



# Society of Manufacturing Engineers Wabash Valley Chapter 275

February, 2007

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## Upcoming Dates

- Feb. 8 Wabash meeting
- Feb. 23 and 24 SME Leadership Boot Camp
- Mar. 8 Wabash meeting
- Mar. 26-29 WESTEC  
Los Angeles, CA
- Apr. 12 Wabash meeting
- May. 10 Wabash meeting
- May 22-24 EASTEC  
W. Springfield, MA
- Jun. TBD Wabash golf outing
- Sep. 13 Wabash meeting
- Oct. 11 Wabash meeting
- Nov. 8 Wabash meeting
- Dec. TBD Wabash meeting

## SME Wabash Valley 275 Meeting Schedule

### February 8, 2007, Thursday

Location is Richards Farm Restaurant, in Illinois, I-70 Exit 129, then South on Hwy 49. Go 1 mile, then turn left (East) on US 40. Go about 1/2 mile, then turn left at the first road, and continue to the barn.

**5:30 PM CST Illinois time** Social and registration

**6:00 PM CST Illinois time** Dinner BBQ Pork Loin or Roast Turkey and dressing

**7:00 PM CST Illinois time** Dr. LeRoy Franklin talk on Statistics: Peculiar Stability Results

Dinner cost is \$10 each, students \$6 each. Reservations required by Monday, February 5, indicate meal choice and contact Roy Boissy (812) 237-8329 or [arrangements@asqwabashvalley.org](mailto:arrangements@asqwabashvalley.org)  
Joint SME, ASM and ASQ meeting. Everyone welcome.

### February 23 and 24, 2007, Friday and Saturday

SME Leadership Boot Camp, Springfield, MO  
[http://chapters.sme.org/321/SME\\_HALC.htm](http://chapters.sme.org/321/SME_HALC.htm)

### March 8, 2007, Thursday

Novelis tour, 5901 North 13th Street, Terre Haute, IN 47805. Steel toed shoes required. Safety glasses and earplugs will be provided. This is the former Alcan facility. Times will be given later.

Reservations required by Monday, March 5, contact Roy Boissy (812) 237-8329 or [arrangements@asqwabashvalley.org](mailto:arrangements@asqwabashvalley.org)  
Joint SME, ASM and ASQ meeting. Everyone welcome.

### March 26 - 29, 2007

SME WESTEC, Los Angeles, CA. More information is on the SME web site.

### April 12, 2007, Thursday

Student donation night. Times and location will be given later.

Reservations required by Monday, April 9, contact Roy Boissy (812) 237-8329 or [arrangements@asqwabashvalley.org](mailto:arrangements@asqwabashvalley.org)  
Joint SME, ASM and ASQ meeting.  
Everyone welcome.

### May 10, 2007, Thursday

Challenge X update, Rose-Hulman Institute of Technology  
Times and location will be given later.

Reservations required by Monday, May 7, contact Roy Boissy (812) 237-8329 or [arrangements@asqwabashvalley.org](mailto:arrangements@asqwabashvalley.org)  
Joint SME, ASM and ASQ meeting.  
Everyone welcome.

### May 22 - 24, 2007

SME EASTEC, W. Springfield, MA. More information is on the SME web site.

### June, 2007

Golf outing at the Country Club of Terre Haute, 57 Allendale Street, Terre Haute, IN 47802. Picnic to follow after the golf outing.  
Times will be given later.

For reservations, contact Roy Boissy (812) 237-8329 or [arrangements@asqwabashvalley.org](mailto:arrangements@asqwabashvalley.org)  
Joint SME, ASM and ASQ meeting.  
Everyone welcome.

### SME 75 Years



For 75 years, the Society of Manufacturing Engineers (SME) has been the place *Where Manufacturing Comes Together*. Founded in 1932 with 33 members, the organization was originally named the Society of Tool Engineers. A year later, it was renamed the American Society of Tool Engineers. It finally became the Society of Manufacturing Engineers in 1969.

Formed amid the Great Depression by a group of tool engineers and master mechanics, the organization looked to collaborate on how to build what would give the Motor City its name - the automobile.

Today, SME is the world's leading professional society supporting manufacturing education. Through its member programs, publications, expositions and professional development resources, SME promotes an increased awareness of manufacturing engineering and helps keep manufacturing professionals up to date on leading trends and technologies. Headquartered in Michigan, SME influences more than half a million manufacturing practitioners and executives annually. The Society has members in more than 70 countries and is supported by a network of hundreds of technical communities and chapters worldwide. SME's members hail from diverse manufacturing industries, including aerospace and defense, automotive and transportation, medical, and many, many more.

The year 2007 marks SME's 75<sup>th</sup> Anniversary. On the occasion of its Diamond Jubilee, the Society extends warm wishes to its members, partners, customers and friends all around the globe.

<http://www.sme.org/cgi-bin/abouthtml.pl?/html/history.htm&&&SME&>

### Certification Corner

If you are interested in participating in a study group for the CMfgE - Certified Manufacturing Engineer, please send an e-mail to [smewabash@yahoo.com](mailto:smewabash@yahoo.com) and provide your contact information. The tentative plans are to start up in January, 2007, and take the exam in April or May.

More information on all SME Certifications may be found at <http://www.sme.org> then click on Professional Development drop down menu Certification. More information on the SME Lean Certification may be found by then clicking on Lean Certification, from that page.

## **SME Wabash Valley 275 Membership**

This month we recognize some long time SME members:

30 years - William P. Magers  
29 years - Paul L. Fisher  
27 years - David J. Malooney  
25 years - Beth A. Lee  
24 years - David Pride  
22 years - Richard W. Southerland

Congratulations to the above members for their many years of SME membership.

If you know of a SME member that is in the Terre Haute area, but is not a Wabash Valley member, please ask them to consider joining Chapter 275.

## **Notes from last month' meeting**

12 people attended the January joint meeting of ASM Wabash Valley, ASQ Wabash Valley and SME Wabash Valley. Jack Fenoglio hosted and led the tour of the Aleris Blanking plant, followed by a tour of the Rim plant. The Blanking plant takes coiled metal alloys and blanks out disks or rectangular shapes. Subsequent operations include annealing and surface treatments.

Some of the blanks are sent to the Rim plant where they are welded into a ring and then roll formed into wheel rims. Other blanks are sent to their customers, who make them into items such as light reflectors. Dinner was at Moggers. Photos from the meeting are on page 5.

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## **Question of the Month**

How many SME Chapters are in North America? How many other countries have SME Chapters?

If you think you know the answer, send an e-mail to [smewabash@yahoo.com](mailto:smewabash@yahoo.com). The first person with the correct answer will have their name listed in next month's newsletter.

The answer will be given next month.

## **Answer for December's Question**

The December meeting was a Madrigal dinner. What does Madrigal mean relative to music?

A **Madrigal Dinner** or Madrigal Feast is an American form of dinner theater often held by schools and church groups during the Christmas season. It is set in the Middle Ages and is generally comedic in nature. The meal is divided into courses, each of which is heralded with a traditional song. A play is performed between the courses and a concert of choral music concludes the festivities.

The music performed at a madrigal dinner is usually mixed choral music from the medieval to renaissance periods. A **madrigal** is a setting for 2 or more voices of a secular text, often in Italian. The madrigal has its origins in the frottola, and was also influenced by the motet and the French chanson of the Renaissance. It is related mostly by name alone to the Italian trecento madrigal of the late 13th and 14th centuries; those madrigals were settings for 2 or 3 voices without accompaniment, or with instruments possibly doubling the vocal lines.

More information is at:

[http://en.wikipedia.org/wiki/Madrigal\\_dinner](http://en.wikipedia.org/wiki/Madrigal_dinner) and  
[http://en.wikipedia.org/wiki/Madrigal\\_%28music%29](http://en.wikipedia.org/wiki/Madrigal_%28music%29)

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## **SME 275 Wabash Valley Officers for 2007**

Michael Hayden, Chair  
Hank Leonhardt, Chair Elect  
Bill Wortman, Secretary  
Wes Richardson, Treasurer

## **SME S089 Indiana State University Student Chapter Officers for 2007**

Rakesh Yarlagadda, Chair  
Ryan Kunkler, Chair Elect  
Sajid Syed, Secretary  
Karthek Theeda, Treasurer  
Surendranath Antharam,  
Program Committee Chair  
James Smallwood, Faculty Advisor

## **SME headquarters contacts for 2007**

Natalie Lowell, Member Relations Manager  
Michael F. Molnar, Member Council  
Representative

You may send an e-mail to any of the above individuals by sending to [smewabash@yahoo.com](mailto:smewabash@yahoo.com) and including the name of the person you wish to contact. Place SME Wabash Valley in the Subject line. Your e-mail will be forwarded to the indicated person.

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## **Internet Web Sites**

SME Wabash Valley, Chapter 275  
<http://chapters.sme.org/275/>

SME Indiana State University, Chapter S089  
<http://chapters.sme.org/s089/>

SME International  
<http://www.sme.org>

ASQ Wabash Valley, Section 0919  
<http://www.asqwabashvalley.org/>

ASQ International  
<http://www.asq.org>

ASM Wabash Valley  
<http://chapters.sme.org/275/asm.htm>

ASM International  
<http://www.asminternational.org>

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**The SME Wabash Valley Newsletter** newsletter is a publication of SME Wabash Valley, Chapter 275, located in Terre Haute, Indiana.

Articles, comments or other feedback may be sent to:

Wesley Richardson, Newsletter Editor  
10037 E. Flesher Avenue  
Terre Haute, IN 47803-9638  
[smewabash@yahoo.com](mailto:smewabash@yahoo.com)

Deadline for submitting information for the March newsletter is February 23, 2007.



**Jack Fenoglio explaining how wheel rims are made**



**Alloy wheels and rims**

## ASQ Quality Glossary

<http://www.asq.org/glossary>

**Kruskal-Wallis test:** The Kruskal-Wallis test is a nonparametric test to compare three or more samples. It tests the null hypothesis that all populations have identical distribution functions against the alternative hypothesis that at least two of the samples differ only with respect to location (median), if at all. It is the analogue to the F-test used in analysis of variance. While analysis of variance tests depend on the assumption that all populations under comparison are normally distributed, the Kruskal-Wallis test places no such restriction on the comparison. It is a logical extension of the Wilcoxon Mann-Whitney Test (see listing).

### L

**Leader:** An individual who is recognized by others as a person they will follow.

**Leadership:** An essential part of a quality improvement effort. Organization leaders must establish a vision, communicate that vision to those in the organization and provide the tools and knowledge necessary to accomplish the vision.

**Lean manufacturing:** Initiative focused on eliminating all waste in manufacturing processes. Principles of lean include zero waiting time, zero inventory, scheduling (internal customer pull instead of push system), batch to flow (cut batch sizes), line balancing and cutting actual process times.

**Life cycle stages:** Design, manufacturing, assembly, installation, operation and shutdown of product.

**Listening post:** An individual who, by virtue of his or her potential for having contact with customers, is designated to collect, document and transmit pertinent feedback to a central collection authority within the organization.

**Lost customer analysis:** Analysis conducted to determine why a customer or a class of customers was lost.

**Lot:** A defined quantity of product accumulated under conditions considered uniform for sampling purposes.

**Lot, batch:** A definite quantity of some product manufactured under conditions of production that are considered uniform.

**Lot quality:** The value of percentage defective or of defects per hundred units in a lot.

**Lot size (also referred to as N):** The number of units in the lot.

**Lot tolerance percentage defective (LTPD):** Expressed in percentage defective, the poorest quality in an individual lot that should be accepted.

Note: LTPD is used as a basis for some inspection systems and is commonly associated with a small consumer's risk.

**Lower control limit (LCL):** Control limit for points below the central line in a control chart.

### M

**Maintainability:** The probability that a given maintenance action for an item under given usage conditions can be performed within a stated time interval when the maintenance is performed under stated conditions using stated procedures and resources. Maintainability has two categories: serviceability (the ease of conducting scheduled inspections and servicing) and repairability (the ease of restoring service after a failure).

**Malcolm Baldrige National Quality Award (MBNQA):** An award established by the U.S. Congress in 1987 to raise awareness of quality management and recognize U.S. companies that have implemented successful quality management systems. Two awards may be given annually in each of five categories: manufacturing company, service company, small business, education and healthcare. The award is named after the late Secretary of Commerce Malcolm Baldrige, a proponent of quality management. The U.S. Commerce Department's National Institute of Standards and Technology manages the award, and ASQ administers it.

**Management review:** A periodic meeting of management at which it reviews the status and effectiveness of the organization's quality management system.

**Manager:** An individual charged with the responsibility for managing resources and processes.

**Master Black Belt (MBB):** Six Sigma or quality experts responsible for strategic implementations within the business. The Master Black Belt is qualified to teach other Six Sigma facilitators the methodologies, tools and applications in all functions and levels of the company and is a resource for

utilizing statistical process control within processes.

**Matrix:** A planning tool for displaying the relationships among various data sets.

**Mean:** A measure of central tendency; the arithmetic average of all measurements in a data set.

**Mean time between failures (MTBF):** The average time interval between failures for repairable product for a defined unit of measure; for example, operating hours, cycles and miles.

**Measure:** The criteria, metric or means to which a comparison is made with output.

**Measurement:** The act or process of quantitatively comparing results with requirements.

**Median:** The middle number or center value of a set of data in which all the data are arranged in sequence.

**Metric:** A standard for measurement.

**Metrology:** The science of weights and measures or of measurement. A system of weights and measures.

**MIL-Q-9858A:** A military standard that describes quality program requirements.

**MIL-STD-45662A:** A military standard that describes the requirements for creating and maintaining a calibration system for measurement and test equipment.

**MIL-STD-105E:** A military standard that describes the sampling procedures and tables for inspection by attributes.

**Mission:** An organization's purpose.

**Mode:** The value occurring most frequently in a data set.

**Muda:** Japanese for waste. Any activity that consumes resources but creates no value for the customer.

**Multivariate control chart:** A control chart for evaluating the stability of a process in terms of the levels of two or more variables or characteristics.

**Myers-Briggs type indicator (MBTI):** A methodology and an instrument for identifying an individual's personality type based on Carl Jung's theory of personality preferences.

## N

**n:** The number of units in a sample.

**N:** The number of units in a population.

**National Institute of Standards and Technology (NIST):** An agency of the U.S. Department of Commerce that develops

and promotes measurements, standards and technology. NIST manages the Malcolm Baldrige National Quality Award.

**Natural team:** A team of individuals drawn from a single work group; similar to a process improvement team except that it is not cross functional in composition and it is usually permanent.

**Next operation as customer:** The concept of internal customers in which every operation is both a receiver and a provider.

**Nominal group technique:** A technique, similar to brainstorming, used by teams to generate ideas on a particular subject. Team members are asked to silently come up with as many ideas as possible, writing them down. Each member is then asked to share one idea, which is recorded. After all the ideas are recorded, they are discussed and prioritized by the group.

**Nonconformity:** The nonfulfillment of a specified requirement (see also "blemish," "defect" and "imperfection").

**Nondestructive testing and evaluation (NDT, NDE):** Testing and evaluation methods that do not damage or destroy the product being tested.

**Nonlinear parameter estimation:** A methodology whereby the arduous, labor-intensive and distinctly frustrating task of multiparameter model calibration can be carried out automatically under the control of a computer.

**Nonparametric tests:** Nonparametric tests are often used in place of their parametric counterparts when certain assumptions about the underlying population are questionable. For example, when comparing two independent samples, the Wilcoxon Mann-Whitney test (see listing) does not assume the difference between the samples is normally distributed, whereas its parametric counterpart, the two-sample t-test, does. Nonparametric tests may be, and often are, more powerful in detecting population differences when certain assumptions are not satisfied. All tests involving ranked data (data that can be put in order) are nonparametric.

**Nonvalue added:** A term that describes a process step or function that is not required for the direct achievement of process output. This step or function is identified and examined for potential elimination.

**Norm (behavioral):** Expectations of how a

person or persons will behave in a given situation based on established protocols, rules of conduct or accepted social practices.

**Normal distribution (statistical):** The charting of a data set in which most of the data points are concentrated around the average (mean), thus forming a bell shaped curve.

**Number of affected units chart:** A control chart for evaluating the stability of a process in terms of the total number of units in a sample in which an event of a given classification occurs.

## O

**Objective:** A specific statement of a desired short term condition or achievement; includes measurable end results to be accomplished by specific teams or individuals within time limits.

**Operating characteristic curve (OC curve):** A graph to determine the probability of accepting lots as a function of the lots' or processes' quality level when using various sampling plans. There are three types: type A curves, which give the probability of acceptance for an individual lot coming from finite production (will not continue in the future); type B curves, which give the probability of acceptance for lots coming from a continuous process; and type C curves, which (for a continuous sampling plan) give the long run percentage of product accepted during the sampling phase.

**Original equipment manufacturer's (OEM):** A company that uses product components from one or more other companies to build a product that it sells under its own company name and brand. Sometimes mistakenly used to refer to the company that supplies the components.

**Ott, Ellis R. (deceased):** An educator who devoted his career to providing U.S. industry with statistical quality control professionals. In 1946, Ott became the chairman of the mathematics department at Rutgers University's University College with one condition: that he could also consult on and teach quality control. His influence led the university to establish the Rutgers Statistics Center. Ott, an ASQ Honorary Member, developed the analysis of means procedure and published many papers.

**Out-of-control process:** A process in which

the statistical measure being evaluated is not in a state of statistical control. In other words, the variations among the observed sampling results can be attributed to special circumstances that have affected the process in an unusual manner (see also "in-control process").

**Out of spec:** A term that indicates a unit does not meet a given requirement.

**Outputs:** Products, materials, services or information provided to customers (internal or external), from a process.

## P

**Pareto chart:** A graphical tool for ranking causes from most significant to least significant. It is based on the Pareto principle, which was first defined by J. M. Juran in 1950. The principle, named after 19th century economist Vilfredo Pareto, suggests most effects come from relatively few causes; that is, 80% of the effects come from 20% of the possible causes. The Pareto chart is one of the "seven tools of quality."

**Partnership/alliance:** Both a strategy and a formal relationship between a supplier and a customer that engenders cooperation for the benefit of both parties.

**P chart:** See "percent chart."

**PDCA cycle:** See "plan-do-check-act cycle."

**Percent chart:** A control chart for evaluating the stability of a process in terms of the percentage of the total number of units in a sample in which an event of a given classification occurs. The percent chart is also referred to as a proportion chart.

**Performance standard:** The metric against which a complete action is compared.