



Society of Manufacturing Engineers Wabash Valley Chapter C275

November, 2007

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Upcoming Dates

Nov. 8 Wabash meeting

Dec. 6 Wabash meeting

Jan. 10 Wabash meeting

Feb. 13 Wabash meeting

Mar. 13 Wabash meeting

Mar. 31 - Apr. 3 WESTEC
Los Angeles, CA

Apr. 10 Wabash meeting

May 8 Wabash meeting

May 20 - May 22 EASTEC
W. Springfield, MA

SME Wabash Valley C275 Meeting Schedule

Nov. 8, 2007, Thursday Wabash meeting

5:00 PM ASQ 0919 Executive Board meeting

6:00 PM Jac Padgett host for tour of Environmental Certification Laboratories, 11422 North U.S. Highway 41, Farmersburg, IN 47850-0569. The lab is located on the East side of US 41, and on the South side of Farmersburg, IN.

EC Labs offers extensive capabilities for inorganic, organic and general chemistry analysis, as well as specialty analytical services. <http://www.eclabs.org>

7:15 PM Dinner at Oasis Restaurant & Lounge, 11514 North U.S. Highway 41, Farmersburg, IN 47850, which is located just North of the EC Labs. Meal cost is \$15 each and only \$6 each for students.

Reservations required by Monday, November 5, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

Joint SME, ASQ, and ASM meeting. Everyone welcome.

SME Chapter C275 Officers for January 1 to December 31, 2008 will take place at this meeting. If you are interested in running for office, please call (812) 533-4215 or send an e-mail to smewabash (at) yahoo.com [replace (at) with @ and remove spaces].

Positions open are:

Chair	Chair Elect
Secretary	Treasurer
Newsletter Editor	Certification Chair

SME Wabash Valley C275 Meeting Schedule

Dec. 6, 2007, Thursday Wabash meeting.

7:00 PM The Indiana State University Music Department and the Sycamore Singers will present the 60th Annual Yuletide Madrigal Feast at St. Stephen's Episcopal Church, 215 N. 7th Street in Terre Haute.

Reservations required by Thursday, November 29. Contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

Jan. 10, 2008, Thursday Wabash meeting.

6:00 PM Tour of the Magnetic Resonance Imaging (MRI) facility at Union Hospital, hosted by Dr. Uwe Hansen. If the MRI facility is not available, Uwe Hansen will discuss Structural Vibration.

7:00 PM Dinner at Gerhardt's Bierstube Restaurant, 1724 Lafayette Avenue, Terre Haute, IN. Meal cost is \$15 each and only \$6 each for students.

Reservations required by Monday, January 7, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

Feb. 13, 2008, Wednesday Wabash meeting. Note meeting day is Wednesday for this meeting.

5:00 PM ASQ 0919 Executive Board meeting
6:00 PM Social
6:30 PM Dinner
7:15 PM Dr. Gordon Minty talk on Creative Problem Solving.
Meal cost is \$15 each and only \$6 each for students.

Reservations required by Monday, February 11, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

Mar. 13, 2008, Thursday Wabash meeting.

5:00 PM CST Illinois time, ASQ Executive Board meeting
6:00 PM CST Illinois time, Social
6:30 PM CST Illinois time, Dinner
7:15 PM CST Illinois time, Speaker Dick McKeever, ASQ Region 9 Director will give a talk, and bring an update from ASQ.

Joint meeting of ASQ 0919 and ASQ 2000. Location is Richard's 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. <http://www.richardsfarm.com> Meal cost is \$15 each and only \$6 each for students.

Reservations required by Monday, March 10, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

Mar. 31, 2008 - Apr. 3, 2008

WESTEC, Los Angeles, CA
Check the SME website at <http://www.sme.org> for more information

Apr. 10, 2008, Thursday Wabash meeting. Times TBA. Student Night at John Myers' Technology Building at Indiana State University. A tour of the Computer Integrated Manufacturing (CIM) lab hosted by Joe Ashby will follow a pizza dinner.

Reservations required by Monday, April 7, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

May 8, 2008, Thursday Wabash meeting. Tentative topic is Challenge X at Rose-Hulman Institute of Technology. Meal cost is \$15 each and only \$6 each for students.

Reservations required by Monday, May 5, contact Roy Boissy arrangements (at) asqwabashvalley.org or (812) 237-8329.

May 20, 2008 - May 22, 2008

EASTEC, W. Springfield, MA
Check the SME website at <http://www.sme.org> for more information

Notes from last month' meeting

17 people attended the October joint meeting of ASM Wabash Valley, ASQ Wabash Valley, and SME Wabash Valley. Colonel Scott S. Haraburda, PhD, PE, started his talk with an overview of the 464th Chemical Brigade, over which he is commander. Included in this command is the Newport Chemical Depot, which was briefly discussed. Dr. Haraburda then presented the main topic Baldrige Award Overview.

The Malcolm Baldrige National Quality Award was created by The Malcolm Baldrige National Quality Improvement Act of 1987, Public Law 100-107. The program is administered by NIST with cooperation of public sector organizations such as the American Society for Quality (ASQ). The Baldrige Criteria was summarized, including the seven categories of the Business/Nonprofit Criteria.

Examples from actual National Quality Award recipients were presented. Several questions asked by those in attendance, were answered. Dinner was at Logan's Ribeye Restaurant.

Photos from the meeting are on page 5.

SME Member Activity

Welcome new C275 member:
Matthew C. Kelly

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 C275.

Question of the Month

Who invented the internet, and when was it invented?

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

Answer for October's question

Who said "There is no substitute for knowledge." This is a quote from Dr. W. Edwards Deming. See http://en.wikiquote.org/wiki/W._Edwards_Deming

SME C275 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 contacts for 2007

Wesley Richardson, Membership Consultant
Natalie Lowell, Member Relations Manager
Michael F. Molnar, Member Council Representative
F. Brian Holmes, SME President

You may send an e-mail to any of the above individuals by sending to [smewabash \(at\) 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.

Internet Web Sites

SME Wabash Valley, Chapter C275
<http://chapters.sme.org/c275/>
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/c275/asm.htm>
ASM International
<http://asmcommunity.asminternational.org/portal/site/asm/>

Certification Corner

Information on all SME Certifications may be found at <http://www.sme.org> then click on Professional Development drop down menu Certification.

Deming, Drucker, and Juran by Frank Bensley

Dr. W. Edwards Deming, in his writing, seminars, and training sessions, stated that top management does not know what business they are in.

As I was getting rid of some of the books in my library I found an overlooked book by Peter Drucker, so I scanned through some of it. I was surprised to find that Peter Drucker in his book "Management Tasks Responsibilities Practices" basically says the same. He puts three questions to the manager before making strategic plans. They are: "What is the business," "What will it be," and "What should it be." The Thought is that most managers do not know the answer to the first question let alone the answer to the other two.

On one of Deming's tapes from the 1970's, he tells that the reason that railroads had trouble making enough money is that the top managers did not know that their business was moving goods and people from one place to another. They thought that their business was to run trains. They ran trains and most ran into bankruptcy.

Drucker explains that every organization has only three kinds of work for managers. The first is operations, the work of managing what is already in existence and known. To build on it, exploit its potential, and take care of its problems. The second is top management tasks which are multidimensional, recurrent, and difficult. They include setting objectives, standards, and policy; and providing human resources, capital, and organizational structure. The third is innovative work. Many would call this research and development, however, that fails to explain what innovation really is. Only after a new product or a new business is in place and working is there an innovation.

Dr. Joseph Juran has made essentially the same statements. And, we thought that we had it all figured out when we were in mid-management aspiring to make the move to the top.

Cooked Well Done by Frank Bensley

Several years ago we went out to a restaurant that was trying to become known as one of the best in East Central Illinois. One of our sons was with us. He ordered a steak well done. When it came, it was some somewhere between raw and rare. He asked the waitress to return the steak to the cooks and have it cooked to well done. She told him that if she did that the cook would throw a fit and when it came back he would not want to eat it. She told him that she had a skillet and a hot plate. She would finish cooking his steak. When she returned the steak it was well done. She got a good tip and we never returned to that restaurant.

Soon after our experience, the restaurant was closed. I don't know where the waitress ended up, but I hope she is running her own four star restaurant somewhere. She knew that customer satisfaction was the requirement for a successful restaurant business.

It pays to know what business you are in, and what you should do in that business. If the cook is preparing food as taught at the Culinary Institute of America, yet not pleasing the customers, he is not in the restaurant business.

Magic Numbers Explanation by Frank Bensley

In the October newsletter there was a way to guess a person's birthday. The following is an explanation of how it works.

1. Let the birthday be represented by MD, where M is the number of the month and D is the day of the month.
 2. Multiply the month by 5 = 5 M
 3. Add 6 to the result = 5 M + 6
 4. Multiply the sum by 4 = 20 M + 24
 5. Add 9 = 20 M + 33
 6. Multiply by 5 = 100 M + 165
 6. Add the day of the month = 100 M + D + 165
 7. Subtract 165 = 100 M + D
 8. The last two digits are the day
 9. The remaining number is the month.
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October meeting attendees



Colonel Scott S. Haraburda presented Baldrige Award Overview

NIST/SEMATECH e-Handbook of Statistical Methods

The NIST/SEMATECH e-Handbook of Statistical Methods is found on the internet at: <http://www.itl.nist.gov/div898/handbook/>

The NIST/SEMATECH Engineering Statistics Handbook (ESH) is a great reference source for many statistical methods, and it is free. The e-Handbook can be downloaded in Adobe Acrobat PDF format, or used on the internet where the hyperlinks are active. Information contained in the ESH is in the public domain. The Search Handbook allows a person to quickly locate material on a topic of interest.

The ESH e-Handbook is divided into the following Chapters:

1. Explore
2. Measure
3. Characterize
4. Model
5. Improve
6. Monitor
7. Compare
8. Reliability

The detailed Chapter listing is:

1. Exploratory Data Analysis
2. Measurement Process Characterization
3. Production Process Characterization
4. Process Modeling
5. Process Improvement
6. Process or Product Monitoring and Control
7. Product and Process Comparisons
8. Assessing Product Reliability

Exploratory Data Analysis (EDA) is an approach/philosophy for data analysis that employs a variety of techniques (mostly graphical) to:

1. maximize insight into a data set;
2. uncover underlying structure;
3. extract important variables;
4. detect outliers and anomalies;
5. test underlying assumptions;
6. develop parsimonious models; and
7. determine optimal factor settings.

The EDA approach is precisely that--an approach--not a set of techniques, but an attitude/philosophy about how a data analysis should be carried out.

Most EDA techniques are graphical in nature with a few quantitative techniques. The reason for the heavy reliance on graphics is that by its very nature the main role of EDA is to open-mindedly explore, and graphics gives the analysts unparalleled power to do so, enticing the data to reveal its structural secrets, and being always ready to gain some new, often unsuspected, insight into the data. In combination with the natural pattern-recognition capabilities that we all possess, graphics provides, of course, unparalleled power to carry this out.

The particular graphical techniques employed in EDA are often quite simple, consisting of various techniques of:

- Plotting the raw data (such as data traces, histograms, bihistograms, probability plots, lag plots, block plots, and Youden plots.
- Plotting simple statistics such as mean plots, standard deviation plots, box plots, and main effects plots of the raw data.
- Positioning such plots so as to maximize our natural pattern-recognition abilities, such as using multiple plots per page.

For classical data analysis, the sequence is:

Problem => Data => Model => Analysis => Conclusions

For EDA, the sequence is:

Problem => Data => Analysis => Model => Conclusions

For Bayesian, the sequence is:

Problem => Data => Model => Prior Distribution => Analysis => Conclusions

EDA techniques are generally graphical. They include scatter plots, character plots, box plots, histograms, bihistograms, probability plots, residual plots, and mean plots.

Many EDA techniques make little or no assumptions – they present and show the data – all of the data – as is, with fewer encumbering assumptions.

An EDA/Graphics example is provided for an X–Y data set, which shows how data can be analyzed.

It is convenient to classify EDA problems into the following types: Univariate, such as a single column of numbers, which are analyzed using probability plots. Control, such as single column of numbers, which are analyzed using control charts.

Comparative, where there is a single response variable and multiple independent variables. These are analyzed using a block plot, scatter plot, or box plot. Screening, where there is a single response variable and multiple independent variables. These are analyzed using a block plot, probability plot, or bihistogram. Optimization, where there is a single response variable and multiple independent variables. These are analyzed using a block plot, least squares fitting, or contour plot. Regression, where there is a single response variable and multiple independent variables. These are analyzed using a least squares fitting, scatter plot, or a 6-plot.

Time series, where there is a series of time dependent numbers. These are analyzed using an autocorrelation plot, spectrum, complex demodulation amplitude plot, complex demodulation phase plot, or ARIMA models.

Multivariate, where there are k factor variables, and the task is to identify the underlying correlation structure in the data. Analysis methods include a star plot, scatter plot matrix, conditioning plot, profile plot, principal components clustering, and discrimination / classification.

The ESH provides a gallery of some useful graphical techniques including the following:

- Autocorrelation plot
- Bihistogram
- Block plot
- Bootstrap plot
- Box-Cox linearity plot
- Box-Cox normality plot
- Box plot
- Complex demodulation amplitude plot
- Complex demodulation phase plot
- Contour plot

- DEX scatter plot
- DEX mean plot
- DEX standard deviation plot
- Histogram
- Lag plot
- Linear correlation plot
- Linear intercept plot
- Linear slope plot
- Linear residual standard deviation plot
- Mean plot
- Normal probability plot
- Probability plot
- Probability plot correlation coefficient plot
- Quantile-quantile plot
- Run sequence plot
- Scatter plot
- Spectrum
- Standard deviation plot
- Star plot
- Weibull plot
- Youden plot
- 4-Plot
- 6-Plot

If you have an interest or need for information on statistical methods, you are encouraged to visit the NIST web site:

<http://www.itl.nist.gov/div898/handbook/>

SME Sale and Lease-Back of Headquarters

The 2007 SME Board of Directors letter dated September 27, 2007 regarding the Sale and Lease-Back of SME Headquarters Land and Buildings is on page 8.

The SME Wabash Valley Newsletter newsletter is a publication of SME Wabash Valley, Chapter C275, located in Terre Haute, Indiana. Articles, comments or other feedback may be sent to:

Newsletter Editor smewabash (at) yahoo.com [replace (at) with @ and remove spaces].

Deadline for submitting information for the December newsletter is November 23, 2007.



TO: SME Member Leaders

FROM: 2007 SME Board of Directors

DATE: September 27, 2007

SUBJECT: Sale and Lease-Back of SME Headquarters Land and Buildings

SME Members,

For the past few years, the SME Executive Committee and Building Committee have been reviewing the issue of the SME Headquarters land and buildings in Dearborn, Michigan, to consider options for its use, such as potentially selling the building, taking on tenants, leasing back space, or even relocating. The three buildings that are part of the SME Headquarters facility are currently at approximately 50 percent utilization and are costly to maintain.

While the Society has not actively pursued the sale of the building, Henry Ford Community College (HFCC), which is located immediately next door to SME, is experiencing tremendous growth in its educational programs and has outgrown its campus. HFCC recently made an offer to purchase the SME land and buildings, and the SME Board of Directors voted to approve this sale.

A very key aspect in the terms of this sale is that SME is leasing back the West and South buildings for six years, with two renewable two-year terms. This means that SME will be physically located in the same spot for at least six years, and possibly as long as 10 years.

Please rest assured that our Society is doing very well, and we are experiencing growth in our programs and initiatives. Take, for example, our growth in Canada this year, which added seven new trade shows to the SME product line, and launched a new office in Toronto—all in support of our expansion of services and membership for Canadian manufacturers. The sale of the SME land and buildings will provide us with the capital to strengthen our reserve funds, and invest in other future strategic opportunities, as desired. SME is embracing the same lean principles that it helps the manufacturing community understand and implement, to be more effective serving its members and customers.

Because of the lease-back agreement, for the foreseeable future, our Society's Headquarters is staying right where it is. It will be up to the members and future SME Boards of Directors to determine whether or not we will purchase a new building in the future or lease space, and where that location may be. At this time, we do not anticipate that SME will leave the metro Detroit area. We have a strong, supportive staff, and relocating that number of individuals would not be a lean or cost-effective strategy.

Attached, for your reference, are some talking points about the sale and lease-back of the Headquarters building. These may be helpful when relating the highlights to other members or interested parties. If you have questions or concerns, please forward them to leadership@smc.org, or call Mark Tomlinson, SME Executive Director & General Manager, at 313.425.3100. Thank you.