We've just updated our turning center curriculum – here's what's new…

We've made four improvements to the instructor materials (student materials remain the same). These updates parallel those recently done in the machining center curriculum – so both curriculums now have the same new features. If you use this curriculum, request your FREE update today!

Presentation links slide in every lesson – We've made each lesson more interactive. Instead of having to find the slide that begins each topic on your own, we've added a special links slide in each lesson. This lets you start/continue your presentation at the start of any major topic in the lesson.
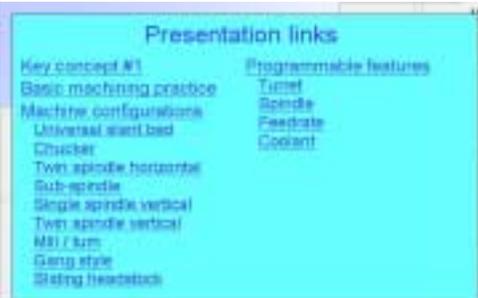
that, if clicked, will send the presentation to the chosen topic within the lesson. To get back to the presentation links page, simply click the return button in the lower left corner of any slide.

If you want to present the lesson in its entirety, simply skip this slide (use the slide advance key). If class time ends before you finish a lesson, this slide should make it easy to continue from where you left off in your next session.

As you're preparing to teach, you may decide not to include certain topics in

PowerPoint Tips

Editor's note

Microsoft PowerPoint is fast becoming the software product of choice for professional presenters. Each issue of *Instructor Notes* will include PowerPoint Tips to help you improve your slide show development skills.

Page Layout with PowerPoint
PowerPoint is great for putting what you want where you want it!

PowerPoint is well known for its slide show capabilities. You can truly develop captivating presentations incorporating all kinds of built in tools – including custom animation, word art, and drawing tools of all kinds. Additionally, you can import just about any kind of graphic, including computer art, photographs, and even movies. And the development views – slide view, outline view, and slide show view – make PowerPoint very easy to work with.

What is not as well publicized is PowerPoint's abilities for desktop publishing. The same great layout tools that help you create slide show presentations also allow you to create fast and easy documents for printing.

I've worked with a few desktop publishing programs – our manuals are all developed with Ventura Publisher. And I've used my share of word processors. Frankly speaking, PowerPoint has become my software program of choice for developing short (up to ten page) documents – especially if they incorporate any graphic layout. By the way, I create this newsletter using PowerPoint.

Getting started

Under File, when you select *New*, PowerPoint assumes that you'll be creating an on-screen slide show presentation and automatically sets up for screen display. You'll need to select *Page Setup* (also under File) and in the *Slides sized for* choice, select *letter paper*. Also, PowerPoint defaults to *landscape* orientation.

If you want *Portrait* orientation, you must select it. After clicking OK, you'll be shown a blank page in the work area. Note that items can appear pretty small, so remember that you can scale the working area to a size that suits your needs.

Getting things where you want them

If you've created slide show presentations with PowerPoint, you already know the selection of tools available for placing items in the working area. But when it comes to documents that must be printed (forms, brochures, quizzes, fliers, etc.), you usually want more precision than you need with a slide show. I like to keep the *Snap-to-Grid* function turned on, so items stay in line.

Working with text

The *text box* tool lets you place text in any location. As with any word processor, you'll be able select font, size, and special attributes (bold, italic, etc.). You'll even have automatic spell checking during typing. But unlike most word processors, you'll be able to place your text in any location in the document working area. And you'll be able to constrain text in columns of any width. Using *Line Spacing* (under the Format menu), you can also set spacing between paragraphs. One thing I especially like about Power-Point is this ability to place/move text.

Teaching with our curriculums?

Recent developments…

- ***Turning center curriculum has been updated.*** If you are using this curriculum and have not yet received the free update, please call us.

- ***Curriculum update information now on our website.*** This page includes corrections to known problems, update information, and other important information about our curriculums.

PowerPoint Notes… (cont. from pg 1)

It's extremely helpful with forms and fliers, when you don't know for sure how something is going to look until you see it.

Drawing tools

PowerPoint provides a healthy selection of drawing tools to help you create graphics. Standard shapes include lines, rectangles, circles, arrows, and a whole range of special shapes (boxes, cylinders, polygons, hearts, and many more). Once drawn, you can size and place them with ease.

Importing other objects

Again, one of PowerPoint's strengths is importing ability. In almost all cases you can simply *Insert* the item (using the Insert menu). Once inserted, PowerPoint makes it easy to size and move the object to any location in the working area.

Modifying your document

Again, I feel this is one of PowerPoint's strong points. The large selection of editing tools (copy, cut, paste, duplicate, & group make it possible to easily fine tune even the most complicated documents. I especially like the ability to copy work done in one document and use it over and over again in other documents.

Printing

When you're finished, you can print your document (using the *Print* selection of the File menu) just as you do with any word processor or desktop publisher. What you see in the working area will be precisely printed. That is, PowerPoint is truly a *What you see is what you get* (WYSWYG) software application.

End

Publicize your school

We maintain a **schools forum** on our website (www.cncci.com). It's free – and it's a great way to let potential students know about your CNC-related courses!

Simply fill in an online form that asks for some general information about your CNC courses, lab equipment, and degree information. About half the schools currently listed are using our CNC curriculums to help them teach CNC courses!

Curriculum update…(cont. from pg 1)

your presentation. Perhaps you want to skip them for now and come back to them later. In this case, when you get to the topic you wish to skip, simply click on the return button to get back to the presentation links page. Then click on the topic *after* the one you wish to skip.

This slide will also make it much easier to review. It makes a great set of *bullet points,* helping you remember the topics that must be reviewed. If students are having problems with a topic during the review, you can simply click on the topic and present the material again.

Instructor Notes manual – This version of the curriculum still includes the set of slides containing audio guidance, and we think you'll agree that it makes the easiest way to gain an understanding of how to present each topic throughout the course. While we feel this audio guidance is extremely helpful, we've received several suggestions from instructors saying they want a way to prepare to teach without having to have a computer available – and that they'd like a way to make notes of their own as they present the course.

The Instructor Notes manual contains information that parallels what is done with audio guidance, giving you another way to prepare to teach. But we do not include every slide in this manual (there are over 5,000 slides in the curriculum). Instead, we've picked key slides at transition points and provided a short description of how to present the topic. Even so, this manual is 830 pages long! Here is a sample page from the Instructor Notes manual.

Instructor Notes Manual

Slide 28   Lesson 1
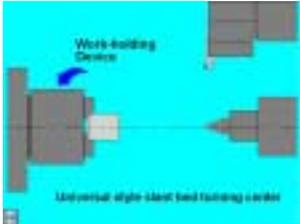
This series of slides helps you describe the various components of CNC turning centers. On this slide, we're emphasizing the work holding device – commonly a three jaw chuck. Upcoming slides help you describe other major components, including the tailstock and the turret.

Turning Center Programming and Operation

Fly-in text boxes – Regardless of how much preparation you do, it's impossible to memorize every topic. Again, there are over 5,000 slides. It can be especially difficult during transition points, when the presentation is shifting gears. For this reason, most transition slides now include *fly-in text boxes* to help you stay on track. Sometimes the fly-in text box will keep you from forgetting to make a key point. Other times it will help at a transition point to remind you about where the presentation is going. In many cases, what is in the text box can be used as your first sentence for the slide, helping you quickly dig into the material

Review slide presentation – It it extremely important to review key information on a regular basis. In this presentation, we begin each key concept with a list of lessons related to the key concept. This lets you re-stress the importance of each key concept. We then include the presentation links slide for each lesson in the key concept, helping you remember topics that need reviewing.

End

CNC Instructors!
Teach CNC with the best materials!

Two Recently Updated Courses!
• Machining Center Programming-Setup-Operation
• Turning Center Programming-Setup-Operation

Instructor's materials

- **Instructor's manual** – Includes instructions for teaching the course, a course outline, a hard copy of review slide presentation, an answer book for students' exercises, and a final test with answers.

- **Instructor Notes manual** – Guidance for teaching in step-by-step form for each lesson.

- **CD-rom disk/s** – Include two sets of PowerPoint presentations (one with audio guidance and one without), PowerPoint Viewer software, all written documentation (manuals) in Adobe Acrobat (PDF) format, and Adobe Acrobat Reader.

Student's materials

- **Course manual** – Over 300 pages manual that follows along with your presentations.

- **Workbook** – Including an exercise for each lesson (24 in the machining center course and 28 in the turning center course).

The best part…

Instructor's materials are FREE with your school's initial order for student materials! Visit our website for details (www.cncci.com)

Favorite analogies

You can't have enough analogies in your basket of teaching tools. Analogies make it easier for students to understand complex topics by relating things to them that are familiar and easier-to-understand. In these discussions (which will be included in each issue of *Instructor Notes*), we will relate a few favorites. Note that these analogies are commonly incorporated right into the slide shows included with our curriculums.

The importance of procedures

I like to stress that running a CNC machine is little more than following a series of procedures. The real trick is knowing *when* to perform a given procedure! But even once a student knows why and when a procedure is needed, fumbling through the actual key strokes, button pushing and switch activation can be frustrating – and there is something you can do to minimize this frustration.

This analogy may be aimed more at instructors and managers than it is toward students. The analogy goes something like this: You should agree that when faced with the task of traveling across country for the first time, say from Chicago to Miami, you would seek a little help. A map would be a must. Or you might go to the Internet to download step-by-step instructions (a procedure) for getting

Chicago, IL To Miami, FL
　　　　　Directions:
　　　　　1:Go South on I-90(Portions toll) to Indiana
　　　　　2:Go East on I-90(Portions toll) to I-65
　　　　　3:Go Southeast on I-65 to I-465
　　　　　4:Go South on I-465 to I-65
　　　　　5:Go South on I-65 to Briley Pkwy
　　　　　6:Go Southeast on Briley Pkwy to I-40
　　　　　7:Go West on I-40 to I-24
　　　　　8:Go Southeast on I-24 to I-75
　　　　　9:Go Southeast on I-75 Florida
　　　　　10:Go Southeast on I-75 to Florida Turnpike
　　　　　11:Go Southeast on Florida's Turnpike
　Total Distance: 1382.4 miles (2336.3 km)

Travel instructions downloaded from the Internet provide
a procedure to get from one place to another.

from place to place. The illustration shows an example of downloaded instructions.

Though you wouldn't expect a person to undertake a long journey without a roadmap, it's amazing how many CNC people are expected to memorize every detail needed to successfully setup and operate a CNC machine. And given the relative complexity (and danger) of a CNC machine tool, why would we force our students memorize countless procedures.

I've been in shops that have rather make-shift training. You know the kind. An experienced person is told to work with a newcomer – and somehow what the experienced person knows is expected to rub off on the newcomer.

With this kind of training, it is not unusual for the experienced person to whiz-bang through a procedure they know by heart – say powering up the machine – or setting offsets – or editing a program. They then expect the newcomer to repeat (and even remember?) the procedure – after having seen it only once or twice. As you can imagine, not much is learned and the situation quickly becomes frustrating for both the newcomer and the experienced person.

Admittedly, experienced people should memorize commonly used procedures. But as newcomers are gaining experience with a given CNC machine, they're going to need some help. As an instructor, you can easily provide this help by providing the most common procedures in your own *operation handbook.*

In our CNC curriculums, we provide a set of rather generic operation handbooks. I say generic because no single set of procedures will work for more than one CNC machine tool – especially if different machine tool builders are involved. For your own school shops and labs, you should create an operation handbook for each of the machines your students will be running.

Break the handbook into logical sections. Include appropriate procedures in each section. Here's an example:

Manual procedures
　Start the machine
　Perform a zero return
　Start spindle
　Load tools

Manual data input (MDI) procedures
　Change tools
　Perform a zero return
　Start & stop spindle

Setup procedures
　Measure tool lengths
　Measure fixture offsets

Program editing procedures
　Search in programs
　Alter, edit, & delete word
　Load programs
　Delete programs

Program running procedures
　Free flowing dry run
　Normal air cutting run
　Running first part
　Re-running tools

You can probably think of more. Just be sure you give students the help they need to feel confident as they start out.

Instructor Notes Newsletter Enclosed!

Tips for teaching CNC courses from CNC Concepts, Inc.

Machining Center Course!

CNC Instructors!

If you're using one of our proven curriculums to teach CNC machine tool usage, be sure your students know that your course is also available on a reasonably priced CD-rom disk. They'll already have the manual and workbook, so they'll only have to purchase the courseware ($149.00 for six hour presentation).

As a CNC instructor, *you* may want to make this courseware available for students that miss a lesson or want to review material you present.

Do you feel at all weak in your CNC skills?
With our CNC curriculums, we provide audio guidance for each lesson to help instructors know how to present our courses. This is sufficient for instructors that are quite familiar

see below

New computer based training course! CD-ROM disk: over 6 hours!

CNC Machining Center Programming, Setup, and Operation
Affordable courseware for CNC machining centers!

A very popular CNC machine type!
CNC machining centers are among the most popular types of CNC machine tools. Most companies that have any CNC machines have at least one. Unfortunately, companies are finding it more and more difficult to find and hire qualified CNC people. Many are realizing that they must provide extensive training to new hires and provide at least some continuing training to established employees.

A proven method
This affordable courseware makes it possible to train CNC people from scratch. While we assume the student has some basic machining practice experience, we assume nothing about their previous CNC skills. Using our proven *key concepts approach*, we bring students up to speed gradually – constantly building upon previously presented information – and we stress the reasons *why* things are done as importantly as *how* they're done. Six of the ten key concepts are most related to programming, and four are related to setup and operation.

24 lessons!
We further divide the key concepts into twenty-four lessons. Lessons range from under five minutes to just over twenty minutes in length (total course presentation time is just over six hours on one CD-rom).

The most popular control!
All examples are shown in the format for the most popular control in the industry – the Fanuc control. Note that many control manufacturers claim to be Fanuc-compatible.

What you get!
The CD-rom disk is jam-packed with over six hours of information about CNC machining centers. By itself, it makes formidable training tool. It's price is $149.00.
When purchased with the workbook answer combination ($30.00), you'll be able to confirm that you truly understand the material (24 exercises, one for each lesson).
When purchased with the optional student manual ($60.00), you'll have a way to easily review information after you finish the course.
If all items are purchased (total: $239.00), we include a one-year subscription to our newsletter, The Optional Stop.

The price for unlimited training? … $149.00 (courseware only)
Companion manual: $60.00, workbook/answer combination: $30.00
Contact CNC Concepts, Inc. (847-639-8847) to order!

New computer based training course! CD-ROM disk: 5.8 hours!

CNC Turning Center Programming, Setup, and Operation
Affordable courseware for CNC turning centers!

A very popular CNC machine type!
CNC turning centers are among the most popular types of CNC machine tools. Most companies that have any CNC machines have at least one. Unfortunately, companies are finding it more and more difficult to find and hire qualified CNC people. Many are realizing that they must provide extensive training to new hires and provide at least some continuing training to established employees.

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28 lessons!
We further divide the key concepts into twenty-eight lessons. Lessons range from under five minutes to just over twenty minutes in length (total course presentation time is five hours fifty-two minutes on one CD-rom).

The most popular control!
All examples are shown in the format for the most popular control in the industry – the Fanuc control. Note that many control manufacturers claim to be Fanuc-compatible.

What you get!
The CD-rom disk is jam-packed with 5 hours, 52 minutes of information about CNC turning centers. By itself, it makes formidable training tool. It's price is $149.00.
When purchased with the workbook answer combination ($30.00), you'll be able to confirm that you truly understand the material (28 exercises, one for each lesson).
When purchased with the optional student manual ($60.00), you'll have a way to easily review information after you finish the course.
If all items are purchased, we include a one-year subscription to our newsletter, The Optional Stop.

The price for unlimited training? … $149.00 (courseware only)
Companion manual: $60.00, workbook/answer combination: $30.00

Turning Center Course!

with CNC. For those instructors that may feel a little weak with their CNC skills, or for those who may be trying to teach a different machine type, these concise courses let you bone up on subject matter as quickly as possible.

Each course follows its companion curriculum to the letter (ten key concepts, number of lessons, presentation method, graphics, etc). In fact, we use the same manual and workbook in the courseware that you use with our curriculums! So if you're already using our curriculums, all you need is the courseware.