



Wavelengths



May/June 2005

Vol. 44, No. 7

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

CONTENTS

- Pictures from the Spring Conference
- IEEE-SEM Science Fair Awards
- Michigan Regional Future City Competition
- U-W Forms WIE Group
- Congratulations to New Senior Members
- EAB News
- Free PE Info Sessions
- Events Calendar
- Executive Committee
- Chapter Info
- Advertising Info

Editor:
Dan Romanchik
734-930-6564
danr@
ieee-sem.org

© copyright
2005, IEEE
Southeastern
Michigan
Chapter

Pictures from the Spring Conference



Dr. Tony England, IEEE Fellow, Astronaut, and Associate Dean for Academic Affairs, College of Engineering, University of Michigan makes a point during his keynote speech, "The Opportunity Cost of



Don Bramlett gives the Student Branch Award to the University of Michigan—Dearborn.



Hungry members line up for the buffet dinner.



Mark Ciechanowski, Conference Chair, making some last minute arrangements.

IEEE/SEM Science Fair Awards

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

The 48th Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD) was held from March 8 through March 12, 2005 in the Michigan Hall of the Cobo Conference Exhibition Center in downtown Detroit. Judging of student projects was performed on Wednesday, March 9. This year the SEFMD again had nearly 1300 projects on display in two Divisions, the Junior Division (Middle School students) and the Senior Division (High School students). Exhibits are classified into 13 general categories for judging; including engineering, computer science, physics, and environmental science.

For the eleventh straight year, the IEEE/SEM Section has provided a team of volunteer judges to evaluate student projects associated with electrical, electronic, and computer engineering related subjects. The Section would like to express its appreciation to the IEEE Section members who volunteered to be members of the IEEE judging team this year. The level of participation of IEEE/SEM members at the SEFMD demonstrates annually a true sense of volunteerism among our membership and a real interest in the technology and science education of our children in the K-12 grades; who will become the future engineers and scientists of this world.

The Section wishes to thank the five (5) IEEE members, and their companies/institutions, for taking the time to volunteer and help to make the Science Fair a more pleasurable and meaningful experience for the middle school and high school students who participated.

The IEEE/SEM judging team was composed of the following volunteers:

- Detroit Edison (DTE Energy)
Don C. Bramlett, PE, SMIEEE
- Ford Motor Company
Scott A. Amman, Ph.D., PE
- Wayne State University
Laurence G. Dishman, Ph.D.

Other IEEE/SEM Section members served in other capacities at the SEFMD, such as:

- John Dingell, Veterans Administration Medical Center
- Paul Ostrowski, Ph.D, CCE, SMIEEE (General Category Judge Coordinator), University of Michigan
- Dave Morris, Ph.D. candidate (General Category Judge)

The judges had the opportunity to view and evaluate a large number of exhibits, especially some outstanding projects in areas pertinent to IEEE-related fields. The judges and the high school students in the Senior Division had the pleasure to interface and discuss in depth some of the principles, scientific techniques, engineering approach, experimental results and applications pertinent to the projects.

The IEEE/SEM Section, based on the evaluations of the panel of judges, awarded two (2) First Place Grand Awards, each consisting of a personalized certificate and a check for \$100. These two awards were presented to:

Senior Division:

- Leslie A. Savage, a senior at Dearborn Center for Math, Science & Technology, for her project entitled, "A 'Healthier' Diesel Engine: Hybrids and Biodiesel."
- Katrina L. Niciejewski, a sophomore at Divine Child High School, for her project entitled, "Investigation into Radio Reception."

The panel of judges also determined that the IEEE/SEM Section would provide Honorable Mention Awards to three other noteworthy projects, in the Junior and Senior Division. The Honorable Mention Awards each consisted of a personalized certificate for each awardee. These awards were presented to:

Senior Division:

- Colin D. Robinson, a sophomore at Divine Child High School, for his project entitled, "Photovoltaic Cells and the Energy They Produce."

Junior Division:

- Nicole J. Balhorn, a student at Detroit Country Day Middle School, for her project entitled, "Solar Energy."
- Kayla S. Crawford, a student at Brenda M. Scott Middle School, for her project entitled, "How Does Television Age Affect the Amount of Electromagnetic Radiation Emitted."

The IEEE/SEM Section plans to continue to staff other panels of special awards judges at both the Future City Competition and the SEFMD in 2006, and in subsequent years. These are just a couple of pre-college education programs that the IEEE/SEM Section promotes.

Congratulations to our New Senior Members

At two A&A Review Panel meetings in April and May, six IEEE SEM members were elevated to Senior Member:

- * Johann Borenstein
- * Michael W. Degner
- * Timothy J. Sparks
- * Josef Kellndorfer
- * Kazem F. Sabet
- * Zhijian J. Wu

Congratulations!

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

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

The Future City Competition is held each year in association with the annual Engineers Week, this year the week of February 20-26, 2005. The winners from the 36 regional competitions participate in the finals in Washington D.C. during Engineers Week.

The 12th Annual Michigan Regional Future City Competition, coordinated by the Engineering Society of Detroit (ESD) and sponsored by the DTE Energy Foundation and the Skillman Foundation, was held on Thursday January 27, 2005 at the Burton Manor in Livonia. Teams of students from 37 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 tenth year that IEEE/SEM Section members have served as Mentors/General Category Judges for the regional competition. This is the seventh 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 eleven 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 eight (8) volunteers:

- Detroit Edison (DTE Energy)
Don C. Bramlett, PE, SMIEEE
(also Judging Coordinator for the Michigan Regional Future City Competition)
- Ford Motor Company
Scott A. Amman, PE, Ph.D.
- Image Mining, Inc
James Morgenstern
- University of Michigan
William D. Becher, Ph.D., PE (retired) (past IEEE-SEM Section Chair - 1978-79)
- Ruba Talal Borno, Ph.D. Candidate
- Lauren Luen, Ph.D. Candidate
- University of Toledo
Walter Schilling, Ph.D. Candidate
- Wayne State University
Laurence G. Dishman, Ph.D.

Other IEEE/SEM members served in other volunteer capacities:

- Charles J. Cohen, Ph.D. (judged team essays and abstracts),
Cybernet Systems Corporation
- Christopher B. Mushenski (General Category Judge), US
Army - TACOM
- John Dingell, Veterans Administration Medical Center
- Paul Ostrowski, (General Category Judge)

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 Our Lady of Refuge School of Orchard Lake. Don Bramlett and Bill Becher 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. The team of presenting students were Jessika Hadash, Jonathan J. Sheahan and Mary L. Burdgick. The team mentors were MaryAnn Cannon (teacher), Michael Brody (teacher aide) and Gale Arkwright of Arketek Enterprises (engineer-mentor). See the accompanying article on the features of the future city, Ersatz, developed by the student team at Our Lady of Refuge School.

For the overall Michigan Regional Future City Competition, the first place winner was St. John Lutheran of Rochester. St. John Lutheran represented Michigan in the National Future City Competition finals in Washington D.C. during Engineers Week. They were awarded 6th place, and the Best Essay and Transportation special awards in the National Future City Competition. For your added information, Martin Luther King Middle School of Oceanside, California, won the fifth IEEE-USA Best Communication System Award at the National Future City Competition.

The complete list of winner is as follows:

1. St. John Lutheran, Rochester
2. Helen Keller Middle School, Royal Oak
3. Academy of the Sacred Heart, Bloomfield Hills
4. Scarlett Middle School, Ann Arbor
5. Power Middle School, Farmington Hills

Special Awards:

- Best Architecture and Engineering Design, sponsored by HarleyEllis
Scarlett Middle School, Ann Arbor
- Best City for People with Disabilities, sponsored by the Paralyzed Veterans of America, Detroit Metropolitan Advocacy Committee, National Multiple Sclerosis Society - Michigan Chapter
St. Raphael School, Garden City

- Best Engineered Project, sponsored by NTH Consultants, Ltd
Whittier Middle School, Flint
- Best Essay, sponsored by the Skillman Foundation
Dixon Middle School, Detroit
- Best Manufacturing Zone, sponsored by the Society of Manufacturing Engineers Education Foundation
Marist Academy, Pontiac
- Best Planned City, sponsored by Walbridge Aldinger Company
Thompson Middle School, Southfield
- Best Rookie Team, sponsored by the University of Michigan Women in Engineering Office
Power Middle School, Farmington Hills
- Best Use of Energy, sponsored by the DTE Energy Foundation
Power Middle School, Farmington Hills
- Best Use of Materials, sponsored by ASM International - Detroit Chapter
Grand Blanc Middle School, Grand Blanc
- Best Use of Public Infrastructure, sponsored by Siemens AG
Hazel Park Junior High School, Hazel Park
- Electro-Technology, sponsored by the Southeastern Michigan Section of the Institute of Electrical & Electronics Engineers (IEEE) (see sidebar)
Our Lady of Refuge School, Orchard Lake
- Most Creative Use of Materials, sponsored by the Construction Association of Michigan
St. Joseph School, Lake Orion
- Most Energy Efficient Design, sponsored by Dürr Industries
Oakwood Middle School, Eastpointe
- Incorporation of Plastic Materials, sponsored by the Society of Plastics Engineers, Detroit Section
St. Raphael School, Garden City
- Peoples Choice, sponsored by The Engineering Society of Detroit (winner selected by the presenting students at the competition)
St. John Lutheran School, Rochester

Our Lady of Refuge School Wins the IEEE/SEM Electro-Technology Award Recipient for Their Future City, Ersatz

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

Ersatz was established in 2167 in southern Arizona. Ersatz means artificial, substitute or imitation, and we picked this name because of our electro-technology, including our Underground Windows and our Smart Chips.

Ersatz is a uniquely laid out city too. It is actually five sub cities, each sub city consisting of an inner circle of commercial buildings and an outer sunray pattern of residential. All of our residential is underground so the extra space is used for a large park.

In Ersatz all of our residential is underground and people live in

large, 500 family apartments. Small house shaped buildings above ground, called ports, provide our citizens with an entrance into their homes. However, people needed a good reason to come to our underground residential. This need pushed our engineers into creating Underground Windows, or Windows of the World. These "windows" are actually high-resolution plasma television screens. The windows are designed to have a high enough resolution to look just like the view would look if you were standing above ground. The windows receive their images from small cameras placed facing every angle on the roofs of our ports. The cameras are also placed strategically around the world at scenic locations, such as a Hawaiian beach, the Himalayan Mountains, or the Safari in Africa. The images are live fed and so the view is constantly changing. Different scenes are viewed by basically changing the channel.

The transportation in Ersatz consists of a small-automatic pod, called a Synchro. These Synchros come in three types, mass-transit, city commute, and shipping. Synchros are almost totally automatic. If a Synchro is needed to reach a destination, you would type your destination location and the desired time of arrival and the Synchro will automatically come to your home to pick you up at the correct departure time. The Synchro is also unable to get into accidents and they avoid traffic jams. This is possible due to the invention of the Smart Chip, a small computer like chip, on top of each Synchro that is programmed with specific A.I. that senses all other Synchros, their speed, direction, and how to avoid a collision. They are also able to take alternate routes if too many Synchros are in the area. Synchros run off of electricity. Every night and when they are not being used, Synchros go back to the warehouse and factory, where they were made, and sit over charging panels, where they stay until needed.

The energy in Ersatz is mainly three different sources, methane gas, wind power, and solar energy. Solar Energy is our most common and efficient. In Ersatz, engineers have developed high efficiency solar panels to take full advantage of our Southern Arizona sun. These panels have a strong enough pull to collect all of the photons in the surrounding area and create a dimming effect. The buildings in our city all have solar panels instead of glass; however, workers and employees still enjoy a view thanks to our Smart Chips. In the solar panels they control the amount of energy collected and keep the energy flowing smoothly. They are able to prevent power surges, failures, and shortages by opening, closing, or turning down the solar collection.

**Visit the IEEE-SEM website
for EE news:**

<http://www.ieee-sem.org>

U-W Forms WIE Group

The University of Windsor Institute of Electrical and Electronics Engineers (IEEE) Student Branch has recently formed a Women In Engineering Affinity Group (WIE). The IEEE-WIE Group was ratified by IEEE Headquarters in November 2004. The main goal

of this group is to bring together students in the technology and engineering majors, especially with the interest in IEEE, to promote women who are still a minority (at the University, there are less than 17% undergraduate females enrolled in engineering and Computer Science faculty has less than 15%). The founding members include: Fatema Jerin, Shuhada Abdul Rahime, Suzan Matti, Janna-Lynn Weber, Kinza Irfan, Diana Lizarazo, Supreet Suneja, and Apurva Jain. The Group's Faculty Counselor is Dr. Angela Sodan, a professor with the University's Computer Science Department.



From left to right: Kinza Irfan, 4th year Electrical and Computer Engineering, Supreet Suneja, 2nd year Industrial Engineering, Dr. Angela Sodan, IEEE-WIE Counselor, Fatema Jerin, 1st year General Engineering, Janna Weber, 2nd year Computer Science.

The IEEE-WIE Group has plans to participate in the upcoming Engineering Week at the end of February. Being the first group of its kind at the University, the IEEE-WIE Group hopes to form a strong alumni network and support group for anyone interested. The WIE group will also work towards drawing more female High School students into technical disciplines. To join the

IEEE-WIE Group, please visit www.ieee.org/join. If you would like more information on how you can get involved, please contact Ms. Kinza Irfan at Kinza@ieee.org or visit the Electrical Engineering Office or Dr. Angela Sodan if you are in the Computer Science Department. The University of Windsor IEEE Student Branch website will soon contain a link to the WIE page. The URL is : www.uwindsor.ca/ieeesb.



AEMCLAP ACCREDITED

- BCI
- Radiated Emissions
- Radiated Immunity (600 V/m)
- ESD

PERFORMANCE TESTING

- Vibration
- Thermal Shock
- Environmental
- Accelerated Stress Testing
- Materials Testing

GM & Ford Approved

AUTOMOTIVE EMC

5 m EMC Chamber

Intertek ETL Entela

www.intertek-etlentela.com

(800) 888-3787

News from the IEEE Educational Activities and History Center

IEEE XELL Gains Societies' Support

IEEE XELL [a.k.a. Expert Now IEEE] is a new, innovative product line being developed by IEEE Educational Activities (EAB) in collaboration with Societies and Councils to produce interactive, on-line educational modules. Topics for these modules come from the tutorials offered at IEEE Conferences and they are being presented by the actual "experts" themselves. These modules are designed in a way that makes them very accessible to most members and can help meet their Continuing Education needs.

Through 2005, Expert Now IEEE development is being supported by IEEE New Initiative funding and EAB budget contributions. In 2006 and onward, the IEEE Technical Societies and Councils will allocate funds in their budgets for the continued development of Expert Now IEEE modules. At the same time, Societies and Councils will receive the full net distribution from the sales of Expert Now IEEE to corporations, government and academia.

For more information on IEEE Expert Now and how it relates to the Societies and Councils, please visit the IEEE XELL Web page (<http://www.ieee.org/education/xell/society.html>) or contact Tara Gallus at 732.562.5499, t.gallus@ieee.org or Marilyn Catis at 732.562.5323, mg.catis@ieee.org.

Milestones

Sections are urged to get involved in local history, particularly through the Milestones Program which is designed to help Sections promote the importance of the engineer and engineering in their local communities. For example, a number of members of the IEEE Santa Clara Valley Section are involved in trying to create a museum honoring the development of magnetic disk storage. The dedication of the RAMAC as an IEEE Milestone on 26 May 2005 has led the San Jose City Council to pass a resolution supporting the idea of the museum.

Meanwhile, in addition to the three Milestones approved by the IEEE ExCom at their February meeting, mentioned in the previous e-newsletter, another was added at their April meeting: "Taum Sauk Pumped Storage Electric Power Plant, 1963" (IEEE St. Louis Section, Region 5). Three more nominations are on the ExCom agenda for June. It looks like 2005 is going to be another record year for the program. You can find general information info on the program on the program's website: http://www.ieee.org/organizations/history_center/milestones_program.html.

A Few Good Volunteers Needed for Scout Jamboree

A few good volunteers are still needed to teach scouts the basics of electricity and electronics this summer at the 2005 National Scout Jamboree. Volunteers are needed for the IEEE Electronics Merit Badge Booth. IEEE and BSA members from around the country have already volunteered to help. Interested volunteers can sign up at www.emeritbadges.org. Volunteers that can help for a day or two are needed. The Jamboree will be held in Carolina County, VA at Fort A. P. Hill from 25 July—3 August 2005. Questions should be sent to Ralph W. Russell, II.

Essential Teaching Seminar June 23-25

ASME, ASCE, IEEE and AIChE are pleased to offer the Essential Teaching Seminars for Engineering Faculty (ETS), designed to enhance the instructional leadership skills of engineering and engineering technology faculty and focus their actions on strategies critical to improving the quality of student learning. Information on the Essential Teaching Seminars can be found at <http://www.asme.org/education/prodev/teach/index.html>.

Our next Essential Teaching Seminar is going to be held June 23-25, 2005 at the University of Maryland, Baltimore County. These workshops can enhance the art and craft of teaching for engineering and engineering technology faculty - regardless of their experience or engineering discipline - and will help them to apply the theory and principles behind effective learning, increase their repertoire of techniques, and practice planning and teaching techniques in a supportive collegial setting.

Participants will prepare and teach actual classes in small group settings, with each class videotaped and assessed by faculty mentors and other participants. This collaborative "learn by doing" format ensures that participants will make substantive gains by the end of the workshop. Each workshop is limited to 30 participants, and participants will be selected on a first-come-first-served basis. If you have any questions about the workshop application process, please contact Marian Heller at <mailto:hellerm@asme.org> or (212) 591-7079.

The \$300 registration fee includes all workshop materials and scheduled meals. Participants are responsible for their own travel and accommodations.

Register for the ETS by going to <http://www.asme.org/education/prodev/teach>.

**Why come to a
NARTE Certified EMC Test Facility?**



Highly educated, well trained
NARTE certified engineers
test your product.



Has large test chambers
36' x 25' x 20'.



Tests to 40 GHz @ 200 W/m for:
MIL STD 461
RTCA DO-160
Naval Degaussing Simulator





EMC & Product Safety
Testing • Consulting

**Click on www.dlsemc.com
Call 847-537-6400 today.**

1250 Peterson Drive
Wheeling, IL 60090

Events

Mon, Jun 6th

9:00 AM

CEEP Technology Day 2005

U-M Dearborn, Room 179 Engineering Laboratory Building

This FREE conference-style series of papers will be presented in parallel with a continuous display of posters and provide an update of the university's collaborations with industry. Contact Donna Goddard. For more information, go to the CEEP website.

Mon, Jun 6th

6:00 PM

Executive Committee (XCOM) Meeting

Univ. of Michigan, Dearborn Professional Education Center

Bldg

All are invited to attend. 6:00pm dinner, 6:30pm meeting. Con-

tact: Suleiman Barada, 313-565-8438, 313-550-0525,

sbarada@ieee.org

Mon, Jun 6th

5:45 PM

Section Conference Planning Committee Meeting

UofM-Dearborn PEC Building

All members interested in helping plan Fall Section Conference are welcome to attend.

Tue, Jun 7th

6:30 PM

Engineering Management Society (rescheduled to June 28)

Wed, Jun 15th

5:30 PM

IEEE SEM EMC Society

U-M Dearborn,

SonATA: SETI on the Allen Telescope Array, presented by: Peter Backus. For more information, go to the EMC Society webpage.

Tue, Jun 28th

6:00 PM

Engineering Management Society (Chapter X) Seminar
Main Meeting Room, West Bloomfield Public Library (Note different location)

Dennis Siemiet will lead our discussion of "Personal Values vs. Organization Values (Part II)". 6:00pm Networking / Socializing / Refreshments, 6:30pm Technical Discussion. RSVP your attendance on Sunday, June 26 so we can get food count. Contact: Mark Ciechanowski, phone 248-755-4477 or e-mail. The main library is at 4600 Walnut Lake Road, West of Orchard Lake Road, East of Farmington Road, North of Maple Road. www.wplib.org

Free Information Sessions on Earning Your PE

The Engineering Society of Detroit, in cooperation with the Michigan Society of Professional Engineers and the State of Michigan Licensing Office, is offering a series of free information sessions on earning a Professional Engineer (PE) license. They will have engineering professionals on hand who have earned their PE to answer questions about their careers and having a PE.

Come learn:

- * Why you should consider becoming a PE
- * The registration deadlines for the state exam
- * The process for completing the State applications
- * The recommended texts for preparing for the exams
- * Study options and steps for preparing for the exam
- * Details about ESD review courses for FE and PE exams
- * Real life experiences of PEs who have passed the exam

We currently have the follow dates and locations scheduled:

- * TROY
Kelley Services
Thursday, June 9, 2005, 4-6 pm
- * SOUTHFIELD
ESD headquarters
Saturday June 18, 2005, 9:30-11:30 am
- * LANSING
NTH Consultants
Thursday June 23, 2005, 4-6 pm
- * FLINT
Kettering University
Wednesday July 27, 2005, 2:30-3:30 pm

To register for these sessions, visit the ESD website.

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:

Dr. Ramas Ramaswami, MDR
ramaswamis@comcast.net
734-786-8409

Executive Committee

Officers

Chair

Suleiman Barada
313-561-5747
s_barada@msn.com

Vice Chair

Mr. Mark Ciechanowski, P.E.
248-755-4477
mark.ciechanowski@ieee.org

Secretary

Xinhua (Michael) Gu
734-930-9206
guxinhua@imra.com

Treasurer

Mr. Arman Moein
248 371 8354
arman.moein@tricoproducts.com

Junior Past Chair

Dr. Maurice Snyder
734-973- 1300
snyder@adi.com

Administrative

Section Advisor

Mr. Don Bramlett
313-235-7549
d.bramlett@ieee.org

Student Activities

Dr. Hassan Hassan (acting)
248-380-1650
h.hassan@ieee.org

Professional Activities

Dr. Adel Marzougui
519-256-2350
adel_mar@hotmail.com

Technical Activities

Dr. Subra Ganesan
248-370-2206
ganesan@oakland.edu

Educational Activities

Dr. Chris Mi
313-583-6434
chrismi@umich.edu

Membership

Dr. Mohamad Berri
313-999-3358
mberri@ieee.org

IEEE/SEM Chapters

Chapter I- Circuits and Signal Processing

Dr. Hoda Abdel-Aty-Zohdy
248-370-2243
Zohdyhsa@oakland.edu,

Chapter II - Vehicular Technology

Mr. Arman Moein
arman.moein@tricoproducts.com

Chapter III - Communications and Aerospace Electronics

Mr. Robert Desoff
r.desoff@ieee.org

Chapter IV - Trident

Dr. Lisa Anneberg
248-204-2539
anneberg@ltu.edu

Chapter V - Computer

Dr. Subra Ganesan
248-370-2206
ganesan@oakland.edu

Chapter VI - Geoscience and Remote Sensing

Mr. Robert G. Onstott
onstott@erim-int.com
734-994-1200

Chapter VII - Power Engineering and Industrial Applications

Dr. Ramas Ramaswami
734-786-8409
ramaswamis@comcast.net

Chapter VIII - EMC

Mr. Scott Lytle
734-983-6012
s.r.lytle@ieee.org

Chapter IX - Power and Industrial Electronics

Dr. Chris Mi
313-583-6434
chrismi@umich.edu

Chapter X - Engineering Management

Mr. Mark Ciechanowski, P.E.,
248-755-4477
mark.ciechanowski@ieee.org

Chapter XI - Engineering in Medicine and Biology Society

Dr. David K. Stiles
248-568-7341
dkstiles@oakland.edu

Chapter XII - Control Systems

Dr. Suleiman Barada
313-565-8438
sbarada@ieee.org