

**CUSTOM ENGINEERING SOLUTIONS PANAMA PRESENTS:**

# **PLS-TOWER Training and Structure Design**

English Training with Spanish Assistance

**March 8 – 9, 2013**

Friday to Saturday  
8:30 AM – 5:30 PM

Training Facilities:

Hotel El Panama

Via Espana,

Panama City, Panama

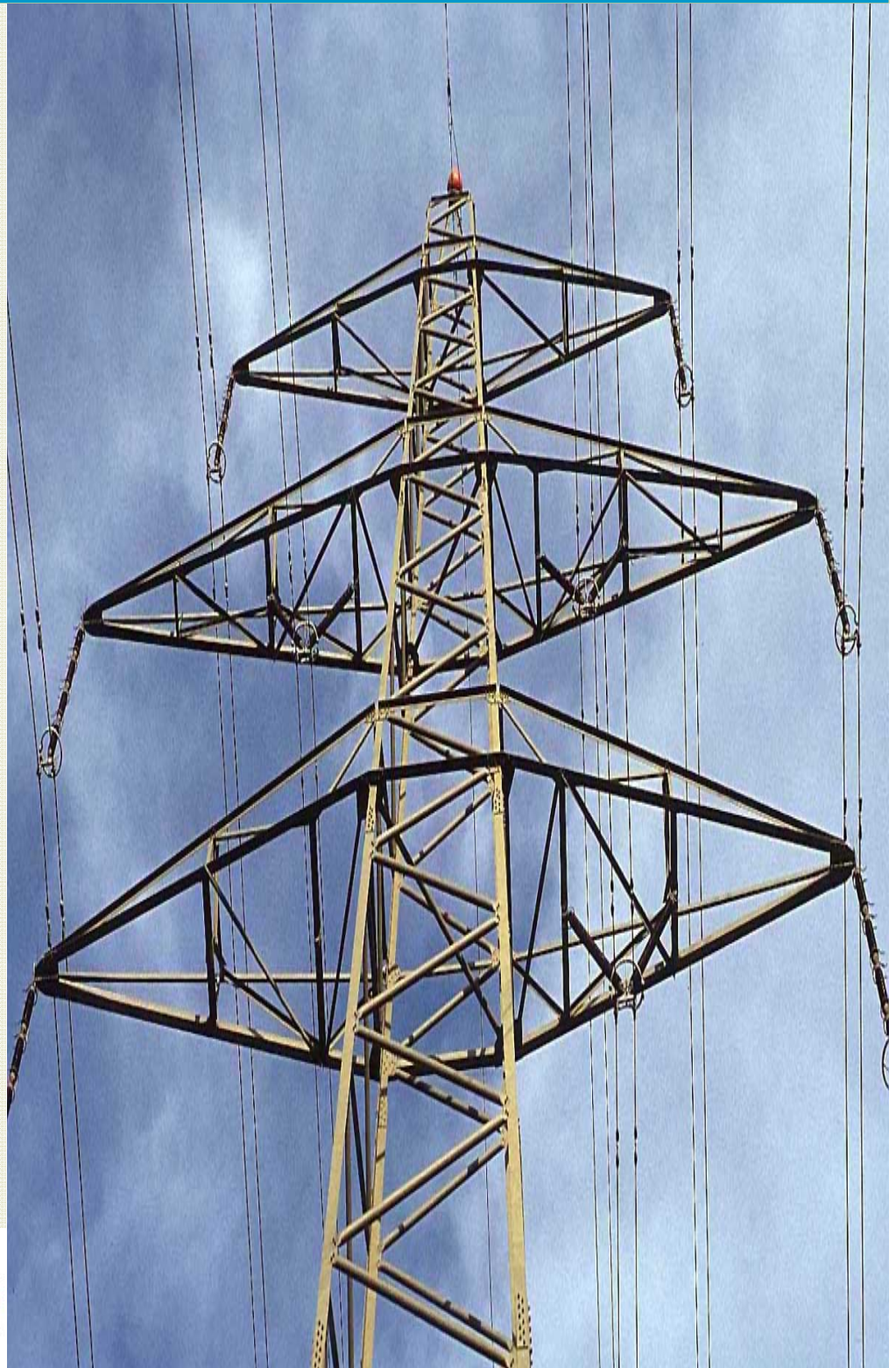
*Learn about software aided, modeling,  
assessment, structural design, criteria  
specifications, testing and manufacturing.*

Custom Engineering Solutions Panama  
Torres de Las Americas  
Tower B, Floor 15th  
Panama City

Telephone: 507-215-8312

Fax: 507-398-1621

Information: [cspanama@cengs.com](mailto:cspanama@cengs.com)



Custom Engineering  
**SOLUTIONS**

## **OVERVIEW: Learn the Industry Standard In Tower Design Software**

The increase in demand for electric power has prompted upgrading and building new electrical transmission lines across the World. TOWER is the most widely used lattice tower analysis and design program in the world today! Its ability to link directly with PLS-CADD, the industry standard in overhead line design and drafting software, makes it the tool of choice for overhead line designers. The demand for experienced line designers and structural engineers is ever increasing. This combined with the aging and retiring of the experienced transmission structural engineers has made it vital for young and incoming structural engineers to become more familiar with the fundamental aspects of design, manufacturing, and testing of different types of installations.

This course will teach the attendees how to use TOWER to model lattice steel towers, whether for construction of new lattice tower lines or upgrading, re-conductoring, or adding ancillary attachments to existing transmission towers.

### **INSTRUCTORS:**

Mr. Timothy C Cashman, P.E. has over 20 years of experience in the design of overhead transmission lines and lattice transmission towers. Prior to his own consultancy practice in 2010, he spent about 21 years working for a large, international design firm. During his career, he has been involved with the design and analysis of lattice towers from 69 kV to 500 kV.

Along with Mr. Cashman, Mr. Frank Noori, cofounder of Custom Engineering Solutions and PLS instructor with more than 11 years experience in Transmission design as well as Mr. Archibaldo Clealand, managing director of Custom Engineering Solutions in Panama with over 15 years of design experience will be on hand for any necessary assistance and translations.

### **BRING YOUR OWN LAPTOP**

We ask that students bring their own laptop computers for this course. If you prefer to rent a computer, laptops can be provided with advance reservations for \$75 per day by contacting our client services by email: [cspanama@cengs.com](mailto:cspanama@cengs.com) or call US offices (770) 619-3999 or Panama offices (507) 215-8312. Your laptop must have Microsoft Windows 8, 7 or XP installed (x64 preferred). It must also have a 1GHz or faster processor, a minimum of 3GB of RAM, 500MB of available disk space, and an available USB port for hardware key connection. An external 2 button mouse will be necessary for easier use of provided training software. **YOU MUST HAVE ADMINISTRATIVE RIGHTS ON YOUR COMPUTER SO THAT THE HARDWARE KEY DRIVERS CAN BE INSTALLED.** You will be provided with all software and material during training.

### **TOPICS FOR PLS-TOWER:**

#### **◆ Day 1**

Tower modeling concepts  
Component libraries  
Defining joints, members, and connections  
Tower point loads  
Tower wind loads

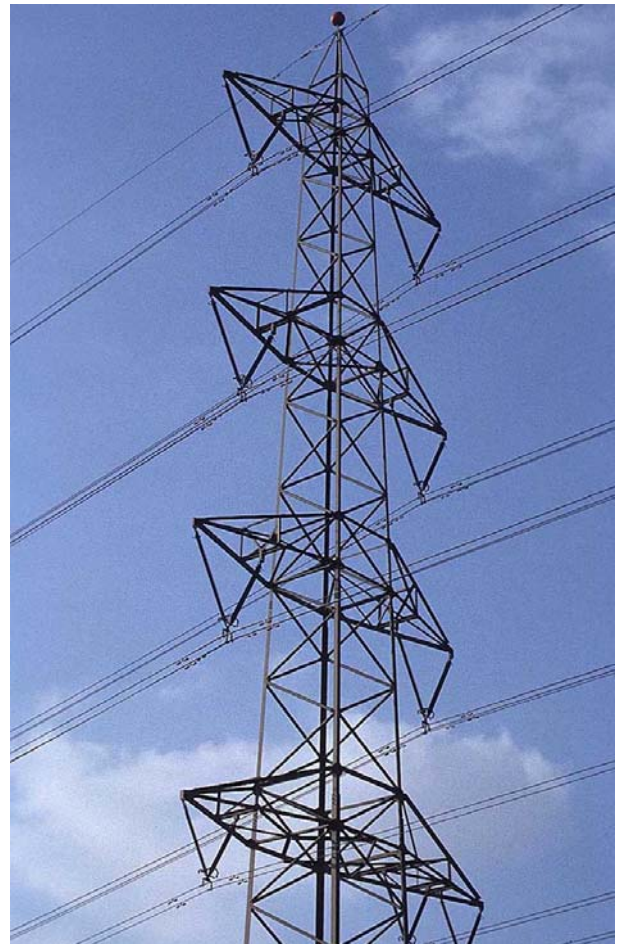
#### **◆ Day 2**

Review of analysis results and output  
Batch manipulation of multiple models  
Analysis of existing towers  
Determining allowable spans  
Using Tower models in PLS-CADD

### **LEARNING OUTCOMES**

Attendees to this course will learn to:

- ◆ Define the different types of structures and when to use them.
- ◆ Analyze economic efficiencies through the design process.
- ◆ Examine the applicable design standards and manuals.
- ◆ Identify the necessary loading criteria for which to design.
- ◆ Structural design fundamentals for latticed self-supporting towers.
- ◆ Design of tubular steel structures, guyed structures.
- ◆ Examine the appropriate design software applications.
- ◆ Analyze the different methods of testing and when to apply them.
- ◆ Identify the manufacturing and finishing process for structures.
- ◆ Examine the possibilities of aesthetics and innovation in design.



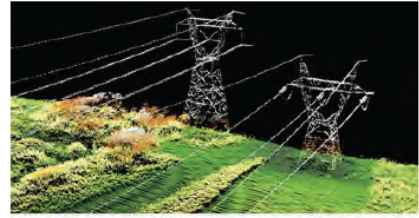
# REGISTRATION FORM



Custom Engineering  
**SOLUTIONS**

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**POWER LINE**  
SYSTEMS INC.

[www.CEngS.com](http://www.CEngS.com)

## DETAILS:

The course will be held at the Hotel Panama. Please fill the registration form below. The quantity of attendance is limited and only paid attendees are guaranteed a space.

During the course a PLS-TOWER license will be provided for each attendee. The classes and course documentation will be in English with assistance in Spanish. Classes will be held from Friday, March 8 to Saturday, March 9 from 8:30 AM to 5:30 PM.

The Hotel Panama rooms for participants will cost \$ 125.00 + taxes per night (subject to change). For reservations contact Mrs. Irma Carrillo at (507) 215-9444 or email: [icarrillo@elpanama.com](mailto:icarrillo@elpanama.com)

## TUTION FEES:

The costs of the course is \$ 1,390.00 per person for 2 days course. Companies that register two or more participants and pay 100% of the cost before January 1, 2013 will be entitled to a discount of \$100.00 per participant.

## CANCELLATION POLICY:

Participants who have paid but did not attend the course or cancel their participation after January 31, 2013 will lose the entire payment.

Custom Engineering Solutions reserves the right to cancel or modify this course at any time. In case of cancellation by CES, 100% of the payment made by the participant will be refunded.

## PLEASE REGISTER THE FOLLOWING

- |  |  |
|--|--|
| <input type="checkbox"/> PLS-Tower Training & Structure Design - English<br>Factors in Structural Design, Testing, and Manufacturing<br>March 8-9, 2013: US \$1,390<br>Early bird on or before January 1, 2013: US \$1,290 | <input type="checkbox"/> PLS-CADD Training - Spanish<br>A specialized course focusing on computer-aided design<br>March 4-7, 2013: US \$ 2,200<br>Early bird on or before January 1, 2013: US \$ 2,100 |
|--|--|

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.) \_\_\_\_\_

Name \_\_\_\_\_ Job Title \_\_\_\_\_

Name Preferred for Badge \_\_\_\_\_ E-mail \_\_\_\_\_

Company \_\_\_\_\_ Telephone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

## PAYMENT METHOD

For USA & Canada Based Clients:

Please charge my credit card:  Visa  MC

Security Code \_\_\_\_\_

Visa and MC cards have a 3-digit code on the signature panel on the back of the card

Name on Card \_\_\_\_\_ Signature \_\_\_\_\_

Account Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Card Holder Phone Number \_\_\_\_\_

Billing Address \_\_\_\_\_ Billing ZIP Code \_\_\_\_\_

OR Enclosed is a check for \$ \_\_\_\_\_ to cover \_\_\_\_\_ registrations.

For Latin America Clients:

Payments are accepted via Bank Transfer. Please Email [cspanama@CEngS.com](mailto:cspanama@CEngS.com) for details or contact our offices in US or Panama.