



Wavelengths



January/
February
2004

Vol. 43, No. 4

Wavelengths is a publication of the Southeastern Michigan chapter of the Institute of Electrical and Electronic Engineers (IEEE).

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Chapter

2004 Spring Section Conference Wednesday, March 24, 2004

The IEEE SEM Section Meeting has morphed into the Section Conference. Please join us for an evening of socializing and technical sessions.

Location

bps Training and Conference Center
31301 Evergreen Road (near 13 Mile Road)
Beverly Hills, MI 48025

Registration

You can register online or by fax or e-mail.

Schedule of Events

5:00 pm - Registration
 5:45-6:45 - Chapter Technical Sessions
 7 Technical sessions running concurrently (see schedule)
 6:45-7:15 - Student and Vendor Exhibits
 University Showcases
 Cash Bar
 7:15-8:00 - Dinner
 8:15-9:00 - Keynote Address

Technical Presentations

Keynote Address: Engineering Education in the 21st Century: Priorities and Challenges

by Pieter A. Frick, Dean
School of Engineering and
Computer Science, Oakland
University



During World War II and the subsequent Cold War period the major technical objectives for Engineering Education was dominated by the national geo-political agenda, but was fairly well defined. Since the demolition of the Berlin Wall in the early 1990's directional objectives have been difficult to articulate, to a point of suggesting that the ship is rudderless. Unheard of phenomena for the past 50 years, such as unemployed engineers and job out-sourcing now sneak into everyday conversational discourse.

In this talk an attempt is made to predict some of the driving forces for the immediate future, to articulate some of the major obstacles and to propose possible solutions paths. With a lead time of 5 to 15 years

Executive Committee Column

By Hassan Hassan, Vice Chair

I encourage all members to attend the IEEE Southeast Michigan Spring Section Conference on Wed. March 24, 2004. In this conference there are many valuable presentations running concurrently with different subjects of interest, followed by an important presentation by our keynote speaker, Dr. Pieter A. Frick, Dean of School of Engineering and Computer Science at Oakland University.

for new engineering programs to mature, this constitutes a very high stakes roll of the dice. It would be very nice to have the benefit of the wisdom of colleagues from the era prior to World War II, except that there are very few of them left, and we live in a quite different technological world of our own creation.

To limit the scope of the presentation the main focus will revolve around energy, IT and other computing related issues, electronics and the rapidly changing defense related priorities.

Chapter Presentations

Chapter I - Circuits and Systems, Information Theory, and Signal Processing

Title: Re-Interpreting the MOS Transistor for the 21st Century: Generalized Methods and Their Extension to Nanotechnology

Speaker: Dr. Daniel Foty, President of Gilgamesh Associates, VT

Abstract: At the present time, analog and RF CMOS design suffer from a variety of self-imposed constraints which severely limit both the efficiency of the design process and the capabilities of product ICs. These constraints are not "real," but are instead self-inflicted due to the continued use of a design infrastructure which has been overstretched and which has outlived its usefulness. At its roots, the problem is one of an overly deconstructed and segmented approach to the MOS transistor - in understanding, modeling, usage, and design implementation. This paper will outline a fundamental rebuilding and re-generalization of the entire approach to describing the MOS transistor and the methods by which the ubiquitous MOSFET is used in circuit design. Rather than being split up into

separate pieces, this new approach involves the construction of an overarching structure through which process technology, modeling, design usage, and design optimization all become part of one coherent whole. It will be shown that not only can the MOS transistor be interpreted in a much simpler and more comprehensible fashion, but that this interpretation is universal across processes and technologies. Some examples, taken from real situations where ICs have been designed and sold in large quantities, will be described, clearly demonstrating how many of the self-imposed constraints of older methods can be broken, allowing for fuller use of the capabilities of modern deep-submicron CMOS technology. Finally it will be noted that by this generalization of the behavior of the MOS transistor, the methods thus developed can be generalized beyond CMOS - to future nanotechnology devices.

Bio: Dr. Daniel Foty is presently the founder and President of Gilgamesh Associates (Fletcher, Vermont). Gilgamesh Associates is a supplier of intellectual property in the form of next-generation MOS transistor models and associated design kits, which are used by fabless semiconductor companies for IC design in very demanding areas of analog, mixed-signal, RF, signal processing, communications, and ultra-low-power design. He also holds the position of Senior Model Development Engineer at NanopowerTechnologies (Newport Beach, California), and is an Adjunct Associate Professor of Electrical Engineering at the Georgia Institute of Technology (Atlanta, Georgia). More recently, he co-founded RFive Communications, a start-up company specializing in the design of high-frequency semiconductor circuits for wireless, wireline, and instrumentation applications. He is also the author of the best selling book, MOSFET Modeling with SPICE: Principles and Practice, which was published in 1997 by Prentice-Hall and is now in its third printing. He holds B.S. degrees in Physics and Chemistry from Bates College, the M.S. in Electrical Engineering from the University of Illinois, and the Ph.D. in Materials Science from the University of Vermont, and has more than 15 years of engineering and management experience in the mainstream of the integrated circuit industry. He has also authored more than 60 journal articles and conference presentations, and is a frequent plenary (keynote) speaker at major international conferences throughout the world.

Chapter II - Vehicular Technology

Title: Total System Engineering, Challenges and Prospects, With Examples

Speaker: David Peck, Mgr. Advanced Products & Process R&D, Trico Products Corp.

Abstract: Designing new products and processes that result in a technology shift is an important strategy for corporate growth. This approach can result in major changes in the related industries in which the technology is used. The concept of Total System Engineering (TSE), along with the application of new technologies, is the key to survival in this current ever-changing world. Gone are the days where the primary function of engineering is to only refine and improve current products by incrementalism.

This presentation will address the challenges of Total System



Engineering for an electro-mechanical product. The relationships between materials, manufacturing methods, processing methods, and system integration will be discussed. Several design examples will be reviewed in order to demonstrate the benefits of this type of approach. One example will be a new Brushless DC Motor (BLDC). The other will be a new production method that required the implementation of a very advanced electronic control system in order to make it possible. Open discussion will follow the presentation.

Bio: David Peck currently works as the Manager of Advanced Products and Process R&D at Trico Products Corp. in Rochester Hills, Michigan. David holds a BSME and has acquired 34+ years of engineering experience. David's experience includes 6 years in manufacturing, 10 years in design & 18 year in R&D (including 6 years of technology transfer from aerospace). David's Product experience includes working with products such as: clutches, transmissions, drive lines, drive axles, foundation brakes, ABS, door systems, sun roofs, wheels, transfer cases, seat tracks, & windshield wiper systems. David holds 12 Patents. He also has 2 more patents pending & several more to be filed in the near future. Since Year 2000, David has produced three publications and four papers on flexible manufacturing .

Chapter III - Communications and Aerospace Electronics

Chapter IV - Trident

Title: Mechatronics Epistemology Using Educational Robotics: A Primer On Circuits to Mechanical Interface Rapid Prototyping Techniques

Speaker: Don Wilcher

Abstract: Although the LEGO? Mindstorms Mechatronics book was written for the primary audience of Amateur Roboticians and Electronics Hobbyists, the Rapid Prototyping Techniques (RPT) illustrated in the text can benefit the EE student and industry practitioner as well. Mechatronics is a multidisciplinary field that looks at a convergence between electrical/electronics, mechanical, and software interfaces to provide smart product solutions to complex design challenges. By exploring Mechatronics through a constructionist perspective, EE students and industry practitioners can build a solid reference design shelf to meet the demanding challenge of creating human to smart product interface solutions for their customers.

This 45 minute discussion will explain how educational robots (particularly LEGO Mindstorms Robotic Invention System (RIS)) along with off the shelf electrical/electronics and mechanical construction kits aid in developing circuit to mechanical interfacing prototypes for component or subsystem reference design solutions.

Bio: Don Wilcher is an Electrical Engineer with 18 years in Automotive Electrical & Electronics hardware/software development and Project Management. He is a graduate of Henry Ford Community College and Wayne State University. Don is a technical author with numerous articles published in electronics hobbyist magazines, trade publications, and conference proceedings. He has two books published by McGraw-Hill titled "LEGO Mindstorms Interfacing" and "LEGO Mindstorms Mechatronics". Don Wilcher is an engineering educator advocate developing pre-college engineering programs through organizations as DAPCEP (Detroit Area Pre-College Engineer-

ing), Breithaupt Vocational Technical School, and Garden City Public schools. He has taught children and adults the wonders of technology through live demonstrations at the Detroit Science Center and Cranbrook Institute of Science using LEGO Mindstorms based robots. He is a member of PMI (Project Management Institute) and ASEE (American Society for Engineering Education). He recently presented a paper at the June 2003 ASEE Conference titled "Developing Laboratory Based Electronics/Software Projects using the LEGO Programmable Brick." This paper described developing laboratory based projects using the LEGO Programmable Brick, electronic circuits, and software to demonstrate Systems Design techniques for EE students and educators.

Chapter V - Computer

Title: Software Engineering in .NET Today

Speaker: Brian W Loomis, Academic Developer Relations Manager

Abstract: This talk will discuss common state of the practice in software engineering including tailored process models (from RUP to XP to custom), automation tools (for test, requirements, and documentation), and common pitfalls faced at organizations with which the speaker has consulted. Question and answer will follow.

Chapter VI - Geoscience and Remote Sensing

tba

Chapter VII- Power Engineering and Industrial Applications

tba

Chapter VIII - EMC

tba

Chapter IX - Power and Industrial Electronics

Title: Hybrid Vehicles

Speaker: Dr. Chris Mi, University of Michigan-Dearborn

Abstract: Vehicles with electric or hybrid powertrains are more fuel-efficient and environment friendly compared with conventional vehicles that are driven by internal combustion engines (ICE) alone. In EVs, energy transfer efficiency can be as high as 90%, compared to typical 25% efficiency of ICE. In HEVs, by optimizing the power intake of hybrid vehicles, the engine operation will be kept within the range designed for best fuel economy and lowest emission, while the motor/generator system will either provide additional power input or recover the kinetic energy in braking or coasting. Because of these advantages, hybrid vehicles have attracted worldwide development interests in the automotive industry. EVs and HEVs will become more and more popular in the market as the related technology matures. This seminar will provide overview on systems, design, modeling and powertrain control of hybrid vehicles. Bench mark Toyota Prius will be discussed in detail.

Bio: Dr. Chris Mi holds a BSEE and an MSEE from Northwestern Polytechnical University and a Ph.D degree from the University of Toronto. He is now an Assistant Professor at the University of Michigan - Dearborn, with teaching responsibilities in the area of power electronics, electric vehicles, electric motors

and drives. Dr. Mi worked with General Electric from 2002 to 2001 as Electrical Engineer design and developing large electric motors and generators. Dr. Mi has over 15 years experience in development, manufacturing and teaching of power electronics and electric machines/drives. Dr. Mi is the Chair of the Power Electronics and Industrial Electronics Chapter of IEEE Southeast Michigan Section. Dr. Mi has offered the Advanced Electric Drive Short Course through the Professional Engineering Development at the University of Michigan - Dearborn. For details please contact chrismi@umich.edu.

Chapter X - Engineering Management

tba

Chapter XI - Bio-Engineering

Title: Signal Processing for a Capacitive BioMEMS

Speaker: DARRIN M. HANNA, Ph.D.

Abstract: With advancements in Micro-electromechanical systems over the past ten years, it has become more feasible to develop devices that can be implanted to perform specific functions in vivo. Many of these systems require sensors to detect or monitor an event or stimulus, such as electronic neural signals. Moreover, capacitive sensors have been developed for detecting protein surface binding for specific cell differentiation in lab applications. Implantable sensors, however, are subject to a harsh environment and obtaining information from these devices located in the presence of biofouling requires further signal processing. This talk will introduce the sensor technique and discuss signal processing in clean laboratory solutions and in serum.

Bio: DARRIN M. HANNA (M '98) received the B. S. degree (with honors) in computer engineering and mathematics and the Ph.D. degree in artificial intelligence and embedded systems from Oakland University, Rochester, MI, in 1999 and 2003, respectively. As an undergraduate, he was a Researcher of colossal magnetoresistive oxides at Oakland University with Dr. G. Srinivasan, while simultaneously working as a Supplemental Instructor in chemistry. In 1999, he was a Lecturer in computer science and engineering at Oakland University. In 2000, he was a Visiting Instructor at Oakland University. As a sophomore at Oakland University, he started a company, Technology Integration Group Services, Inc., specializing in technical infrastructure, intelligent application development, and wireless systems. The company has continued to grow internationally, opening additional offices in London, U.K., in 2002. His research interests include bioMEMS, microprocessor-less architectures for implementing hardware directly from high-level postfix source code, and pattern recognition techniques for systems on a chip.

Chapter XII - Control Systems

Title: Designing a Controller for a Brushless DC Motor using Matlab-Simulink-StateFlow, a Comparative Simulation of Several Controllers.

Speaker: Dr. Suleiman Barada, Trico Technical Center, Rochester Hills, Michigan

Abstract: This presentation will address theoretical and practical issues of designing



a robust speed controller for a Brushless DC motor (BLDC). Several control techniques such as: integral, Integral plus Linear Quadratic Regulator (LQR), Integral plus Linear Quadratic Gaussian Regulator (LQG), will be simulated and compared using Matlab-Simulink-Stateflow environments. Issues of modeling, tracking, disturbance rejection, noise filtering, and tuning of controller parameters for the purpose of achieving a balance between good performance and low control effort will be discussed. An integrated state-space (SS) design approach combining program code with block-diagram simulation will be shown. Issues of state of the art controller implementation will also be considered.

Bio: Dr. Suleiman Barada is the Year 2004 chair of IEEE South-East Michigan Section. He holds a B.S., M.S., and a PhD, all in Electrical Engineering. He currently works as a Control Systems Specialist at Tomkins, and as a Part-time faculty at Wayne State University. He has acquired sixteen years of teaching experience in Electrical and Computer Engineering and Mathematics, and six years of industrial experience. He worked at companies including Unysis, General Motors, Ford, and Visteon. He also worked at Universities including Wayne State University, University of Michigan- Dearborn, and Purdue University. While at WSU, he developed two graduate-level courses on Fuzzy Systems and on Fuzzy-Neural Systems. His contributions to IEEE include serving as Program Chair for IEEE-SEM Biannual Conferences for the Years 2002 and 2003. He also served as a Session Chair at SAE Conferences.

Dr. Barada has published a number of peer-reviewed Journal papers on topics such as Fuzzy systems and Fuzzy-neural modeling and control of dynamical systems. His current research interests include: Embedded Control of Brush-less DC Motors, Fuzzy-Neural Modeling and Control of Dynamical Systems, Intelligent Control, and Micro-controller Systems. Dr. Barada was the captain of his Volleyball team which won Intramural Championship at the University of Texas at Austin in the 1970's and at Wayne State University in the 1980's. He enjoys Music and Art. He was one of the founders of the ACCESS Community Center in Dearborn, Michigan. He is an active person in the social and political Arena and is a public speaker on Labor and International issues. He can be reached at sbarada@ieee.org or at 248-3711700 X8692.

Student Track

Title: Creative Leaders

Speaker: Hassan Hassan, PhD, PE., Lawrence Technological University

Abstract: This presentation introduces the concept of integrating creativity and leadership in real life. In addition, it will answer many questions about creative leadership including: How to be a creative leader?

How to build a creative team? How to make team works? How to be a successful team member/leader? You know you need a team. So what's next? As a team leader, you can help establish structures, norms and processes that can make the difference between a team that is creative and one that is not. Why creativity is important in a leader? Who is the successful leader? What are the differences between leadership and management?

Bio: Hassan Hassan holds B.S. in Electrical Engineering, M.S.



in Electronic Engineering, and M.S. and Ph.D. in Electrical and Computer Engineering from Wayne State University, Detroit, Michigan. He is the author of numerous numbers of refereed conference and journal papers. Dr. Hassan is an experienced educator at the undergraduate and graduate levels, taught at many universities including Wayne State University, and Lawrence Technological University, Southfield, Michigan. Due to his extensive education, Professor Hassan taught almost every undergraduate course in the electrical and computer engineering curriculum and taught many graduate courses including: Engineering Analysis, Image Processing, Computer Vision, Artificial Intelligence, Very Large Scale Integration, Computer Aided Design of Integrated Circuits, Network Synthesis, Digital Control Systems, Digital Communications, and Optical Communications. Dr. Hassan is also serving as the Vice-Chair of the IEEE Southeast Michigan section, and its Student Activities Director, also he is a practicing consultant for local companies in Microelectronics, Vision, and Automotive Electronics. Dr. Hassan developed many undergraduate and graduate courses for the BS degree in electrical engineering, the BS degree in computer engineering, the MS degree in electrical and computer engineering and the BS degree in electrical engineering with concentration in alternative energy technology. Dr. Hassan is listed in Who's Who in American Education, Who's Who in the World, Who's Who in Science and Engineering, and in "MAN OF ACHIEVEMENTS", Cambridge, U.K. He is a Senior Member of IEEE and IEEE Computer Society since 1993, member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, and a registered Professional Engineer in the State of Michigan since 1988. Dr. Hassan can be reached at h.hassan@ieee.org or 248-204-2554.

Two Named Senior Members

In January 2004, IEEE elevated 256 members to Senior Member status - two were in SE Michigan Section.

Laura K. Dillon

Matt W. Mutka

Congratulations to both members!

Maurice Snyder
Past Chair, SEM

What's NEW with E-Week?

by Don C. Bramlett, PE - IEEE/SEM Section Advisor

What's NEW?

NEW is the acronym for National Engineers Week, though it is also commonly referred to as E-Week, for Engineers Week. NEW this year will be the week of February 22-28, 2004.

How and When did National Engineers Week (NEW) begin?

NEW was founded in 1951, by the National Society of Professional Engineers (NSPE). It's always celebrated at the time of George Washington's birthday. Our nation's first president was a military engineer and a land surveyor.

Who sponsors National Engineers Week?

At the national level, there is a National Engineers Week Committee, comprised of volunteer leaders from 16 engineering societies and headquartered at NSPE offices. IEEE-USA is one of these key engineering society sponsors. The 16 engineering societies, 8 U.S. government agencies and nearly 40 major U.S. corporations contribute financially to the operations of this annual event. Each year a different key engineering society and a corporate partner team up to chair the event. The chairing organizations are drawn from among the major sponsors. The honorary chairs of NEW in 2004 are IEEE-USA and Fluor Corporation.

What is the purpose of National Engineers Week?

The mission from the start has been to increase public awareness and appreciation of the engineering profession and its practitioners. There are a vast number of ways that engineers can promote the image and achievements of engineering to the general public and to encourage youngsters to consider careers in engineering or related math/science fields. This can include involvement in a number of established national and local programs.

What are the national programs associated with NEW?

The more prominent national programs associated with NEW include the Discover "E" program, the Future City Competition, the "Engineering Goes Public" campaign, the "ZOOM Into Engineering" program, the "Introduce a Girl to Engineering Day!" program, and the newest program, "New Faces of Engineering".

The Discover "E" (E for Engineering) program, in its fourteenth year, offers an opportunity for engineers to visit K-12 classrooms and show practical applications of math, science and engineering, and talk with students about what engineers do. Working with individual school teachers and staff, engineers can choose the elementary, middle or high school class(es) in which to provide presentations, demonstrations and exercises.

The Future City Competition, in its twelfth year, enables engineer-volunteers to act as advisors to help seventh- and eighth-grade students design and build computer-generated cities of the 21st century and beyond. The Future City Competition originated in 1993 by IEEE, when IEEE was last honorary chair of NEW. Winners of the 36 regional/local contests compete in Washington DC, during NEW. Extensive media coverage educates millions about the role of engineering in creating the world around us. Public viewing and judging of the exhibits at the Michigan Regional Future City Competition was held on Thursday, January 22, 2004 at Laurel Manor in Livonia. The local contest was coordinated again this year by ESD-The Engineering Society. There were 30+ Michigan middle schools registered to participate in the local contest. The IEEE Southeastern Michigan Section provided a team of dedicated judges and awarded the Electrotechnology Award.

The Engineering Goes Public campaign is in its eleventh year. Engineers and engineering students sponsor special exhibits and demonstrations at the great American village-square, the shopping mall. Demonstrations, contests and family hands-on activities also are run at local science centers, libraries, businesses, institutions, and college campuses.

The ZOOM Into Engineering program is a collaborative effort with a WGBH PBS daily television program entitled ZOOM. A toolkit of hands-on interactive exercises can be used to stimulate the interest of elementary school students in the different science and engineering disciplines. These activities can be planned to take place in schools or in science centers or shopping malls.

The Introduce a Girl to Engineering Day! Pro-

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gram is a special pre-college program like Discover "E" that is geared to raise the awareness of career women and the opportunities in the engineering profession to girls in grades K-12. A special kit to help to reach out to this audience is available.

The newest program is the New Faces in Engineering campaign, launched in 2003 by ASHREA to showcase the vitality and diversity of the engineering profession. Engineers with no more than five years of professional experience will be featured in this publicity campaign.

What can I, my company, my institution, or my IEEE Section do for NEW? The list is endless, but for a ready list of 50 ways to participate in NEW, go to the Engineers Week Committee website, www.eweek.org or the IEEE-USA website at www.ieeeusa.org/eweek. You can also contact your friendly local IEEE/SEM Section Advisor directly at d.bramlett@ieee.org or at my office at 313-235-7549.

IEEE/SEM Electro-Technology Award - Michigan Regional Future City Competition

By Don C. Bramlett, PE, IEEE/SEM Section Advisor

The 11th Annual Michigan Regional Future City Competition, coordinated by ESD-The Engineering Society and sponsored by the DTE Energy Foundation, was held on Thursday January 22, 2004 at the Laurel Manor in Livonia. Teams of students from 38 middle schools in Michigan participated in the Michigan regional competition with their future city design projects this year. Judging of student projects was performed in the morning and early afternoon.

This is the ninth year that the IEEE/SEM Section members have served as Mentors/General Category Judges for the regional competition. This is the sixth year that the IEEE/SEM Section has provided a dedicated special team of volunteer judges to specifically evaluate student projects for attributes associated with electrical, electronic and computer engineering related subjects. The Section sponsors the Electro-Technology Award, intended to recognize the design project that exhibits the best application of the theory and practice of electrical, electronics and computer engineering and related sciences to promote the sustainable development of the future city.

The Section wishes to thank the total of nine (9) IEEE members and associates, and their companies/institutions, for taking the time to volunteer and help to make the Michigan Regional Future City Competition a more pleasurable and meaningful experience for the middle school students who participated.

The IEEE/SEM judging team was composed of the following seven (7) volunteers:
Detroit Edison (DTE Energy)
Don C. Bramlett, PE, SMIEEE

The Detroit Science Fair Needs You!!

by Don C. Bramlett, PE - IEEE/SEM Advisor

For the tenth year, the IEEE-SEM Section will provide a dedicated team of judges and awards for projects related to electrical, electronics and computer engineering subjects at the Science and Engineering Fair of Metropolitan Detroit (SEFMD). Judging for the 47th annual Science Fair will be conducted on Wednesday, March 31, 2004 in the Michigan Hall, on the level (0) or Congress Street level of Cobo Hall, on the waterfront in downtown Detroit. Judging will be from 8:00 AM to 12 noon. Free coffee, donuts, and a small stipend are available that day for the judges. This pleasurable and fulfilling task only takes half a day and you are done by noon.

IEEE-SEM provides judging and awards in both the Junior (middle school) Division and the Senior (high school) Division. IEEE-SEM usually provides two Grand Awards, certificates and money, and a number of Honorable Mention certificates. Response from Section members willing to be judges has been outstanding each year; please volunteer to be among those to comprise the team of IEEE judges.

I encourage anyone that has an interest in the science and math education of our youth or an interest in student outreach programs to consider being a judge at the Science Fair. As a judge myself in previous years, I have found the experience of talking with the students, finding out their interests and observing their projects/presentations to be very rewarding. So come out and spend the morning with us as we meet with some of the potential engineers, scientists and Nobel Prize winners of the future.

If interested in more information concerning being a judge for the IEEE-SEM professional awards at the Science Fair contact Don Bramlett at (313)235-7549 during normal weekday business hours, or at home at (734)591-1452 or by email at d.bramlett@ieee.org.

General information on the Science Fair and last year's Grand Award Winners may be found on the SEFMD website. The SEFMD Committee also needs General Category Judges in the 13 categories, including engineering, of exhibits being judged. Inquiries related to being a General Category Judge for the Science Fair organization can be made to the SEFMD office at 313-832-2066 or on the SEFMD website. Public viewing of the projects will be on Thursday and Friday, April 1 and 2 from 9:00 am to 8:00 pm. Come on out and see the exhibits and talk to the students at this truly outstanding pre-college education experience

Join us!! You'll like it!!

(also Judging Coordinator for the Michigan Regional Future City Competition)

Ford Motor Company

Scott A. Amman, PE, Ph.D.

TRW Automotive

Danny Milot

University of Michigan

William D. Becher, Ph.D., PE (retired) (past IEEE-SEM Section Chair - 1978-79)

University of Michigan - Dearborn

John Shen, Ph.D.

Visteon

Walter Schilling

Wayne State University

Laurence G. Dishman, Ph.D.

Other IEEE/SEM volunteers served as General Category Judges:

Cybernet Systems Corporation

Charles J. Cohen, Ph.D.

(also judged team essays and abstracts)

US Army - TACOM

Christopher B. Mushenski

The judges had the opportunity to view and evaluate some outstanding futuristic design projects; in particular they viewed some very interesting applications of current and predicted technologies pertinent to IEEE-related fields. The judges and the students had the pleasure to interface and discuss in depth some of the design principles applied, problems encountered, and teamwork principles used.

The IEEE/SEM team of judges awarded the Electro-Technology Award to St. John Lutheran School of Rochester. Don Bramlett and Bill Becher (at right in the photo above) presented the award trophies to the team of three presenting students, accompanied by the teacher and the engineer-mentor at the Awards Ceremony that afternoon.

For the overall Michigan Regional Future City Competition, the first place winner was St. Valentine School of Redford. St. Valentine School will represent Michigan in the National Engineers Week Future City Competition finals in Washington D.C. during National Engineers Week, February 22-28, 2004; as it did last year.

The total list of Michigan Regional Future City Competition award winners is:

1st Place: St. Valentine School, Redford

2nd Place: Helen Keller Middle School, Royal Oak

3rd Place: Grand Blanc Middle School, Grand Blanc

4th Place: Hilbert (first year team), Redford Twp.

5th Place: Hazel Park Junior High, Hazel Park

Special Awards:

Best Architecture and Engineering Design, Harley Ellis Scarlett Middle School, Ann Arbor

Best Engineered Project, NTH Consultants, Ltd

St. John Lutheran, Rochester

Best Essay, The Engineering Society of Detroit

Victory Christian School, Saginaw

Best Manufacturing Zone, Society of Manufacturing Engineers Education Foundation

Grand Blanc Middle School, Grand Blanc

Best Planned City, Walbridge Aldinger Company

St. Valentine School, Redford

Best Rookie Team, University of Michigan - Women in Engineering Office

Hilbert Middle School, Redford Twp.

Best Transportation, Ford Motor Company

Academy of the Sacred Heart, Bloomfield Hills

Best Use of Energy, DTE Energy Foundation

Victory Christian School, Saginaw

Best Use of Materials, ASM International - Detroit Chapter

Oakwood Middle

School, Eastpointe

School, Eastpointe

ElectroTechnology, Institute of Electrical & Electronics Engineers (IEEE)

St. John Lutheran, Rochester

Most Creative Use of Materials, Construction Association of Michigan

Derby Middle School, Royal Oak

Most Energy Efficient Design, Dürr Industries

Helen Keller Middle School, Royal Oak

Most Improved Quality of Life, ACEC/Michigan

Whittier Middle School, Flint

Peoples Choice, The Engineering Society of Detroit

Victory Middle School, Saginaw

The Future City Competition is held each year in association with the annual National Engineers Week (NEW), this year the week of February 22-28, 2004. The winners from the 36 regional competitions participate in the finals in Washington D.C. during NEW.



For IEEE SEM event info, go to:

<http://www.ieee-sem.org/?q=events.html>

Executive Committee

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IEEE/SEM Chapters

Chapter I- Circuits and Signal Processing

Chapter II - Vehicular Technology

Chapter III - Communications and Aerospace Electronics

Chapter IV - Trident

Chapter V - Computer

Chapter VI - Geoscience and Remote Sensing

Chapter VII - Power Engineering and Industrial Applications

Chapter VIII - EMC

Chapter IX - Power Engineering and Industrial Electronics

Chapter X - Engineering Management

Advertising in Wavelengths

Wavelengths is published eight times a year and sent to more than 3,500 members. These readers are responsible for specifying and purchasing a wide range of electronics components, equipment, and services.

There is no extra charge for color. Special placements can be requested, and will be accommodated if possible. Payment must accompany insertion order.

For more information, contact Dan Romanchik, Wavelengths Editor, phone 734-930-6564, e-mail: danr@ieee-sem.org.

RATES

Equivalent Print Ad	Size in Pixels (max)	Annual Rate (8 issues)	Single Issue Rate
Full Page	540W x 720H	\$4000	\$650
Half Page	270W x 720H	\$2000	\$325
	540W x 360H	\$2000	\$325
Third Page	180W x 720H	\$1500	\$250
	540W x 240H	\$1500	\$250
Quarter Page	270W x 360H	\$1000	\$175
Eighth Page	270W x 180H	\$500	\$90