

## Introduction to Engineering Design (IED)

### General Information:

The classroom and/or laboratory used for the IED class should accommodate up to 18 participants and two instructors, along with their equipment and supplies (laptops, notebooks, etc.) It is recommended that you do not exceed that number of participants per course section.

The classroom should contain multiple tables for participants and their laptops and provide adequate workspace. It is recommended to have 4 -5 feet of workspace per participant. Please make sure that there is enough walking space between the rows to accommodate for instructor/student interaction. The classroom must be outfitted with the necessary electrical connections to power laptops, printers and other peripheral devices that are required to teach the course. Students will need access to the Internet and an Ethernet cable, or wireless network card. Contact your computer support department for assistance.

The Master Teachers/Affiliate Professors will need access to the classroom before and after class for setup and open lab activities (approximately 30 minutes before instruction and several hours after instruction). Because laptops and equipment remain in the classroom during lunch, and in some cases overnight, instructors must be able to secure these areas. If possible, reserve your classrooms and labs areas on a 24-hour basis during your STI.

Each participant is required to bring a laptop to the training that meets or exceeds the PLTW computer specifications. It is recommended that they have a USB Flash Memory Stick, an external wired scroll wheel mouse, and a digital camera. **(Multiple wireless mice have been known to cause interference with each other in classroom situations.)**

### General Supply List:

**(Please contact your master teacher to finalize this list)**

### **It is assumed that you will supply the Inventor software and PLTW Curriculum CD for each Student and Instructor.**

1. Network compatible laser printer
2. Paper for printer, (3 hole punched printer paper if available) – 2 to 3 reams per class
3. B sized paper (11 X 17) if there is access to a B size printer
4. LCD Projector w/ extra bulb(s) available
5. Sound system / speakers to show DVDs
6. Overhead Screen
7. A chalkboard with chalk OR white board with markers
8. Board cleaner for white board
9. Pencil sharpener (1 per class)
10. Stapler and Staples – 1 per class
11. Scissors ( 3 per class)
12. Colored pencils for puzzle cube sketches – 1 set per 2 participants
13. Markers for puzzle cube projects – 1 set per 2 participants
14. Power strips and extension cords to insure adequate power for all participants

15. Heavy-duty 3-hole punch 1 per class
16. Permanent markers for CD labeling 2-3 per class
17. Blank CD's – A minimum of 2 per student and master teacher
18. Three-ring binder-2" for participant instructional materials and portfolio – 1 per participant
19. Section dividers (*8 tab*) – 2 per participant
20. Sheet protectors – 50 per participant
21. Isometric grid paper – approx. 20 sheets per participant
22. Access to a digital camera.
23. Composition Notebook, 1 per participant. **Must be a bound college and quadrille ruled.** (Engineering notebook)  
Suggested: Staples composition notebook, green, 100 pages. Item # 858198 Model # 11624-CC. \$1.98 each
24. Minimum of 30 Wooden blocks per participant - ¾" inch Cubes (*can be made or bought through Kemp Enterprise, 1-800-556-8055, Contact Person: Carol McNally - Mention Project Lead the Way Full case of 3500 cubes \$124.25 per case + shipping Partial Case in lots of 1000 cubes \$39.50/1000 + shipping Quote accurate as of 9/2006*)
25. DVD Shedd Productions, Inc. (2006). *The flight of the gossamer condor*. Retrieved January 3, 2007 from <http://members.aol.com/sheddprods/sheddproductions.ht> \$100
26. Small bottle of wood glue or glue sticks. Elmer's – 1 small bottle per 3 participants
27. Ziploc bags, quart size, 1 per participant.
28. Post-it Notes – 1 pad per 3 participants
29. Steel rulers - 1 per 2 participants
30. Dial Calipers – 1 caliper per 2 participants
31. Scotch and masking tape
32. Interlocking ¾ plastic cubes one set per class as suggested below.  
Suggested: EAeducation.com Item# 530095, set of 100 colored cubes. \$10.95
33. Paper towels
34. 1 package, 220 abrasive paper
35. Highlighter marker 1 per participant
36. Coffee cup with simple decoration
37. *The Deep Dive* DVD ABCnewsstore.com: Nightline: The Deep Dive DVD: 7/13/99 URL: [http://www.abcnewsstore.com/store/index.cfm?fuseaction=customer.product&product\\_code=N990713%2001&category\\_code=HOME](http://www.abcnewsstore.com/store/index.cfm?fuseaction=customer.product&product_code=N990713%2001&category_code=HOME)  
The cost of the DVD is \$39.95. This 22 - minute broadcast, which aired on *Nightline* in 1999, is an excellent design education resource.
38. Access to a fax machine, scanner and email

**Please consult with your IED MT for the following items:**

39. Various household products
40. 3 x 5 inch index cards
41. Collection of products or objects to be used for reverse engineering
42. SX-70 DVD

*SX-70* is an 11-minute film found within a collection of short films on Volume 4 of *The Films of Charles and Ray Eames*. Charles and Ray Eames were a husband and wife team, and two of the most influential industrial designers of the twentieth century. Their

film, SX-70, is an excellent multimedia resource for showing students how the function of a designed object can be described as a sequence of operations.

The Films of Charles and Ray Eames Volume 4 is available in DVD format for \$25, and may be purchased through several sources such as Amazon.com:

Amazon.com: The Films of Charles & Ray Eames - Volume 4 (1992) URL:

[http://www.amazon.com/gp/product/B00004Z4UZ/ref=sr\\_11\\_1/104-0698621-8889538?%5Fencoding=UTF8&v=glance&n=130](http://www.amazon.com/gp/product/B00004Z4UZ/ref=sr_11_1/104-0698621-8889538?%5Fencoding=UTF8&v=glance&n=130)

43. Tri-fold poster board at least 3/4" thick that is sturdy and thick to hold product parts
44. Storage container for parts
45. Hand tools necessary to disassemble product
46. Reference book *The New Way Things Work* by David Macaulay
47. Hot glue gun
48. Hot glue sticks
49. Wire ties used to hold parts of product on board
50. Hole punch to create holes for wire tie
51. 1/4 inch ruled 11 x 17 inch or 12 x 18 inch graph paper
52. X-ACTO knife
53. Cutting board

## Introduction to Engineering Design

*Make sure you check on delivery date and order early.*

PLTW Item #	Cat.	Qty	Unit	Item Specifications	Vendor Product #	Unit Cost	Extended Cost
1090	C	2	Pkg/500	3/4" Square Wooden Craft Blocks	19302	\$27.50	\$55.00

**Ordering Information:** Crafter's Mart, P.O. Box 1433, Greeley, CO 80832  
Phone: 970-351-0977 Fax: 970-351-0676

Cat.	PLTW Item #	Qty.	Unit	Item Specifications	Unit Cost	Extended Cost
C	1080	2	Ream	Isometric Graph Paper, 8 1/2" X 11"	\$ 10.50	\$ 21.00
C	1090	2	Pkg/500	3/4" Square Wooden Craft Blocks	\$ 27.50	\$ 55.00
H	4050	5	Each	12" Rigid Rule with 8ths and 16ths Front 64ths and 32nds Opposite Face, Stainless Steel	\$ 9.50	\$ 47.50
H	4060	5	Each	Engineer's Scale, 10 Parts/Inch	\$ 4.00	\$ 20.00
H	4085	1	Each	0-1" Micrometer, accuracy to .001"	\$ 15.50	\$ 15.50
H	4090	20	Each	6" Steel Dial Calipers, graduated in .001", White faced Dial	\$ 13.85	\$ 277.00

