.00
- Student must remain with their project during the judging period. Participants will be expected to present their project in a concise manner and respond to informal questions from the judges.
- Students will be visited by three different judges during the grading period.
- No material changes can be made to the projects between the preliminary and final competitions (exceptions may be made to repair material damage made during the preliminary judging).

# 2012 E<sup>2</sup> ENGINEERING EXCELLENCE COMPETITION APPLICATION

**DEADLINE:** DECEMBER 2, 2011

Please **PRINT CAREFULLY**

## Fill in: Student/Family Information

Student Name		Gender: M__ F__
Parent Name		
Primary Address		
City, State., Zip Code		
Primary Phone		
Alternative Phone		
Parent's Email Address		
Student's Email Address		

## Fill in: School Information

Student Grade Level				
Student GPA				
School Name				
City				
District				
School Type	Private	Charter	Public	Homeschool

## Competition Subjects: (Please check which competition you are entering)

<input type="checkbox"/>	Elementary (3 <sup>rd</sup> – 5 <sup>th</sup> Grades)	Engineering and Energy
<input type="checkbox"/>	Middle School (6 <sup>th</sup> – 8 <sup>th</sup> Grades)	Engineering and Agriculture or Engineering and Environment
<input type="checkbox"/>	High School (9 <sup>th</sup> – 12 <sup>th</sup> Grades)	Engineering and Video Gaming

## Fill in: Reference Information

Teacher Type	Science	Technology	Engineering	Mathematics
Teacher Name				
Teacher Phone				
Teacher Email Address				

**PLEASE RETURN IN A SEALED ENVELOPE TO STUDENT PRIOR TO THE DEADLINE: DECEMBER 2, 2011**

This page to be filled out by Teacher

Student Name					
Teacher Name					
Teacher Email					
Subject Area	Science	Technology	Engineering	Mathematics	Other
Name of School					
School Address					
Place an X in column to indicate choice >	<b>Continually</b>	<b>Often</b>	<b>Sometimes</b>	<b>Rarely</b>	<b>Never</b>
<b><i>This student ...</i></b>					
...is eager to learn					
...cares about others					
...comes to class on time					
...turns in work on time					
...participates in class					
...works well with others					
...shows responsibility					
...displays appropriate behavior					
...has strong study habits					
...demonstrates an interest in STEM fields					

***This student*** is a good candidate because? \_\_\_\_\_  
\_\_\_\_\_

Additional Comments Regarding Applicant

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for your time with completing this form for your student. If you have any question(s), please feel free to contact Tony Williams at 713.654.1919 x 1149. This form can be faxed to: 713.655.0715. Or email to: [STEM@houstonworks.org](mailto:STEM@houstonworks.org). The mailing address is: **2118 Smith Street, Houston, Texas 77002**

**Program Application Forms & Essays Form Are Due December 2, 2011**