



# WAVELENGTHS

## 1997 Professional Affairs Report

by Donald J. Silversmith, Director of Professional Affairs

At both the Fall and Spring Section Meetings, IEEE/SEM continues to promote job opportunities for student branch members by asking area firms to sponsor and host dinner tables. These local firms then are able to make informal presentations to student members attending this meeting. At the Spring Section Meeting at the Fairlane Club, General Motors, EDS, and General Dynamics sponsored tables, while at the Fall Section Meeting at the General Motors Management Center, Entech Personnel Services and Detroit Edison sponsored tables of students. This activity not only provides the section with a subsidy to encourage student branch member attendance, but it is also a win-win arrangement for prospective BSEE recipients and local technical firms. Students learn about employment opportunities in our area, and firms can develop relationships with well-qualified prospects.

One focus of "professional affairs" in the Southeastern Michigan Section continues to be on IEEE member employment support and career development. The section has renewed its contractual arrangement with the Lendman Group to provide support for their three annual Technical Career Fairs in Livonia and Troy. In return for

providing IEEE co-sponsorship for these two-day fairs, IEEE student representatives are able to meet with current and prospective members at these fairs to reinforce a sense of professional affiliation and recruit new members. For 1998, Lendman Fairs will take place on Mondays and Tuesdays, March 23 and 24, July 20 and 21, and October 26 and 27.

To reinforce this employment focus, Marlin Ristenbatt of the University of Michigan led a presentation at a Professional Affairs session at our Fall Section Meeting on "Career Issues to Monitor in a Global Economy." In addition to discussing the engineering career impact of changes in the USA related to globalization of the world's economies, Marlin also highlighted the IEEE Educational Activities Department's Career Asset Manager (CAM) program.



*(Continued on Page 10)*

### Spring Section Meeting Alert!

#### Thursday, April 2 is the date of the 1998 IEEE/SEM Spring Section Meeting.

You can look forward to concurrent technical sessions organized by the chapters, a social period, dinner, a presentation by the featured speaker, and the section's annual awards ceremony. The meeting will be held at the Ford Fairlane Club, Dearborn in the evening. Registration fees are generally \$25-30, with subsidized fees for students. This is a bargain price for meeting other professionals, learning something new, and getting dinner.

The featured speaker will be Professor Mark Ehsani, Director of the Power Electronics Laboratory at Texas A&M University. The title of his presentation will be:

**"An Overview of Hybrid Electric Vehicles: Technical and Social Issues."**

Companies and universities are invited to participate in the section meeting. Companies can interact with IEEE student members by sponsoring a table of students at dinner. This allows a company representative to discuss co-op, intern, and career positions with students from local colleges during dinner. Companies can also rent display tables to showcase their products or services. The academic community can participate in the University Showcase. Contact Don Silversmith, 313-577-0248 or silversm@ece.eng.wayne.edu, for information about these opportunities.

Details about the meeting will be published in the March *Wavelengths* issue. Watch for the meeting registration form, map, technical session details, and featured speaker's abstract in the next issue. If you cannot wait that long, contact George Peters, 519-966-1656x4447#, for more information.

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## IEEE Southeastern Michigan Section Executive Committee

### Officers

|            |                |                    |
|------------|----------------|--------------------|
| Chair      | George Peters  | 519-966-1656x4447# |
| Vice Chair | K. C. Liu      | 248-265-6964       |
| Secretary  | James Woodyard | 313-577-3758       |
| Treasurer  | John Miller    | 313-322-7486       |

### Administrative Activities

|                         |                    |              |
|-------------------------|--------------------|--------------|
| Past Chair              | David Horvath      | 313-930-7500 |
| Section Advisor         | Don Bramlett       | 313-235-7549 |
| Student Activities      | Mohamed Zohdy      | 248-370-2234 |
| Professional Activities | Donald Silversmith | 313-577-0248 |
| Technical Activities    | Diane Rover        | 517-353-7735 |
| Educational Activities  | Ece Yaprak         | 313-577-0875 |
| Membership              | Mark Hunter        | 734-453-0800 |
| Volunteer Coordinator   | Satyendra Basu     | 313-235-6523 |

### IEEE/SEM Chapters

- I Circuits & Signal Processing:** Acoustics, Speech & Signal Processing (ASSP-01), Circuits & Systems (CAS-04), Information Theory (IT-12) and Control Systems (CS-23)
- II Vehicular Technology:** Vehicular Technology (VT-06)
- III Comm. & Aero. Electronics:** Aerospace & Electronics Systems (AES-10) and Communications (COM-19)
- IV Trident:** Electron Devices (ED-15), Microwave Theory & Techniques (MTT-17) and Antennas & Propagation (AP-03)
- V Computer:** Computer (C-16)
- VI Geoscience & Remote Sensing:** Geoscience & Remote Sensing (GRS-29)
- VII Power Eng. & Ind. Apps.:** Power Engineering (PE-31) and Industrial Applications (IA-34)
- VIII EMC:** Electromagnetic Compatibility (EMC-27)
- IX Power & Ind. Electronics:** Power Electronics (PEL-35) and Industrial Electronics (IE-13)
- X Engineering Management:** Eng. Management (EM-14)

### CO-EDITORS

|   |   |
|---|---|
| Sandy Hunter<br>248-524-0645<br>s.e.hunter@ieee.org | Mailing Address:  |
|   | Mark Hunter<br>Link Engineering<br>43855 Plymouth Oaks Blvd<br>Plymouth, Michigan 48170<br>m.hunter@ieee.org<br>Fax: 313-453-0802 |

### PRINTER

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**COPY DEADLINE:** News items are due the first day of the month for an issue which is published the following month, e.g. April 1 is the deadline for the May issue.

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### POSTMASTER Send address changes to:

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Phone: 201-981-0060x150. USPS 878-660

### POSTAL INFORMATION NOTICE

The newsletter of the Southeastern Michigan Section of IEEE, "Wavelengths", (USPS 878-660), is published monthly 8 times per year except June, July, August & December by the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47<sup>th</sup> Street, New York, NY 10017-2394. \$1.00 per member, per year (included in annual dues) is designated for each member of the Southeastern Michigan Section.

Periodicals Postage Paid at New York, NY and at additional mailing offices.

### Visit the following IEEE World Wide Web sites:

Section: [www.ieee.org/regional/section/se\\_michigan](http://www.ieee.org/regional/section/se_michigan)  
Computer Chapter: [www.egr.msu.edu/ieeesem/chapv/](http://www.egr.msu.edu/ieeesem/chapv/)  
IEEE: [www.ieee.org](http://www.ieee.org)  
IEEE Region 4: [www.ieee.org/regional/r4/](http://www.ieee.org/regional/r4/)



## Calendar of Events

- |   |  |  |
|---|--|--|
| <b>Tuesday<br/>February 3</b>             | Meeting:<br>Time:<br>Location:<br>Sponsor:<br>Contact:             | <b>Executive Committee</b><br>Dinner at 6:00 p.m., meeting 6:30 p.m.<br>Eaton Corp., 26201 Northwestern Highway, Southfield<br>IEEE/SEM<br>Kimball Williams, 248-354-2845  |
| <b>Monday<br/>February 9</b>              | Topic:<br>Time:<br>Location:<br>Sponsor:<br>Contact:               | <b>State-of-the-Art of Reverberant Chamber Testing</b><br>6:00 p.m.<br>Eaton Corp., 26201 Northwestern Highway, Southfield<br>Chapter VII: Electromagnetic Compatibility<br>Scott Lytle, 248-354-5245, s.r.lytle@ieee.org  |
| <b>Wednesday<br/>February 11</b>          | Event:<br>Location:<br>Time:<br>Sponsor:<br>Contact:               | <b>Measurement Systems for Assessment of Engineering Capability</b><br>GM Technical Center, Warren, Michigan<br>6:30-8:15 p.m.<br>Chapter X: Engineering Management<br>For exact meeting venue, Contact Prakash Shrivastava, 810-986-2206, LNUSTC1.LZ1NYJ@gmeds.com.               |
| <b>Sunday-Saturday<br/>February 22-28</b> | Event:<br>Sponsor:<br>Contact:                                     | <b>National Engineers Week (NEW)</b><br>National Engineers Week Committee, made up of U.S. engineering societies and corporate sponsors<br><a href="http://www.eweek.org">www.eweek.org</a> - See Article on page 7.   |
| <b>TBD<br/>March</b>                      | Event:<br>Contact:   | <b>Graduates of the Last Decade (GOLD) Meeting</b><br>Sandy Hunter, 248-588-0355, s.e.hunter@ieee.org  |
| <b>Tuesday<br/>March 3</b>                | Meeting:<br>Time:<br>Location:<br>Sponsor:<br>Contact:<br>Comment: | <b>Executive Committee</b><br>Dinner at 6:00 p.m., meeting 6:30 p.m.<br>Eaton Corp., 26201 Northwestern Highway, Southfield<br>IEEE/SEM<br>Kimball Williams, 248-354-2845<br>Meeting date is <u>tentative</u> due to possible changes in officers' work schedules.                 |
| <b>Monday<br/>March 16</b>                | Topic:<br>Time:<br>Location:<br>Sponsor:<br>Contact:               | <b>Radiated &amp; Injected Testing — When are They Equivalent?</b><br>6:00 p.m.<br>Eaton Corp., 26201 Northwestern Highway, Southfield<br>Chapter VII: Electromagnetic Compatibility<br>Scott Lytle, 248-354-5245, s.r.lytle@ieee.org  |
| <b>Wednesday<br/>April 1</b>              | Event:<br>Location:<br>Time:<br>Contact:<br>Comment:               | <b>Science Fair</b><br>Cobo Hall, Detroit<br>8-11 a.m.<br>Don Bramlett, 313-235-7549, d.bramlett@ieee.org<br>Volunteer judges are needed!  |
| <b>Thursday<br/>April 2</b>               | Event:<br>Location:<br>Time:<br>Contact:<br>Comment:               | <b>IEEE/SEM Spring Section Meeting</b><br>Ford Fairlane Center, Dearborn<br>Approximately 5:30-9:00 p.m.<br>George Peters, 519-966-1656x4447#<br>The March issue of <i>Wavelengths</i> will contain map, registration form, presentation abstracts, speaker biographies, and menu. |

# Volunteers Needed for Wavelengths

Do you want to make a visible difference to your local IEEE section? Do you want to develop or use skills that you aren't using on your regular job? Would you like to have 4000 people see your work? We've got the perfect opportunity for you! Volunteering to work with *Wavelengths* is an excellent way to become more active in the local IEEE/SEM section.

The task of creating *Wavelengths* requires at least 1 person and would work well as a team of volunteers.

## Responsibilities include:

### Planning & Management

- Create plan for newsletter content by month
- Negotiate with printer and mailing company
- Track financial performance
- Track schedule performance
- Create newsletter budget for 1999
- Communicate issues and performance to IEEE/SEM Executive Committee
- Track changes in postal rates and regulations
- Coordinate with section treasurer to pay newsletter bills

### Editing and Layout

- Edit articles submitted by IEEE/SEM volunteers
- Get early news about upcoming section events
- Use desktop publishing software
- Express creativity through newsletter look and feel
- Helps to have good spatial layout skills
- Get experience working with scanned images and multiple graphics types

### Customer & Supplier Relations

- Communicate with annual advertisers
- Explain ad pricing and policies to new advertisers
- Send invoices to advertisers
- Notify printer and mailer of newsletter schedules

## Details:

Wavelengths is distributed to ~4,000 people on a roughly monthly basis, August through May with 8 issues per year.

The current editors spend an average of 40 hours on each issue.

New editor(s) will have leeway to decide how work is divided

The section provides a Pentium computer, scanner, Pagemaker software, and MS

Office applications for the production of *Wavelengths*.

The current editors will be available to answer questions and provide guidance.

**Recommended 2 year commitment,**

**Sign up by June 1**

Contact Mark Hunter, 313-453-0800, m.hunter@ieee.org, or Sandy Hunter, 248-588-0355, s.e.hunter@ieee.org, for more information.

## Power Transformers

by Brian Harrington, Chair

Since it has become my turn to write an article for Chapter VII, I thought a technical discussion was in order. Since I work with power transformers, that will be my topic.

Power transformers are in use in every manufacturing facility and throughout the power utility system. There are three major types of transformers: liquid, dry and cast coil. I will briefly discuss the technology used in each type of transformer and its application.



Liquid filled transformers are used in a majority of applications. The design of this transformer is to submerge the core and coil in a liquid. The liquid is used as the transformer dielectric. Most liquid filled transformers are oil filled. In recent years, due to the fire hazard of oil, transformers have been filled with less flammable liquid such as silicone or R-temp. Liquid filled transformers are excellent for outdoor applications. Liquid filled transformers are available in two temperature rises, 55°C or 65°C. The windings are available in copper or aluminum, copper having better losses but higher cost. The advantage of liquid filled is they have a high dielectric strength and require very little maintenance. The disadvantage is they are flammable.

Dry type transformers are used in most indoor applications. The design of this transformer is to use air for the dielectric. Dry types are available in three temperature rises 80°C, 115°C and 150°C in both copper and aluminum. Dry type transformer can be provided with a coating on the winding for additional protection such as a Vacuum Pressure Encapsulated or Vacuum Pressure Impregnation process. The advantage of the dry type transformer is they are less flammable. The disadvantage is they become much larger to achieve the same dielectric strength as liquids.

Cast coil transformers are the third type of transformer. The design of this transformer is to cast the transformer windings in a block of epoxy. The cast coil transformers are available in 80°C and 100°C rise in both copper and aluminum. The advantage of the cast coil transformer is they have high dielectric strength without the fire hazard of liquids. The disadvantage is the cost.

I know this is a very quick look at transformers but it's a start. Just remember there is an application for each type of transformer. If you have any questions on transformers, you can e-mail me at ekco@compuserve.com.

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# LTU Student Branch News

by Mike Wiegand, Chair

The IEEE Student Branch at Lawrence Technological University has made great progress over the last year. The chapter has sold electrical equipment to the students at Lawrence Technological University as a fund-raiser. The profits from this fund-raiser have more than doubled the amount of money in the chapter's savings.

The chapter has participated in IEEE regional meetings. There was an exceptional turnout for the first IEEE presentation this year. Dr. Uras gave a presentation on the principles and practical applications of magnetostrictive sensors. Plans have been set for a presentation on "Simultaneous Hardware and Software Modeling and Simulation."

### Get on track with Lawrence Tech's graduate engineering programs!

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## IEEE/SEM Involvement with the ESD Affiliate Council

by Don C. Bramlett, IEEE/SEM Section Advisor and ESD Affiliate Council Representative



ESD, The Engineering Society (previously known as the Engineering Society of Detroit) was founded 103 years ago in 1895 as the Association of Graduate Engineers of the University of Michigan. ESD has evolved into the largest multi-disciplinary engineering and scientific society of its kind, with members throughout the Great Lakes Region. ESD manages technical conferences and professional programs, and oversees educational programs

supporting the math and science education of our youth, such as the Science and Engineering Fair of Metropolitan Detroit and the Future City Competition, which is associated with National Engineers Week.

The ESD Affiliate Council, a committee of ESD, is composed of representatives from the local sections or chapters of over 40 engineering, scientific and professional societies, including IEEE, in the metropolitan Detroit area. The ESD Affiliate Council is sort of a local version of the American Association of Engineering Societies. It has the mission to promote cross-society cooperation and communication by conducting activities that fulfill common interests and goals. These activities include providing a vehicle for recognition; promoting knowledge of the science and engineering disciplines; assisting in joint programming; and fostering employer

support. Additional activities include conducting seminars on membership development, local organizational management and the utilization of personnel and financial resources.

Benefits to IEEE of belonging to the ESD Affiliate Council include:

- Opportunities to schedule events with other Affiliate Societies, e.g. MSPE, SAE, ASME, ASHREA.
- Membership and information contacts to Affiliate Societies and officers through ESD.
- Broadcast fax capability of posting announcements to other Affiliate Society officers.
- Technical meeting announcements and links to society's home page on the ESD web site.
- Society information and contact listing in annual ESD Roster magazine, circulation of 8,000.
- Auto, homeowners and renters insurance available to Affiliate Society members.
- Eligibility to sponsor nominee for prestigious annual Gold Award.
- Eligibility to present society awards at the Gold Award Banquet held annually in February.
- Inclusion of society information and awards in Gold Award Banquet program book.
- Participation and judging opportunities in the Science Fair and Future City Competition.
- Opportunities for co-sponsorship of events and conferences with ESD.
- Opportunities for networking with other Affiliate Society Officers and members.

Any member wishing more information about the association of the IEEE/SEM Section with the ESD Affiliate Council should contact Don C. Bramlett, PE at 313-235-7549 or via e-mail at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org).

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## IEEE/SEM Honors Outstanding Engineer at Gold Award Banquet

by Don C. Bramlett, PE, IEEE/SEM Section Advisor and ESD Affiliate Council Representative

Each year around National Engineers Week, the ESD Affiliate Council hosts the Gold Award Banquet to honor a distinguished individual who exemplifies excellence and professionalism in the local engineering and scientific community. This year the Gold Award recipient is Kurt C. Frisch, Ph.D. Dr. Frisch is Director of the Polymer Institute in the College of Engineering & Science at the University of Detroit-Mercy. Dr. Frisch has had an outstanding professional career in engineering education and enjoys national and international recognition for his contributions. Dr. Frisch has published 280 technical and professional papers, has authored or co-authored 39 books, has contributed to 24 books and holds 59 patents from 1953-1997.

The Gold Award Banquet also affords an opportunity for each Affiliate Society to honor a distinguished member of their organization before the broad engineering and scientific community of metropolitan Detroit. The section will present the 1998 IEEE/SEM Section Outstanding Engineer Award to Dr. William F. Powers, at the banquet as well as at the IEEE/SEM Spring Section Meeting. Dr. Powers is Vice President of Research at Ford Motor Company. He has had an



Dr. William F. Powers

exemplary career; first with his involvement in various NASA programs, then on the faculty at the University of Michigan as a Professor of Aerospace Engineering, and now with nearly 20 years of accomplishments and leadership with Ford Motor Company. Dr. Powers was elevated to Fellow grade in IEEE in 1992, in recognition of his leadership in automotive applications of control systems.

IEEE/SEM members are invited to attend the Gold Award Banquet to honor Dr. Powers and socialize with the other distinguished professionals who will be in attendance. The 27<sup>th</sup> annual Gold Award Banquet will be held on Wednesday, February 18, just prior to National Engineers Week, at the Dearborn Inn. The evening's schedule includes cocktails (cash bar) at 6:00 p.m., dinner at 7:00 p.m. and the awards program at 8:00 p.m. The ticket price is \$40 per person, which includes dinner, desert and wine at the table. Reservations may be made by contacting Don C. Bramlett, PE at 313-235-7549 or by e-mail at [d.bramlett@ieee.org](mailto:d.bramlett@ieee.org).

### Chapter VIII: EMC

## Chapter Activities are not Static

Greetings from the IEEE/SEM Electromagnetic Compatibility (EMC) Chapter. I am Dennis Barberi, EMC Chapter Chair. With the help of Vice Chair Scott Lytle and Secretary Kimball Williams, the chapter provides a forum for educating engineers and students about the impact of EMC related problems and their solutions. In addition to this educational role, the EMC Chapter, through local meetings and presentations, provides an opportunity for engineers and students from various disciplines, organizations, and backgrounds to meet, compare problem solving techniques, discuss common organizational issues and network in general.

During the past year, we have hosted speakers from the IEEE EMC Society's Distinguished Lecturer Program, universities, and local companies to speak on a variety of subjects including: Fourier transforms, high power pulse testing, electrostatic discharge, and printed circuit board EMI issues. Electromagnetic compatibility is defined as the condition that allows electronic equipment and systems

to operate in close proximity without degradation in performance due to electromagnetic coupling. As you can see from the various topics, electromagnetic compatibility affects the design and performance of much of the electronic equipment that we have become dependent on in today's high tech society. I am sure we all have experienced incidences of interference in portable telephones, television sets, audio equipment, and computers where mysterious "glitches" cause video distortion, audio noise and loss of data. As we increase our use of electronic equipment, these problems can become even more severe if proper design techniques are not used to minimize them. The EMC Chapter tries to increase awareness of good EMC design among other engineering disciplines.

by Dennis Barberi, Chair



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## WSU - Looking Forward: 1997 in Retrospect

While most of 1996 was spent reactivating the Wayne State University (WSU) IEEE Student Branch and adapting to the university's intricate policies for student organizations, 1997 was a spectacular year for the student branch. We successfully pursued our goals of increasing our membership and undertaking projects and activities to establish our presence at WSU and within the IEEE echelons that deal with IEEE student activities.

In February 1997, our student branch was among a handful of student branches from around the world selected for the new Online IEEE Student Member Application System. Though the online application has proved advantageous to a number of students, it has increased the demands on our counselor, Professor Woodyard, in endorsing student applications due to effort necessary to gain access to student records.



**Sam Durbin, Vikas Sinha, Dave Horvath, Rich Donelan and Roz Freeman, and Professors Yi Zheng, and Jim Woodyard at the IEEE Region-4 Branch Leadership Training Workshop held on April 5, 1997 at Wayne State University**



**Student Branch Officers and Counselors at the IEEE Region-4 Branch Leadership Training Workshop, April 5, 1997, Wayne State University**

Following the spring break, we organized our first General Body Meeting (GBM) for 1997. Mr. Wallace Murray of Ameritech gave an interesting talk on "Communications Technology." After the talk, the branch held officer elections for the 1997-98 year. The current officers are: Kevin Arnold, Chair; Vikas Sinha, Vice Chair; Rana Abrou, Secretary; and Sandra Gumma, Treasurer.

The student branch expended significant time, energy and resources developing and hosting an IEEE Region 4 Branch Leadership Training Workshop. Sponsorship was obtained from IEEE Region 4, IEEE/SEM, and the WSU Department of Electrical and Computer Engineering (ECE). The workshop was held on April 5, 1997, at the WSU McGregor Conference Center. Participants included, in addition to most of our ExCom members, student branch officers and advisors from Michigan State University, Oakland University, St. Clair College (Canada) and University of Detroit-Mercy. Outstanding presentations were given by Professor Yi Zheng, Region 4 Director of Student Activities; Sam Durbin, Region 4 Student Representative; Dave

Horvath, IEEE/SEM Chair; Professor Mohamed Zohdy, IEEE/SEM Director of Student Activities; and Mark Hunter, IEEE/SEM GOLD Coordinator. The "Thinkshop" conducted by Professor Richard Donelan of WSU, and Roz Freeman of Consumers Power, generated a good exchange of ideas amongst the participants on effective leadership. Brain-teasing games that engendered the competitive spirit between IEEE/SEM student branches were interspersed throughout the program and conducted by Professor Woodyard. The participants found the workshop interesting, fun and beneficial.

Our April GBM featured a stimulating presentation by Kimball Williams of the Eaton Corporation on "Electromagnetic Interference." The topic was introduced using a multi-media presentation that engaged the students with challenging electromagnetic concepts. Sherif Ibrahim, ExCom member, organized a visit to the EDS Client/Server Technology Center for WSU students in November. Professor Erlandson, ECE/WSU was the guest speaker at our November GBM. His presentation, "Enabling Technologies," highlighted how projects are benefiting the disabled.

The student branch also organized and hosted the down linking of the recent NSF sponsored telecast "Young Engineers Forum - II." We participated in the WSU College of Engineering Open Houses in 1997. Student branch members also attended the IEEE/SEM Spring and Fall meetings in 1997. We were recognized for our activities and received an honorable mention for the most outstanding engineering student organization in the College of Engineering at WSU.

The activities of the student branch were boosted with the involvement of women in our ExCom. As our "male-dominated" recruitment team moved through classrooms searching for members, we were pleasantly surprised when Rana Abrou,



by Vikas Sinha, Vice Chair, WSU IEEE Student Branch

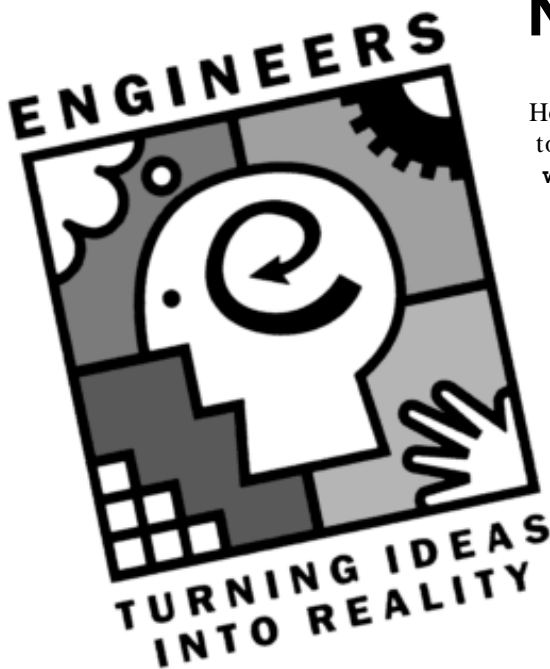
Sandra Gumma, Dawn Isabel and Heather O'Neill not only joined IEEE, but also showed up at ExCom meetings and assumed responsibility for projects. They deserve special mention for their efforts and the success of student branch activities during the past semester. Their efforts included successful bake sales held through WSU Student Affairs; ECE brown-bag luncheon meetings with Maureen Johnson, the ECE Coordinator for Cooperative Education; newsletter production; and developing a database that contains information on WSU students and their project interests.

The IEEE Room in the College of Engineering was decorated for the December holidays and a festive spirit prevailed, even as final examinations were in progress. We organized a clothing drive in cooperation with the St. Vincent de Paul Society. On December 18, the concluding day of the fall semester exam period, the ExCom organized a Christmas party. Members went to the theater to see "SCREAM 2" and then had dinner and a gift-exchange at the Warren Ruby Tuesday.

We are eagerly looking forward to the new year with the ardent desire to continue organizing our activities and getting involved in competitions with more fervor as we grow in number. It is our feeling that there is a communication gap between the student branches in IEEE/SEM. We seek to help and cooperate with the other student branches in the section in narrowing this communication gap. It is our resolve to promote IEEE for the benefit of students as "the IEEE/SEM Student Team." Send us your comments at [ieee@ece.eng.wayne.edu](mailto:ieee@ece.eng.wayne.edu) and visit us at [www.ece.wayne.edu/~ieee/](http://www.ece.wayne.edu/~ieee/).



**Dawn Isabel, Professor Robert Erlandson, Sandra Gumma, Professor Jim Woodyard, Rana Abrou, Kevin Arnold, Heather O'Neill, David Sant, Gurinder Dhanoa and Vikas Sinha at the November 12, 1997 General Body Meeting**



## NEW Reminder

by Sandy Hunter, Wavelengths Editor

How are you going to celebrate National Engineers Week (NEW)? What will you do to make February 22-28, 1998, memorable? Stop by the NEW web site, [www.eweek.org](http://www.eweek.org), for some ideas. Here is a sample of what you will find:

**The 1998 Engineer Survey** - This is your chance to predict the workplace of the future. Predictions will be distributed to the press to inform the public about the many ways engineers improve daily life.

**Mystery/Mister“e”** - Online contests with prizes.

**NEW Products** - Satisfy the consumer in you by buying posters, mugs, mouse pads and more. Kids of all ages can enjoy videos, books, and kits from here.

**Statistics** - Find out how many engineers are employed in the United States, what the highest and lowest average engineering salaries are, and engineering enrollment trends.

**Engineering Facts** - You probably missed the college lectures on optimizing coffee cooling rates and design of snowboards. The web site also highlights careers of important engineers.

The NEW web site offers a myriad of ideas for the week long celebration of engineering. You can choose to disclose little known engineering facts to friends during the week, help a child perform an engineering experiment, or just wear your commemorative t-shirt for all to see. Your participation in any form helps the public to understand engineering and encourage youth to enter the profession.

**National Engineers Week<sup>o</sup>  
February 22-28, 1998**

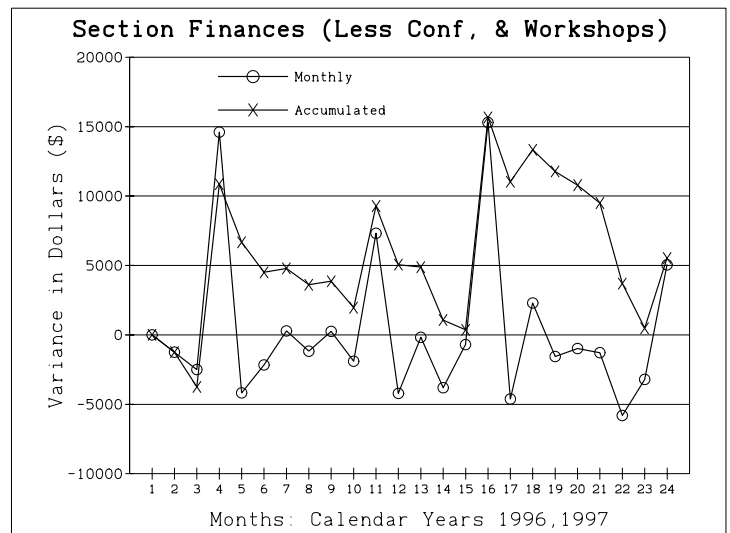
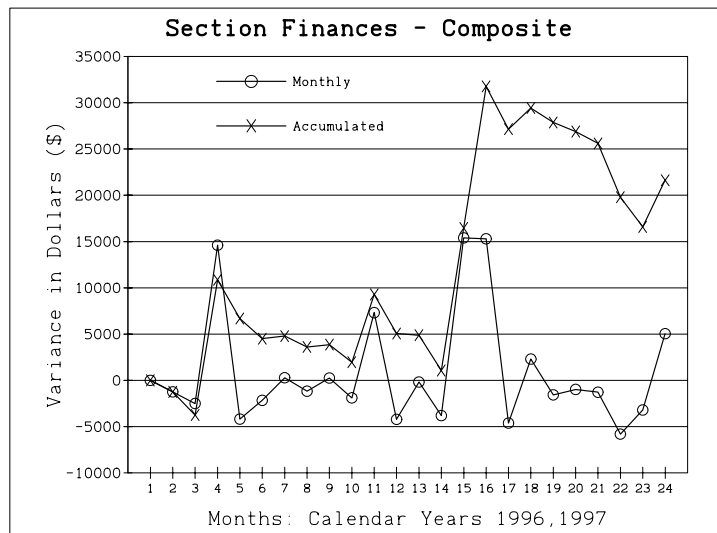
# IEEE/SEM Finances

by John M. Miller, Section Treasurer

Involvement in IEEE section activities is a rewarding experience for the opportunity to meet new people, make new friends and to just get involved. Being the Section Treasurer is certainly one way to get involved since this office is pivotal in keeping our local IEEE activities afloat financially. My background in IEEE/SEM leadership positions includes having spent the past four years as the Chair of Chapter IX, Power Electronics and Industrial Electronics. This year I am the Chapter's Secretary as well as the Section Treasurer. Some *Wavelengths* readers are probably very familiar with and active in their respective IEEE societies, participate in conferences and perhaps publish their work in the transactions. Sections are the backbone of the IEEE. Sections are active in your local universities, where student members are first introduced to the diverse activities sponsored locally in many fields of specialization. They typically sponsor annual meetings and host conferences for IEEE societies. Without sections much of the vitality of IEEE would be lost. Keeping our section viable through these changing times is extremely important. My intention in this article is to project what the section's future financial situation will be if some of our support wanes.

Past treasurers have commented on the fact that section expenditures are outpacing income. The situation has not changed, and this is reason for concern. Early in 1995 the Executive Committee adopted goals for the section, one of which was to identify at least two means to increase section income or reduce expenses. The 1995 Treasurer's Report identified the costs of newsletter publication and of hosting section meetings as the major expenses. Costs of producing the newsletter, including printing and mailing, continue to rise as does the cost of room rental and catering for section meetings. The financial report for 1996 amplified these same concerns and went on to propose ways in which members can team with companies to share resources. This has been happening and is helping keep the section financially sound. However, it is ill advised to continue to rely on only two of our larger Southeastern Michigan corporations for section meeting sponsorship. We need the participation of more, smaller companies to maintain a vital section.

To illustrate this, let's look at just the past two years of section financial performance. With the use of some "what if" scenarios, we will see how long this section can remain solvent given business as usual. First take a look at the composite financial performance over the past twenty-four months (calendar years 1996 and 1997). The figure of composite performance clearly illustrates the periodic infusion of funds from section rebate (yearly in the 4th month) and the infrequent and less predictable surplus into the section from major conference sponsorship (15th month in the graph). The composite figure also highlights the biannual impact of section meetings (generally 5th and 11th months for financial impact). During these past two years, our section meeting finances have been buoyed up by sponsorship of meeting sites (including meeting rooms for technical presentations) by Ford and General Motors. Looking at the running total of monthly variance, or accumulated variance, we can see that the section gained financially as a result of the recent Radar Conference surplus (month 16). So, let us see what the situation would have been had this event not occurred. The figure below illustrates this.

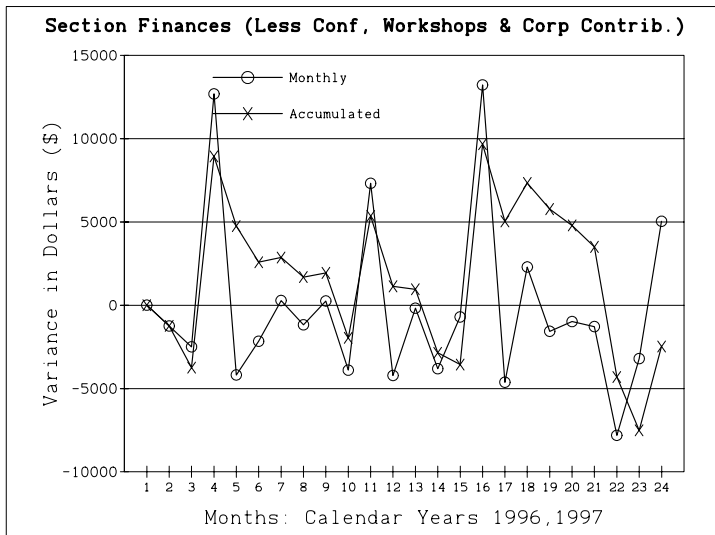


**[Editor's Note:** Monthly variance is the difference in the section's assets from one month to another. Monthly variance is useful for noting cash infusions and spending spurts. For example, say that on January 31, the section's bank account contains \$1,000. On February 28, the section's account has \$800. The monthly variance would be \$800-\$1,000 = -\$200, which shows that the section spent more money than it acquired. Accumulated variance is the sum of the monthly variances and shows the overall trends for the section's finances. If the section matches income to expense for a year, the accumulated balance would be zero at the end of the year. An accumulated balance in negative territory shows that spending is outpacing income.]



## (IEEE/SEM Finances contined from page 8)

Notice the very significant change in the vertical scale first. The month by month change in total section assets is clearer in this figure, but what is more striking is the relatively fast burn off of the section rebate from IEEE Headquarters (4th month in each year). From this figure, it is easy to see that the yearly rebate is essentially consumed in support of the section newsletter. But, starting with zero in the accumulation pot, we still show a slight surplus after two years. Now let's look at the section meetings. Our section has been the beneficiary of corporate sponsorship. Let us see what our situation would be if this second leg of our three legged stool is removed.



The accumulated variance tells the story. We are on a downward slope to insolvency! This fact has troubled past treasurers and it remains. As the figure clearly shows, starting with zero accumulated variance and after just two years, this section is effectively in the red by several thousand dollars. The loss is approximately \$4,000 per year when non-periodic cash infusions, such as a workshop or conference, and our section meeting sponsorship are removed. At this rate the section will be insolvent within the next ten years (given our present assets).

How can we strengthen the section's financial health? During 1996 when he was Section Treasurer, Jim Woodyard proposed we solicit more conference sponsorship and further that a section subcommittee be formed to address the budget situation. Both have been instituted. This section now has a standing budget subcommittee consisting of the Treasurer, Secretary, Vice Chair, Past Chair, Section Advisor and *Wavelengths* Editor. Workshop and conference sponsorship continues to be solicited. For 1998, the section will co-sponsor the "Workshop on Power Electronics in Transportation" at a 50% share. If there is a surplus, then the section benefits. Hopefully this event breaks even or performs in the black.

So what else can be done? As stated in past Treasurer's Reports, the section will continue to offer reduced registration rates to students, and to all guest speakers at our section meetings. The IEEE/SEM Executive Committee believes that this is an important service that

should continue. Publication of a quality newsletter is another service to our members that must continue. All of this takes money, and costs will rise in the future. Our membership seems to hover around 4,000 members. The 1996 section rebate shows we have 2,974 full members, 642 student members and 316 affiliates for a total of 3,932. At the set \$3.00 per member, a \$1,500 section allowance, 10% bonus for turning in section reports on time and a per chapter allowance of \$150 per year for meetings held (and we now have 10 chapters each of which must host 2 meetings/year) gives a total rebate of \$16,101.35 for the year. The yearly budget to publish the newsletter is over \$20,000 which is met by the rebate and newsletter advertisements. Without company sponsorship and conference sponsorship, this section cannot meet future obligations.

We all need to become more proactive in our local IEEE activities. Becoming involved is one way. Cutting costs will help but not at the expense of quality. This section has had and will continue to offer meetings with presentations by nationally and internationally renowned speakers. I encourage all to take advantage of this IEEE membership benefit. I propose further that this section more aggressively solicit sponsorship of workshops and conferences and that each chapter takes a more active role in workshop or conference organization. I also encourage chapter sponsorship of tutorials on special subjects of interest to our members. Fees from the tutorials could help the section. With involvement from more of our members this section will continue to maintain its vitality.

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## Ballot Issue, ...so what?

by Sandy Hunter, Wavelengths Editor

Show your interest in section activities by voting this month in the IEEE/SEM officer elections. In past years, the election committee has received well under 100 ballots. The section has about 4,000 members, which means that less than 2.5% of the members vote.

Why should you vote? Part of your annual IEEE dues is given to the section each year to pay for section programming. The people elected to section leadership positions are the ones who decide what programs are funded. Voting is a way to signal your interest in how your dues are spent. It is also a way to demonstrate your enthusiasm for the 1998-9 program year. The 42 volunteers running for office will be able to offer more programming to section members than ever before.

*Take an interest in your section and vote. Take even more interest by joining us at activities, talk with some of the people you voted for and maybe even be one of the names on the ballot next year.*

Here are some tips for voting: You can vote for write-in candidates for any of the officer positions. Use the gray section of the ballot on page 11 to vote for your nominee. You must list the office title, such as Chapter XI Vice Chair Technical, your candidate's first and last name, and the candidate's IEEE membership number. If you want to vote for more than 3 write-in candidates, write the information on a sheet of paper and attach it to your ballot.

Make sure that your name and IEEE membership number are listed on the top of page 12. This information is usually printed on the mailing label. Finally, sign the bottom of page 12 to validate your ballot. Remember the deadline for mailing the ballot is Saturday, February 21, 1998.

## 1997 Professional Affairs Report

*(Continued from Page 1)*

The Career Asset Manager (CAM) program is a set of written materials, which serves as a self-assessment tool to evaluate and enhance an EE's career. CAM materials help identify career goals, benchmark career advancement functions, help maintain a record of professional achievements, and help with the development of a personal career "roadmap." Individual copies of the package cost \$35 plus shipping, but 20% discounts are available on group orders through the section. If you are interested in learning how to treat your career as if it is a business through these materials, please contact me at [silversm@ece.eng.wayne.edu](mailto:silversm@ece.eng.wayne.edu) or Marlin at [marlinr@eecs.umich.edu](mailto:marlinr@eecs.umich.edu).

One section meeting event that is becoming popular is the University Showcase. Exhibits from area electrical engineering and related programs demonstrate activities of the local student branch, faculty and student research, or provide information on graduate study opportunities. At the Fall Meeting, Lawrence Technological University, Michigan State University, University of Detroit-Mercy, and Oakland University had exhibits. We are hoping that at future section meetings we will see representation from all ten student branches in the Section.

Finally, the section participated in the IEEE-USA's officer development program by sponsoring Dr. Tarik Lahdhiri of the University of Windsor as a "Young Professional" representative at the 1997 IEEE PACE Conference and Workshop, which was held over the Labor Day weekend in St. Petersburg, Florida.

## New Virus Scanning of IEEE Alias E-Mail

This information is for all of our members who have IEEE e-mail aliases.

The IEEE Headquarters Information Technology Department has installed a new e-mail relay machine that will automatically scan all attachments to e-mail addressed to [username@ieee.org](mailto:username@ieee.org) for viruses.

If a virus is detected in an attachment, the message will be delivered without the attachment. The system will send a notice to the recipient, the sender and the system administrator that the attachment was deleted. It will be up to the sender to clean the attached file before sending it again.

For more information, contact Lyle Smith, Information Technology: telephone 1-732-562-6521; fax 1-732-562-1727; e-mail [l.smith@ieee.org](mailto:l.smith@ieee.org).

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**INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS  
SOUTHEASTERN MICHIGAN SECTION - 1998-1999 OFFICIAL BALLOT**



**VOTING ELIGIBILITY REQUIREMENTS:**

- All members of the IEEE Southeastern Michigan Section who are FULL members for 1998-1999 are eligible to vote.
- Student members and Associate members are not eligible to vote.
- All voting members may vote for Section Officers and Section Directors presented in Part 1 of the ballot.
- You must be a member of the specific chapter to vote for that chapter's officers in Part 2 of the ballot.  
This means you may NOT vote for officers in a chapter unless you belong to one of the IEEE Societies comprising that chapter.  
The societies comprising each chapter are listed on the ballot in Part 2.

**VOTING INSTRUCTIONS:**

- Vote for a candidate by checking the box immediately to the left of the candidate's name.
- Write-in candidates are accepted for any office. Write-in candidates must be full members as defined above.
- To enter a write-in candidate, place the office title, candidate name and member number in the area provided below.
- Additional write-in candidates may be submitted on a separate sheet of paper. Sign the sheet and attach it to this ballot.
- You may vote for only one candidate for each office.

**IEEE/SEM Election Ballots  
David A. Horvath  
Advent Engineering Service, Inc.  
PO Box 555  
Ann Arbor, MI 48106-0555**

**WRITE-IN CANDIDATES**

| Office Title | Candidate Name | IEEE Membership # |
|--------------|----------------|-------------------|
|              |                |                   |
|              |                |                   |
|              |                |                   |

**PART 1: SECTION OFFICER & DIRECTOR POSITIONS**

**Section Officers**

**CHAIR:** Sandra Hunter (EDS)  
**VICE CHAIR:** James R. Woodyard (Wayne State Univ.)  
**SECRETARY:** John M. Miller (Ford)  
**TREASURER:** Don Silversmith (Wayne State Univ.)

**Section Directors**

**PROFESSIONAL ACTIVITIES:** Tarak Lahdhiri (Univ. of Windsor)  
**MEMBERSHIP ACTIVITIES:** Maurice Snyder (Applied Dynamics, Inc.)  
**ASSISTANT MEMBERSHIP ACTIVITIES:** Mark Hunter (Link Engineering Co.)  
**TECHNICAL ACTIVITIES:** Satyendra N. Basu (Detroit Edison)  
**ASSISTANT TECHNICAL ACTIVITIES:** Anthony Will (GM NAO)



**BALLOT INSTRUCTIONS:**

- 1) Enter your name, membership number and mailing address in the space to the right if it is not printed there already.
- 2) Review Eligibility Requirements and Voting Instructions on the reverse side of this page.
- 3) After voting, sign the ballot on the line at the bottom of this page.
- 4) Fold on dashed lines with the ballot names inside and the return address on the back.
- 5) Tape the flap to seal the ballot.
- 6) Place stamp, and mail before February 21, 1998 in order to be counted as valid.

**PART 2: CHAPTER OFFICER POSITIONS**

**CHAPTER I: Acoustics, Speech, & Signal Processing (ASSP-01); Circuits & Systems (CAS-04); Info. Theory (IT-12); Control Systems (CS-23)**

**CHAIR:**  Fathi Salam (Mich. State Univ.)

**VICE-CHAIRS:**

|   |   |   |
|---|---|---|
| <b>TECHNICAL</b> <input type="checkbox"/> Hoda S. Abdel-Aty-Zohdy (Oakland Univ.) | <b>PROGRAM</b> <input type="checkbox"/> Charles R. MacCluer (Mich. State Univ.) | <b>OPERATIONS</b> <input type="checkbox"/> Sandra Yost (U of D - Mercy) |
| <b>ADMINISTRATIVE</b> <input type="checkbox"/> Rob Cadema (Oakland Univ.)         | <b>MEMBERSHIP</b> <input type="checkbox"/> Robert Nowak (Mich. State Univ.)     | <b>PUBLICITY</b> <input type="checkbox"/> Ming Xi (Mich. State Univ.)   |

**CHAPTER II: Vehicular Technology (VT-06)**

**CHAIR:**  Ken N. Rao (Raytheon)

**VICE-CHAIRS:**

|  |  |
|--|--|
| <b>TECHNICAL</b> <input type="checkbox"/> Elias Strangas (Mich. State Univ.) | <b>PROGRAM</b> <input type="checkbox"/> Edzko Smid (Oakland Univ.) |
|--|--|

**CHAPTER III: Aerospace & Electronic Systems (AES-10); Communications (COM-19)**

**CHAIR:**  Robert Desoff (Ameritech)

**VICE-CHAIR:**  Bruce Block (UofM SPRL)

**CHAPTER IV: (Trident Group) Antennas & Propagation (AP-03); Electron Devices (ED-15); Microwave Theory & Techniques (MTT-17)**

**CHAIR:**  Timothy Grotjohn (Mich. State Univ.)

**VICE-CHAIRS:**

|   |   |
|---|---|
| <b>TECHNICAL</b> <input type="checkbox"/> Joseph Burns (ERIM International) | <b>PROGRAM</b> <input type="checkbox"/> Lisa M. Anneberg (Lawrence Tech. Univ.) |
|---|---|

**CHAPTER V: Computers (C-16)**

**CHAIR:**  Charles Severance (Mich. State Univ.)

**VICE-CHAIRS:**

|   |   |   |   |
|---|---|---|---|
| <b>OPERATIONS</b> <input type="checkbox"/> Nizar Alholou (U of D - Mercy) | <b>MEMBERSHIP</b> <input type="checkbox"/> Nabil Hachem (Lawrence Tech Univ.) | <b>PROGRAM</b> <input type="checkbox"/> Syed Mahmud (Wayne State Univ.) | <b>PUBLICITY</b> <input type="checkbox"/> Sylvia Karmanoff (GM)             |
|   |   |   | <b>PROGRAM</b> <input type="checkbox"/> Subramaniam Ganesan (Oakland Univ.) |

**CHAPTER VI: Geoscience & Remote Sensing (GRS-29)**

**CHAIR:**  Bob Onstott (ERIM International)

**VICE-CHAIR:**  Leland G. Pierce (U. of M.)

**CHAPTER VII: Power Engineering (PE-31); Industrial Applications (IA-34)**

**CHAIR:**  Thomas Powell (McNamee Porter Seely)

**VICE-CHAIRS:**

|  |  |  |
|--|--|--|
| <b>TECHNICAL</b> <input type="checkbox"/> Ib Bentzen-Bilkvist (Holnam) | <b>PROGRAM</b> <input type="checkbox"/> Brian Harrington (Engel-Klaes) | <b>OPERATIONS</b> <input type="checkbox"/> Shamala Chickamenahalli (Wayne State Univ.) |
|--|--|--|

**CHAPTER VIII: Electromagnetic Compatibility (EMC-27)**

**CHAIR:**  Dennis Barberi (TACOM)

**VICE-CHAIR:**  Scott Lytle (Eaton Corp.)

**CHAPTER IX: Power Electronics (PE-35); Industrial Electronics (IE-16)**

**CHAIR:**  Yu Chin Qin (Controlled Power Co.)

**VICE-CHAIRS:**

|   |   |   |
|---|---|---|
| <b>TECHNICAL</b> <input type="checkbox"/> Ka C. Cheok (Oakland Univ.) | <b>PROGRAM</b> <input type="checkbox"/> Shamala Chickamenahalli (Wayne State Univ.) | <b>OPERATIONS</b> <input type="checkbox"/> Gamze Erten (Consultant) |
|---|---|---|

**CHAPTER X: Engineering Management (EMS)**

**CHAIR:**  Dr. Prakash Shrivastava (EDS)

**VICE-CHAIRS:**

|  |  |
|--|--|
| <b>TECHNICAL</b> <input type="checkbox"/> Carl McGlashan (EDS) | <b>PROGRAM</b> <input type="checkbox"/> Stephen Kishok (TACOM) |
|--|--|

**! Print name & member # at top of page**  
**! Sign here to validate your ballot:** \_\_\_\_\_