

Life/Science & Technology

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Robotics, artificial intelligence and computer modeling are just three of the areas refined by scientists and engineers in their search for efficient methods of mass production.

An online resource based on a course taught by mechanical engineer Mark Martin at Stanford University offers a tribute to the technologies behind manufacturing, mostly by showing the mysteries of the process.

HOW EVERYDAY THINGS ARE MADE

Site address: <http://manufacturing.stanford.edu/>
Creator: Design4X, located in Oakland, Calif., developed and produced the site. The Alliance for Innovative Manufacturing (AIM) at Stanford University sponsored, hosted and paid for the resource.

Creator quoteable: "We created this site to show kids and adults how fascinating manufacturing can be — and we wanted to focus on 'show.' You can't fully appreciate manufacturing by reading about it — you have to see it, so we knew that we had to incorporate lots

Revealing 'mystery' of manufacturing

of video into the site. We planned for an hour and a half of it. However, the response from companies was so overwhelming that we ended up with over four hours of video which has created an amazing one-stop resource for watching how things are made," says Mr. Martin, president of Design 4X.

Word from the Webwise: Through a fantastic multimedia presentation, viewers looking for information on how things are made quickly learn with the help of video clips, quizzes, detailed illustrations and animations that concentrate on transportation, candy, packaging, clothing, play-time and materials.

As the opening page loads, the "The Magnificent Seven" theme rouses the ears as Mr. Martin appears on a 3-inch-wide screen. Using instructional icons he clearly explains the goals of the site, how to control the videos, what sections can be found and how to use the side navigation menus.

Viewers can begin their technology quest by simply clicking on arrows to initiate any of the modules. Mr. Martin gives an educational introduction that is combined with color information/promotional videos provided by a wide variety of companies and associations. Each comes packed with audio, facts and an avalanche of statistics relayed by the various narrators as they reveal the inner workings of manufacturing.

For example, viewers in the Transportation module begin by answering a few multiple-choice questions to assess their knowledge level. Then, they are whisked into the land of airplane development, going from the early days of Boeing in which wood propellers were manually shaved, and moving on to a 4½-minute "speed

build" clip of a Boeing 777 being completed using 3 million parts.

The module then relays the process of building a motorcycle using Harley Davidson as a test case, introducing the assembly line needed to create the 435-part Sportster model. The site also shows how the VRSCA cycle is put together in 104 minutes of work, with the work-in-progress stopping for 74 seconds at each assembly station.



JOE SZADKOWSKI

Webwise

Transportation concludes with the building of a 1994 Ford Mustang, which highlights robotics at its finest as viewers are taken from moving sheet metal rolls using a 30-ton remote-control crane to the cutting and stamping of the metal to the three-hour painting process. An explanation of the use of robotics in airplane versus automot-

biles follows.

Without a doubt, those in love with manufacturing technology will spend hours watching and learning about the details of operations that include jelly bean sugar showers, the stretching of molten glass, photolithography with semiconductors, abrasive water jets using advance motion computer systems and 20 minutes on injection molding.

Ease of use: This incredibly informative site requires a broadband connection, current browser and the Macromedia Flashplayer plug-in (version 6.029 or greater) that works on Windows 98 and above and Mac 9.x and above.

Don't miss: Under Playtime, I took a jaunt into the world of rotational molding and learned in under five minutes how some of my favorite toys are made. A mold is loaded with almost any color of powdered resin. The material sticks to the sides of the form as it is heated and twirled about with a robotics

arm to create a hollow piece of sturdy plastic to be used in such items as dolls, backyard play sets and the famous Big Wheel.

Elements on the horizon: "None that I can name for sure," Mr. Martin says. "However, I would like to look at integrating it more closely with the National Science Education Standards so that it could be more easily incorporated into high school science curriculums."

Comprehension level: Although targeted at the high school level, children and adults of all ages can enjoy the site.

Overall grade: A
Remember: The information on the Internet is constantly changing. Please verify the advice on the sites before you act to be sure it's accurate and updated. Health sites, for example, should be discussed with your own physician.

Have a cool site for the science or technology fan? Write to Joseph Szadkowski at Webwise, The Washington Times, 3600 New York Ave. NE, Washington, D.C. 20002; call 202/636-3016; or send an e-mail message (jszadkowski@washingtontimes.com).

Dear Abby

By Abigail Van Buren

Remembering those affected by 9/11 attacks

DEAR READERS: I am sure that everyone is aware that today marks the second anniversary of the attacks on the World Trade Center and the Pentagon. I hope you will take just a moment to offer up a prayer for those people who lost their lives there, and in the field in Pennsylvania on that horrific day and for the grieving families and friends who will live with their loss for the rest of their lives.

Let us also not forget the brave young men and women who have put their lives on hold as they serve in the U.S. armed forces under the most stressful conditions imaginable. One way to show our appreciation for their dedication is to go to the Web site OperationDearAbby.net, and send a message of encouragement and support. Let them know that they are in our thoughts today — and every day.

I am proud to say that more than 2 million of my caring, generous readers have sent messages to our troops so far. Please continue your support. They need us now more than ever as this conflict drags on.

DEAR ABBY: I am a 15-year-old girl from a financially secure family. My best friend, "Audrey," is in the opposite situation. Her parents are divorced. Her mother works full time to support the family.

I used to get annoyed at Audrey when she'd hesitate after I'd suggest we do something fun together. She finally admitted she didn't have the money. I feel awful because money has never been a problem for me, and I thought it was not a problem for any of my friends.

I love being with Audrey. I don't want her financial situation to put a damper on our friendship. I am more than willing to pay for things like admissions to amusement parks, movies and other events and even buy her clothes when we go shopping together. The problem is, she is very sensitive about money. She never takes me up on my offers.

How do I get to do fun things with Audrey without making her feel she is accepting charity? — NOT A PRINCESS IN PASADENA, CALIF.

DEAR NOT A PRINCESS: Stop offering to buy her clothes. Do offer to do things with her that don't cost a lot of money: listen to music, rent videos, exercise, or do homework together. Include her in some group activities (movies or amusement parks), but always let her reciprocate in some way. Respect her decisions, and remember that the burden of gratitude can sometimes hang very heavy, so try to keep a balance.

Dear Abby is written by Abigail Van Buren, also known as Jeanne Phillips, and was founded by her mother, Pauline Phillips. Write Dear Abby at www.DearAbby.com or PO Box 69440, Los Angeles, CA 90069.

PROTECT

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flights due to the problem.

Valerie Perlowitz, the president and CEO of Reliable Integration Services, says it takes a number of high-profile viruses to teach the public that their computers are at risk.

"It's not until you have a major event where people say, 'Maybe I'm not as secure as I need to be,'" Ms. Perlowitz says. "I can't tell you how many companies out there don't have virus protection. They think it's not a big deal."

The truth, she says, is that such thinking can cost millions in damages.

Marty Lindner, team leader for incident handling at CERT Coordination Center, a nonprofit center for Internet security at Carnegie Mellon University, says computer users are always at risk of virus attacks. Installing anti-virus software is the best way to protect your computer from attacks, Mr. Lindner says.

"It's good at detecting those things which we know and understand," he says.

A race is forever on between the virus authors and the teams of security workers charged with thwarting their plans. Once a new virus emerges, those security workers race to decode it and pass the information on to the general public, either via Web sites offering virus information or through various anti-virus software packages.

"A virus requires human intervention for something to happen," he says, while a worm may be spread by simply turning on the computer.

Types of human interaction include visiting a corrupt Web page and downloading a virus-filled attachment. Notorious computer worms like Blaster and Code Red can hit a computer without the user doing anything.

Kelly Martin, senior product manager with Symantec Security in Cupertino, Calif., says the current virus concerns are the worst in recent memory.

"Viruses are evolving in different ways," Mrs. Martin says. "You're seeing it through e-mail, through network sharing or if you go to a malicious Web site."

She points to viruses spread through file sharing — when two computers link up to swap information — and e-mail-based worms as reasons computer users without protective software should be alarmed.

Worse, Mrs. Martin says those who buy and install the latest anti-virus software programs should not feel safe if they don't keep up to date on the latest upgrades.

"You must have the latest virus definitions," she says. "[Anti-virus software] is only as good as your latest virus update."

She says her company, which produces the popular Norton Antivirus packages, sends weekly updates to registered software owners. In times of massive virus updates, those updates on how to block the latest viruses and worms might come several times in a single day.



Illustration by Joe Oliva/The Washington Times

She estimates that about 40 percent of computer users don't have any anti-virus protection on their computers.

"They believe if they practice safe surfing habits they'll be OK," she says.

Those users, for example, only open e-mail from recognizable addresses. The problem there is if a friend's computer is infected, the virus could tap into the friend's e-mail address book and send you an infected e-mail.

Norton Antivirus 2004 retails for \$49.95 for a one-year subscription, with a yearly \$14.95 renewal fee, she says.

The level of computer apathy toward virus protection services confounds Mike Burstein, president of Dominion Repair Services in Alexandria. He estimates that up to 80 percent of the computers his firm services lack virus protection software.

In fact, his company distributes an 11-page handout to its customers on the best way to protect their computers, and the firm still services return customers for lack of computer protection.

For those watching their budgets, Mr. Burstein says some software companies offer basic virus software for free on their sites. Others offer basic services, like Computer Associates' ETrust's anti-virus package, for an initial fee of \$25, plus a \$12 for yearly renewals.

A dollop of common sense along with anti-virus software is a good combination to protect one's computer from harm.

Ms. Perlowitz says it's generally good advice not to open e-mail, particularly e-mail with attachments,

from people you don't know.

If an e-mail appears to be from a legitimate source, like Microsoft, the computer user still should exercise caution. A legitimate Microsoft missive wouldn't ask the user to download anything or check out an attachment. A reliable e-mail message might refer the reader to a customer service or technology support team for more information.

"If you're not sure, call them up," she says.

Several phony e-mails have circulated around the Web in the last six to eight months purporting to be Microsoft security bulletins, but they actually have contained the W32.Lirva.A@mm worm, according to a Microsoft spokesman.

The company says it would never send a computer patch — a quickly assembled bit of software designed to counteract a virus — via e-mail. Instead, it might provide a link to a Web page with more information.

Mr. Lindner says the damage caused by a virus often can be easily contained by following the advice offered by your computer's anti-virus software package. It gets stickier if the virus in question is more advanced than the anti-virus information currently available, he says.

It's hard for the computer owner to know if the virus has been completely eradicated or just partially blocked. The ultimate solution, he says, is to reinstall the computer's operating system from scratch, even though it means losing all the information on your hard drive.

"That sounds harsh, but that's the only right thing," he says.

Bridge

By Steve Becker

South dealer.
North-South vulnerable.

NORTH
♠ K 6 5 2
♥ Q 7 4
♦ Q J 8 5
♣ A 6

WEST
♠ Q 10 9 8 3
♥ 9 5
♦ 7
♣ K Q 10 8 4

EAST
♠ 7
♥ 10 8 6 3 2
♦ 6 4 2
♣ J 9 7 3

SOUTH
♠ A J 4
♥ A K J
♦ A K 10 9 3
♣ 5 2

The bidding:
South West North East
1♦ 1♠ 3♦ Pass
6♦

Opening lead — king of clubs.
The goal of an elimination play is to create a situation where, when declarer puts one of the opponents on lead, any return will cost the defense a trick. Here is a typical case.

Assume you get to six diamonds on the bidding shown and West leads the king of clubs. At first blush, making the slam seems to depend on a spade finesse, which is far from a rosy prospect considering West's spade overcall. But when you study the hand more closely, you realize that there is actually an excellent chance of bringing the contract home by means of an elimination play.

Accordingly, you win the club with the ace, draw three rounds of trumps and cash the A-K-Q of hearts. Cashing the hearts is in keeping with the standard procedure of removing all the cards with which the opponents can later exit safely. (If you surrendered the lead before removing the hearts, the opponents could exit with one at no cost to themselves.)

Then, in line with the same strategy, you make the key play of cashing the king of spades. You do this in order to extract East's probable singleton in that suit. Having attended to these preliminaries, you then lead a club from dummy, unconcerned over which opponent wins the trick.

In the actual case, if East wins the club, he must return a heart or a club, allowing you to discard the jack of spades as you ruff in dummy.

The outcome is the same if West wins the club. In that case, he must either yield a ruff-and-discard or lead a spade into your A-J. Either way, the slam is home.

KING FEATURES SYNDICATE

Horoscope

By Joyce Jillson

have creativity or information to offer have a tendency to give too much away for free now. Any change in your work pattern will be lucky.

■ **VIRGO** (Aug. 23-Sept. 22). Insist on the best from friends and loved ones by leading with your most evolved self. Gossip hurts business deals, so steer clear of it. Though work dynamics are complex, there is really no question who's in charge: you.

■ **LIBRA** (Sept. 23-Oct. 23). Figure out who needs your services and how to get to these

people. Recognizing how you work will help you cut to the chase. When you're in sync with your own style, you'll make money.

■ **SCORPIO** (Oct. 24-Nov. 21). Put worries aside. Moving forward means accepting that you don't know it all and being willing to learn. In your personal affairs, you'll have to prove you are principled to someone who doesn't know you well.

■ **SAGITTARIUS** (Nov. 22-Dec. 21). Have a little more faith that the right thing will happen. In your love life, new facts come to light. Contracts pave the way for creative success and more independence, so don't be afraid to commit.

■ **CAPRICORN** (Dec. 22-Jan. 19). You'll enjoy the tribal feeling of working with a core of motivated people. Give yourself credit too, though. Financial tip:

Freedom lies in awareness of how things are calculated and where you're really spending.

■ **AQUARIUS** (Jan. 20-Feb. 18). Let people see who you really are; you'll have more energy when you don't feel you have to pretend. Romantic luck revolves around special training or new fields of study. Choose new partners very carefully now.

■ **PISCES** (Feb. 19-March 20). You know yourself better right now than you have in a long time, and you make choices based on what you know you'll be thrilled to do. (Of course, passion is what you're going for, and you won't settle for mere enjoyment.)

If you would like to write to Joyce Jillson, please go to www.creators.com and click on "Write the Author" on the Joyce Jillson page.

CREATORS SYNDICATE