



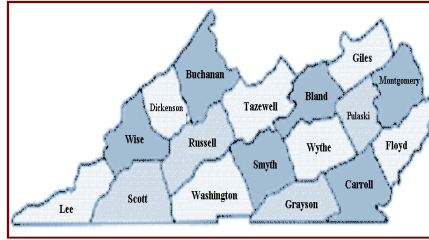
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# MTC

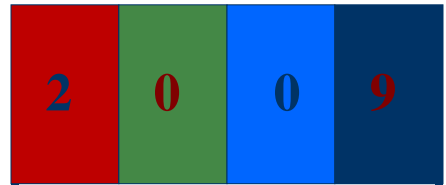


[www.mtcofswva.org](http://www.mtcofswva.org)



Serving 17 counties and 4 cities in SWVA

## UPCOMING EVENTS!



**Six Sigma Green Belt Training and Project Support**  
Weekly—4-hour class meetings  
Begins in February—Abingdon, VA  
Location and Time TBD

**Lean Six Sigma Overview**  
MECC—Phillips Taylor Hall  
Big Stone Gap, VA  
February 19, 2009

**Lean Six Sigma Peer Group Conference**  
March 10, 2008  
Location: Merillat — Plant 2  
Marion, VA  
Time: TBD

[www.mtcofswva.org](http://www.mtcofswva.org) for more information



### From the Director



The Manufacturing Technology Center is making every effort possible to identify and serve the needs of our industry clients. As an affiliate of the nationwide Manufacturing Extension Partnership (MEP) network, the MTC has access to training and subject matter experts from throughout the state and nation. With our affiliation with the Virginia Community College System, we can involve the local community colleges in developing projects that meet client needs. So, no matter how simple or complex, small or large, I encourage you to contact the MTC to discuss your needs.

A quick look back at this fiscal year to share what the MTC has been doing. In the last 5 months, the MTC has served 19 clients with projects. We have had 106 persons attend MTC events representing 51 regional businesses.

This newsletter contains more information about MTC events and projects. We will continue to schedule outreach events and be available for free on-site assessment visits. I hope you enjoy our newsletter.

*Keith Thompson*

### Editor's Corner

What is the meaning behind “buzz” words? Well, one word can say a lot. Buzz words of late are: “recession”, “corporation”, “management”, “banking”, “stock market”, “unemployment”, “downsizing”, “economy”, “mortgage”, and “change” to name a few. If you listen to the media, you will hear these words frequently mentioned. These are difficult times. History shows poverty and prosperous times. If you could go back in time, what year would you live in? I heard someone say just recently, the “50’s.” Our Country has survived hardships and wars. I would certainly not want to live during the Civil War where brother was fighting against brother—homes and hearts torn apart. Not during the Vietnam War where drafts were inevitable and the outcome disastrous. The 80’s and 90’s were not as bad. Fortunately our Persian War did not last long. Each of us wonder, how did this country get where it is today? No doubt our ancestors asked the same thing. We must have faith that with time conditions will improve. Some are more fortunate than others. It is easy to stand back and watch—it is harder to jump in and share another’s hardships and pain.



At this time in “our” lives, let us not forget the time line of our history—what it means to live in this country. Let us remember the Preamble to the Constitution, “We the people....” and forge ahead. The MTC is here to assist manufacturing. Call if you need our assistance. With the election behind us, let’s support our government and leaders—. As John Quincy Adams once said, “Always vote for principle, though you may vote alone, and you may cherish the sweetest reflection that your vote is never lost.”

*Linda Newman*

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**Dr. Eileen Van Aken**

### KAIZEN RESEARCH AT VIRGINIA TECH

Kaizen events have become an increasingly common improvement mechanism to introduce and implement lean work system principles throughout the organization. A Kaizen event is a focused and structured improvement project using a dedicated cross-functional team to improve a targeted work area, with specific goals, in an accelerated timeframe. This type of process improvement vehicle is most often conducted in a 3-5 day workshop setting, where project team members apply structured process analysis and improvement tools (often from the “lean toolkit”) and human creativity to substantially improve performance of the targeted work area, process, or product. Many organizations report promising initial results from Kaizen events, and proponents of Kaizen events claim their use will also create a culture of continual improvement over time and will lead to other human resource outcomes, such as positive employee attitudes and knowledge/skills. Some organizations seem to be able to produce and sustain these improved levels of performance.

Many organizations, however, find that within six months to one year, work area performance has degraded, sometimes even reverting back to pre-event performance levels. Both consultants and industry leaders acknowledge that even in companies where events are generally successful, unsuccessful events (i.e., an area where few significant improvements were made, even initially), are not uncommon. A four-year study of Kaizen events funded by the National Science Foundation is being conducted by researchers at multiple universities. The team of industrial engineering researchers has partnered with eleven different manufacturing organizations conducting Kaizen events systematically to identify those factors that are most critical to creating, and to sustaining, results.

One of the outcomes this study has investigated is team member *attitude*, which is defined as employee liking for Kaizen events and desire to be part of future events. Clearly, this is an important outcome for those organizations repeatedly using Kaizen events as a strategy to implement lean principles (where employees may be asked to serve on a number of event teams over time). Several drivers were identified that significantly relate to team member *attitude*. First, teams that experienced high levels of *internal team processes* also had the most positive team member *attitudes*. *Internal team processes* relate to communication within the team and members’ valuing the contributions and ideas of others. Further, teams that reported high levels of *goal clarity* (clearly understanding the team’s goals and why they are important to the organization) also had strongly positive team member *attitudes*. It appears that *goal clarity* influences *internal team processes*, and thus team member *attitude*, by providing the team with a common language and business focus. One of the practices to establish *goal clarity* that we have observed in more successful Kaizen event programs is the use of a comprehensive project team charter that clearly outlines the team’s goals. A team charter can also be used to plan and define other aspects of the event (such as team member composition, approach to improvement, resources available to the team, etc.). A third driver of attitude is *management support*. In this study, this was measured not only by the traditional perception of whether or not higher-level management is supportive in general of the Kaizen event, but also included having sufficient contact with management throughout the event (such as at the kick-off and report-out meeting) as well as having access to needed resources (whether physical or information resources).

Lastly, the fourth driver that was found to relate to *attitude* was the cross-functional nature of the team’s composition. What perhaps may be surprising is that *functional heterogeneity* was negatively related to team member *attitude*. In other words, teams that were **more** heterogeneous with respect to functions represented reported significantly **lower** *attitude*. This may seem to create a dilemma for those planning Kaizen events, particularly given the universal prescription in the literature to use a cross-functional team. However, having the right constituencies and stakeholders represented on the team is critical to developing creative, high-quality solutions to the problems defined. Therefore, Kaizen event coordinators and facilitators should plan to use cross-functional teams, but must be aware of the consequences of higher levels of *functional heterogeneity*. Further, the effect of *functional heterogeneity* can be offset by paying close attention to the other three drivers of *attitude* (which all had positive relationships with *attitude*) – namely, *internal team processes*, *goal clarity*, and *management support*. An effective facilitator and sufficient advance planning for the event, can create positive levels of these three drivers in order to counter the effect of a heterogeneous team while still achieving the creation of solutions that represent multiple views and perspectives. This research is supported by the National Science Foundation under grant No. DMI 0451512. Dr. Eileen Van Aken is Associate Professor and Associate Department Head of the Engineering Research Lab at Virginia Tech.. E-mail: [evanaken@vt.edu](mailto:evanaken@vt.edu).

## “Manufacturing Technology Center Awards First Six Sigma Training Certificate”



L to R: MTC Six Sigma Instructor, Nelson Teed , MTC Executive Director, Keith Thompson, Six Sigma Green Belt Recipient, Kevin Phillips, WCC Dean of Workforce Development, Continuing Education & Technical and Occupational Programs, Stacy Thomas.

In a ceremony held October 2<sup>nd</sup> at Wytheville Community College, the Manufacturing Technology Center (MTC) and Wytheville Community College (WCC) presented Mr. Kevin Phillips with a certificate for achieving the Green Belt level of proficiency in the Six Sigma System of Continuous Improvement. Six Sigma is a statistically based methodology for defining, measuring, analyzing, improving, and controlling business processes.

There are 4 levels of certification ranging from the entry-level yellow belt through green belt, black belt, and master black belt. Green belt training requires the completion of a rigorous 12-week training program which runs in parallel with the student completing a successful Six Sigma project at their place of business.

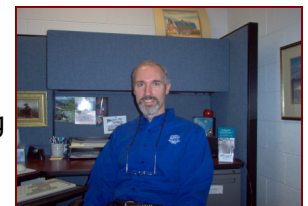
This 12-week class was taught by MTC Project Engineer and Six Sigma Black Belt, Nelson Teed. MTC’s Executive Director, Keith Thompson, stated: *“Six Sigma is a powerful tool for improving processes of all types across a wide range of businesses. We are excited to be able to offer this type of training. We already have 6 more students enrolled in a new wave of Green Belt training and hope to have many more in the future. We encourage all businesses in Southwest Virginia to contact the MTC at 276-223-4709 to learn more.”*



Joe Fader, Keith Thompson, Dale Self

## Getting Started in CAD

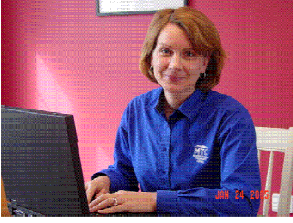
In AutoCAD LT, you can choose from a variety of drawing tools that create lines, circles, spline curves, and more. You can easily move, copy, offset, rotate, and mirror objects. You can also copy objects between open drawings. You can do everything you need for detail and assembly drawings. While AutoCAD LT may lack in some of the more sophisticated tools of AutoCAD, it does not lack for any tools necessary to “get the job done”.



Herb Bird

In this case we were undertaking the training of someone who had some experience in reading drawings but no real experience in drafting and the use of AutoCAD. We started by covering some basics of drafting including: orthographic projection, first and third angle projection, standard drawing lines and weights and dimensioning. We then covered AutoCAD LT fundamentals: user environment, drawing units and limits, grid and snap, layers and drawing organization, Cartesian and polar coordinates, absolute and relative coordinates, basic draw/edit commands, grips, OSNAP and OTRACK, object properties, templates, basic dimensioning and notes, assembly and working drawings, blocks and the Design Center, and the importance of 1:1 in CAD. We started out with simple drawings to gain an understanding of the necessary concepts— then moved up to more complex drawings and assemblies. Finally, we worked on actual company drawings.

Dale really applied himself and we were able to cover a great deal of ground in a short period of time. AutoCAD LT is not overly complex and the user interface (while slightly intimidating to some) is easily mastered. Dale was able to handle all of the tasks his company had set out as goals (edit existing drawings, create new drawings, create templates for future use, organize drawings, edit/create assembly drawings) and he even designed a tool to help the customers. *Herb*



Claire Pickrell

If you have worked with the ISO 9000 standards for long you know that they are periodically reviewed and updated as needed. The last revision of the ISO 9001 standard was in the year 2000. A review of the ISO 9001:2000 standard has been completed and some “amendments” (although only clarifications to the existing standard ) have been made. This standard is called ISO 9001:2008 and was released on 11/14/2008. One year after the publication of a new revision all certifications issued will be to ISO 9001:2008. Twenty-four months after publication of ISO 9001:2008, any existing certifications issued to ISO 9001:2000 will not be valid according to a press release from ISO and the IAF.

What does all that mean to you? Well, if you are already certified to the ISO 9001:2000 standard— there should be limited impact on you. The amendments that were made were for clarification purposes only and to have better alignment with ISO 14001. So if you implemented ISO 9000:2001 correctly there should be little changes to your current QMS processes and documentation. If you are currently preparing for your initial ISO 9001 certification, there is no reason to delay or change your approach. If you are correctly implementing an ISO 9001:2000 quality management system to prepare for your initial certification audit, the new standard will not impact you significantly. If you have any questions or need assistance, the MTC has qualified staff to help you with your ISO needs. *Claire*



**PART TIME POSITION**  
**AVAILABLE**

The MTC has been awarded a grant by the Environmental Protection Agency (EPA) to provide pollution prevention, environmental compliance, and natural resources conservation services. Please contact the MTC office for further details on these services. We have advertised, and will interview in January, for a part-time coordinator to provide clients with on-site pollution prevention assessments, environmental compliance, and energy conversation assistance. Anyone interested in this position can find out more by accessing [www.wcc.vccs.edu/hr/jobs.php](http://www.wcc.vccs.edu/hr/jobs.php)

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Mr. Jon L. Sisti, Textron Fastening System

#### MTC Advisory Board Officers for 2008-09\*

Mr. David Carpenter – President  
Vacant – Vice President  
Dr. Charlie White – Secretary/Treasurer

### Mobile Learning Unit Corner

The MTC has discontinued its mobile classroom services. After more than ten years of use throughout Virginia, the Mobile Learning Unit (MLU) has been sold. The MLU will be used by a University in Mexico to provide on-site training for the coal mining industry in Mexico. We would like to thank our staff and clients for supporting the MLU program that was started in 1997.

