

Society of Hispanic Professional Engineers  
July 2011



---

# SHPE Foundation

## 2011 Design Competition Guidelines

**THEME: Living Green**

**SHPE Foundation, Inc.**  
1444 Duke Street  
Alexandria, VA 22314  
[www.shpefoundation.org](http://www.shpefoundation.org)  
[shpefoundation@shpe.org](mailto:shpefoundation@shpe.org)

**SHPE, Inc.**  
13181 Crossroads Parkway North,  
Suite 450  
City of Industry, CA 91746  
[www.shpe.org](http://www.shpe.org)

# TABLE OF CONTENTS

Purpose	2
Eligibility	2
Design Criteria	2
Team Mentors	2
Preliminary Stage	
Required Documentation	3
Deadline	3
Abstract	3
Design Concept Paper	3
Finalist Stage	
Selection	4
Working Model/Prototype	4
Formal Presentation	5
Pre-Registration, Travel and Design Materials Compensation	5
Awards	5
Information Release & Disclaimer	5
Contact Information	6
Deadlines	6
Design Entry Form	7
Appendix	
Judging Criteria – Preliminary Stage	8
Judging Criteria – Final Stage	9

## Purpose

The SHPE Foundation Design Competition is intended to stimulate: creative, intellectual, entrepreneurial ship, technical presentation, leadership and team work. The competition will test the technical and business aspects of an engineering and/or science students in the fabrication of a cost-effective product. Competitors must research, design, build, and test a marketable product and write a relevant technical paper within an allotted time frame based on the theme for the competition.

## Eligibility

1. Participants must be undergraduate students with a current SHPE membership. Students, who are not current SHPE members, must become SHPE members prior to submitting an entry for this competition.
2. Design teams may consist at a minimum of two (2) and a maximum of six (6) Latino/a undergraduate students.
3. There is no limit on the number of design teams per college/university. However, all team members must be from the same institution.
4. Students may only compete as a registered member of one (1) team. If a student competes in more than one team, ***all*** those respective teams will be disqualified.
5. Designs, inventions, or processes funded by an external source (i.e., NSF grant, government research/training grant, and corporate sponsored research) are not eligible for submission.
6. Senior projects or theses are not eligible for submission.

## Design Criteria

The theme for the 2011 SHPE Foundation Design Competition is Living Green. Living Green will require science and knowledge of green technology, how is it designed, manufactured and applied. Green Technology requires a working knowledge of electronics, mechanics, software and Civil Engineering.

The design, based on the theme, must be a commercially marketable product that has both a unique social benefit and improves the quality of life, especially for the Hispanic communities. This design should *not be* a duplicate of a currently existing commercial product; however, it may be an improvement to an available commercial product. The design should be creative, and demonstrate technical merit.

## Team Mentors

Each team may solicit the assistance of no more than two (2) graduate students or engineering professionals from industry, academia, or government to serve as mentors. The mentor(s) may assist the team in detailing the design, and if selected as a team finalist, in developing the presentation charts and rehearsing the oral presentation. The name(s) and organization(s) of the mentor(s) **must** be included in the design concept paper.

## Preliminary Stage

### REQUIRED DOCUMENTATION

Students interested in participating in the design competition must submit the Design Competition Entry Form, an abstract and a design concept paper. *No materials will be accepted by fax.* Materials may be submitted electronically to designcomp@shpe.org in MS Word 97 or later. No Portable Document Format (PDF) will be accepted. Abstracts and design concept papers received in any format other than Microsoft Word will be automatically disqualified.

### DEADLINE

The Design Competition Entry Form, abstract and draft design concept paper must be postmarked by **11:59 pm EST, Friday, September 9, 2011**. Entries postmarked after this date/time will be automatically disqualified.

### ABSTRACT

The length of the abstract should be between 300 – 400 words. It should be a concise summary of the design concept. The format of the abstract must adhere to the following:

- Typed,
- Single-spaced
- 1-inch margins,
- Times New Roman, and
- 12-pt font

The abstract should include the following header:

**Title of Project (Bold, Centered, Times New Roman, 14 pt)**

Team Members (Centered, Times New Roman, 12 pt)

Institution (Centered, Times New Roman, 12 pt))

Institution City, State, Zip (Centered, Times New Roman, 12 pt))

***NOTE: The abstract will be judged on both content and adherence to formatting guidelines.***

## **DESIGN CONCEPT PAPER**

The length of the design concept paper is at the discretion of the design team. However, it should be sufficient to technically explain and illustrate the design concept to the reviewers. At minimum, the paper should include:

- 1) Introduction
- 2) Background
- 3) Intent of design
- 4) Statement of the problem the design is addressing
- 5) Proposed or actual design testing and evaluation
- 6) Cost Analysis
- 7) Conclusion
- 8) References

Graphs, charts, tables and references must adhere to **APA 5<sup>th</sup> Ed.** formatting.

The paper should include detailed illustrations of the dimensions, scale, orthographic projection (top, side, front views), and a 3-D view of the design. A developmental/production cost analysis must also be included. You may make assumptions on the quantity to ensure a low cost. Segregate costs by non-recurring (engineering) and recurring (production) costs. Designs without a cost analysis will be immediately rejected.

The format of the design concept paper must adhere to the following:

- Typed,
- Single-spaced,
- 1-inch margins,
- Times New Roman, and
- 12 pt Font.

The paper should include the following header:

**Title of Project (Bold, Centered, Times New Roman, 14 pt)**

Team Members (Centered, Times New Roman, 12 pt)

Institution (Centered, Times New Roman, 12 pt))

Institution City, State, Zip (Centered, Times New Roman, 12 pt))

*NOTE: The paper will be judged on both content and adherence to formatting guidelines.*

## **FINALIST STAGE**

### **SELECTION**

A team of engineers from industry, academe and government will review the abstracts and draft design concept papers to select the top five (5) team finalists to proceed in the production of a design model or prototype and writing of the final design concept paper to be presented on Friday, October 28, 2011 at the SHPE Conference in Anaheim Ca.

The abstract and draft concept paper will be evaluated on a 150-point scale.

### **WORKING MODEL/PROTOTYPE**

Finalists must demonstrate a **working** model or prototype of their design at the 2011 SHPE Conference. Emphasis will be placed on demonstrating a **working** model or example of the design. Be sure that you account for every eventuality, and have a back-up plan or resource. Teams must plan ahead to ensure that they account for shipping or transportation costs or arrangements of their working model or prototype.

***NOTE: Team finalists, who fail to present a working model or prototype, will be required to reimburse any and all travel, pre-registration and design material stipends.***

***No further exceptions will be made to this a rule.***

### **FORMAL PRESENTATION**

The team finalists will make a formal presentation before a panel of judges chosen from industry, academia, and government. The presentation will be open to the general audience attending the 2011 SHPE Conference.

Although presentations may be made using an LCD projector, presenters **must** supply their own laptops, input devices, jump drives, etc. Presentations will be limited to a maximum of twenty (20) minutes. An additional ten (10) minutes will be allotted for questions from the judges and the general audience.

The presentation will be evaluated on a 200-point scale.

## **Pre-Registration, Travel and Design Materials Compensation**

Each of the ten (10) team finalists will be awarded \$1,000 to develop their product<sup>1</sup>. No additional funds for shipping the prototype or otherwise will be provided. In addition, each team member will receive a four-night 2011 SHPE Conference **pre-registration package** and a \$100 travel allowance<sup>2</sup>. Each of the finalists **must pre-register** by **October 1, 2011**.

**NOTE: Students are expected to arrange their travel to arrive in time to be ready to present as early as 8:00 am local conference time, on Wednesday, October 26, 2011.**

---

<sup>1</sup> \$500 will be awarded prior to the SHPE Conference; \$500 will be awarded after the SHPE Conference. Teams are required to retain all receipts as they must be submitted to AHETEMS, Inc. to receive the appropriate compensation for the design materials.

<sup>2</sup> Participants, who either fail to pre-register for the four-night package, are responsible for paying the difference in registration costs.

# AWARDS

Winners will be announced at a designated time at the SHPE Conference. The following scholarship awards will be presented to the winning teams:

First Place	\$3,000
Second Place	\$2,500
Third Place	\$2,000
Fourth Place	\$1,500
Fifth Place	\$1,000

Pending funding availability, should both the product of the winning team warrant further development and the winning team choose to pursue a formal patent for their product, up to \$5,000 will be provided to the winning team to submit a technical patent.

## Information Release & Disclaimer

*By participating in the Design Competition, the authors and mentors of the design concept grant permission to SHPE, Inc. and SHPE Foundation, Inc. to publish and release, in whole or in part, information and illustrations about their design concept, participant photographs, contact information, and institutional and/or employer affiliation, and other such information for audio, video and print media. Furthermore, the authors and the mentors of the design concept retain the rights to further develop and/or market their own design concept. However, neither SHPE, Inc. nor SHPE Foundation, Inc. can guarantee the protection of the design concept.*

## Contact Information

All questions should be directed to [designcomp@shpe.org](mailto:designcomp@shpe.org).

## Deadlines

September 9, 2011	Deadline for Design Form, abstract, and draft concept paper
September 17, 2011	Peer-Review Panel sends list of finalists to SHPE Foundation
September 24, 2011	Acceptance notices sent to ten finalist teams 50% of design materials stipend sent to finalists Abstracts of finalists sent to SHPE Magazine
October 1, 2011	Finalists must pre-register for SHPE Conference
October 6, 2011	21-Day Deadline for airline reservations
October 13, 2011	Final Design Concept Paper Due <i>(Required to present)</i>
October 13, 2011	14-Day Deadline for airline reservations
October 15, 2011	Confirmation attendance notice sent to finalists
October 26, 2011	Finalists should arrive at SHPE Conference
October 29, 2011	Formal design competition presentation

**DESIGN ENTRY FORM**

College/University: \_\_\_\_\_

Title of Design: \_\_\_\_\_

---

---

**Team Captain**

\_\_\_\_\_  
Name (First, Last)

\_\_\_\_\_  
Mailing Address/City/State/Zip

\_\_\_\_\_  
Primary Email Address

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Major Field of Study

Classification

Freshman    Sophomore    Junior    Senior

*NOTE: All correspondence, mailings, check disbursements, etc. will be sent to the Team Captain.*

---

---

**Team Members (maximum of five):**

NAME (First, Last)	MAJOR	CLASSIFICATION
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

---

---

**Team Mentors (maximum of two)**

\_\_\_\_\_  
Name (First, Last)

\_\_\_\_\_  
Name (First, Last)

\_\_\_\_\_  
Place of Employment

\_\_\_\_\_  
Place of Employment

\_\_\_\_\_  
Primary Email Address

\_\_\_\_\_  
Primary Email Address

---

---

**Submit form, abstract and concept paper to:**

SHPE Foundation, Attn: Design Competition

The University of Texas at Arlington, College of Engineering, Box 19019, Arlington, TX 76019-0019

(817) 272-1116 (O) • (817) 272-2548 (F) • designcomp@shpe.org

**PRELIMINARY ROUND  
JUDGE'S SCORE CARD \***

**Project Name** \_\_\_\_\_

**Judge's Initials** \_\_\_\_\_

**ABSTRACT**

<b>30 Possible Points (20%)</b>	<b>Points Possible</b>	<b>Points Earned</b>
The extent, which the abstract meets the required word count of 300-350 words	5	
The extent, which the abstract conforms to the required formatting: typed, single-spaced, 1-inch margins, Times New Roman, 12 pt Font.	10	
The extent, which the abstract clearly summarizes the design concept.	15	
<b>Total Score</b>	<b>30</b>	

**PAPER**

<b>120 Possible Points (80%)</b>	<b>Points Possible</b>	<b>Points Earned</b>
Introduction	5	
Background	5	
Intent of Design	10	
Statement of the Problem the Design is Addressing	5	
Proposed or Actual Design Testing	10	
Detailed illustrations of the dimensions, scale, orthographic projection (top, side, front views), and a 3-D view of the design	10	
Developmental/Production Cost Analysis	10	
The format: typed, single-spaced, 1-inch margins, Times New Roman, 12 pt Font.	5	
References, tables, graphs, charts are in proper APA 5 <sup>th</sup> Ed.	5	
Overall, technically sufficient in explaining design concept	10	
Overall, sufficiently illustrates the design concept	10	
Overall Originality	15	
Overall Innovation	10	
Supporting Research	10	
<b>Total Score</b>	<b>120</b>	

Total Score (Abstract + Paper) \_\_\_\_\_

*\*Subject to change.*

**FINAL ROUND  
JUDGE'S SCORE CARD \***

Project Name \_\_\_\_\_

Judge's Initials \_\_\_\_\_

**PRESENTATION/PROTOTYPE**

<b>160 Possible Points</b>	<b>Points Possible</b>	<b>Points Earned</b>
Intent of Design	15	
Actual Design Testing	20	
Detailed illustrations of the dimensions, scale, orthographic projection (top, side, front views), and a 3-D view of the design	15	
Extent that a <b>working</b> model or prototype of the design is presented	50	
Developmental/Production Cost Analysis	10	
Overall, technically sufficient in explaining design concept	10	
Overall, sufficiently illustrates the design concept	10	
Overall Originality	10	
Overall Innovation	10	
Supporting Research	10	
Patent potential of product	40	
<b>Total Score</b>	<b>200</b>	

Total Score \_\_\_\_\_

To what extent would you recommend that this product be pursued as a patented technology by the design team?

Highly  
Recommend

Recommend

Slightly  
Recommend

Do Not  
Recommend

*\* Subject to change.*