

# Wavelengths



## Volume 58 – Issue 9

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### Section Chair's Message



candidates and vote at [www.ieee.org/elections](http://www.ieee.org/elections).

#### SEM Events:

An IEEE Day Social Mixer is planned for October 2 at the U of Michigan North Campus in Ann Arbor. Details are on page #7.

Chapter 5's Embedded Systems Workshop annual event is planned for October 20 at LTU. See page 9 thru 11 for more information.

Fall Conference planning is underway with a theme of "Artificial Intelligence". Please contact David Werden, Conference Chair, at [dwerden@ieee.org](mailto:dwerden@ieee.org) to volunteer to assist in organizing this annual Section event.

#### SEM Reports:

This issue is filled with reports from our many activities such as Library Science STEM Project, Future Leaders attendee report, Chapter 5 report and the Makers Faire attendee report.

#### Chapter 8 – IEEE EMC Society Chapter of the Year:

Congratulation to our Chapter 8 for their selection as EMC Society's Chapter of the Year. More on page #21.

I look forward to seeing you at our upcoming events. As always, your ideas and suggestions are encouraged and welcome.

**Robert Neff**  
IEEE SEM Section Chair  
[RLNeff1@gmail.com](mailto:RLNeff1@gmail.com)

#### Nominations:

Nominations are open for elected positions in our Section, Technical Chapters and Affinity Groups. In our Section we are looking for nominations for Chair-Elect and Vice-Chair-Elect who will train in 2019 and take office for two years, 2020 and 2021. Chapters and Affinity Groups have yearly elections and are looking for Chair, Vice-Chair, Secretary and Treasurer to serve in 2019. Please see pages 2 thru 5 for details and available training.

#### Volunteer Portal:

Elected positions are but one of the ways you can volunteer here in Southeastern Michigan. The new Volunteer Portal is designed to assist you in investigating positions and opportunities for you to contribute and grow your leadership skills. A selection of positions are loaded into the portal at this time and as the team progresses and the site grows, more will be available. Page #4 will provide more details.

#### IEEE Elections:

Elections for IEEE and Region 4 are open and scheduled to close October 1 at 1:00 PM EDT. You should have received a mail-in ballot in your snail mail. You can also learn more about the

## Election 2018

### 2018 SEM Officer Elections!

#### Staggered Election Terms:

Because of the 'staggered terms' that were enacted with the 2015 elections, this year we elect our Section Chair and Vice-Chair. Next year we will elect our Secretary and Treasurer.

#### Elections in 2018:

This year we will hold elections for the following Section-level Officers:

Section Chair and Section Vice-Chair will begin their year (2019) as 'Elect' – Officers in training.

Then they will begin serving their full two-year terms in 2020.

Each year we select our Section, Senior Executive Committee officers, alternating between Chair & V-Chair and Secretary and Treasurer, every other year. This provides an overlap with experience with 'in training' officers to ensure greater continuity of operations and the fulfillment of long term programs and projects. (Of course, we also look for the immediate 'past' officer to remain active and help coach the entire team.)

#### Affinity Groups and Technical Chapters:

Elections for the Section's four Affinity Groups and seventeen Technical Chapters (geo-units) officers:

- **Chair,**
- **Vice-Chair,**
- **Secretary,**
- **Treasurer,**

This will continue without changes. While several Affinity Groups and Chapters have been observing implementation of the current ExCom election process with a great deal of interest, none have come forward to propose a modification to their own election process.

#### Requirements:

Note that holding office in any Affinity Group (AG), or Technical Chapter (Ch), requires membership in the AG or Ch., in addition to membership level above Student level. Please ensure that you (if you self-nominate) or your acquaintance (if you nominate another person) holds the required membership in the organization.

You will also need the Candidate's IEEE Member number in order to complete the survey form, which helps avoid any 'surprise' nominations in which the person elected does not know they are on the ballot for an office election.

Student members are encouraged to seek offices in their local university Student Branches, and gain experience in those organizations. Students may not hold office in any Section geo-unit. (We want them to concentrate on getting that all-important degree before becoming too involved with Section level activities.)

#### Ballots for Election to Office:

Any member of the Section, above the level of Student Member may submit a nomination for someone they know, or for themselves by filling out the form at:

<https://getfour eyes.com/s/a60uH/>

The ballot process opened on August 10, 2018 and will close on September 21, 2018.

Please use the link above to submit a nomination now.

## Candidate & Officer Training

A series of Officer Training events which to cover the elements needed by our SEM election Candidates (and our current Officers) will be broadcast early in September. These are a series of training sessions, potentially for new officers. (*Though some 'old' officers could use them as well.*)

- GoToMeeting virtual workshops at **Noon** on Mondays & Wednesdays:
  - **September 10 - Chair Functions**
  - **September 12 - Vice-Chair Functions**
  - **September 17 - Secretary Functions**
  - **September 19 - Treasurer Functions**

**Use the link below to connect 5 minutes before the start of the session.**

<https://app.gotomeeting.com/?meetingId=667804677>

If you miss a training session, look for the recording of the session to be placed on the SEM webpage by the following Saturday, at the bottom of the Training page at:

<http://sites.ieee.org/sem/about-sem/training/>

#### Voice over Power Point Training:

Many on-line virtual training modules are available through the SEM Website Training page at:

<http://sites.ieee.org/sem/about-sem/training/>

## Election 2018 – Continued:

**Non-Elected Geo-Unit Positions:**

While we elect our basic officers (Chair, Vice-Chair, Secretary, Treasurer), many geo-units utilize the talents and energy of ‘appointed’ volunteers. For these positions, contact the Chair of the particular geo-unit, and discuss the opportunities. Alternatively, look at the article on the following page about the new Volunteer Portal, which may be a more comfortable.

**Election Schedule:**

As noted in our announcement of the election process early in the year, we are now notifying all “voting members” of the opportunity to run for election to any elected governing position within the Section, Affinity Groups or Technical Chapters.

The election schedule we are following for 2019 is as follows:

- **March:** Announce upcoming Elections.
- **August:** Advise members of the election schedule and options for ballot nominations.
- **September:** Open the survey site for candidates for nomination (self-nominated or nominated by another member.)
- **October:** Open the vTools election system for two weeks
- **November:** Compile election results, resolve alternatives, fill vacancies.
- **December:** Deliver results report to the Section Executive Committee.

All members above Student Member grade are eligible to vote and hold Chapter, Affinity Group and Section office. (Yes, Graduate Student Members do qualify for election to officer positions.) Please consider what positions you might wish to both serve the IEEE as well as learn new leadership and organization governance skills.

Be prepared to submit a self-nomination for an officer position when we open the balloting process. If you are new to this process, it makes good sense to begin your involvement in any of the governance areas by initially gathering experience in ‘volunteer’ roles. You are encouraged to have involvement at the committee volunteer level as stepping stones to prepare for elected offices.

Note: All standing committee positions are ‘appointed’ and not ‘elected’. Contact the current Committee Chair to discuss volunteer options. Also see the SEM Organization Roster posted in the SEM Website for details of each committee.  
<http://sites.ieee.org/sem/files/2018/07/OrganizationRosterIEEESEM7.15.2018a.pdf>

[K.williams@ieee.org](mailto:K.williams@ieee.org)

Chair: N&A Committee.

**Ballots for Election to Office:**

Submit a nomination for someone you know, or for yourself by filling out the form at:

<https://getfoureyes.com/s/a60uH/>

The ballot process opened on August 10, 2018 and will close on September 14, 2018. Please use the link above to submit a nomination now.

**Section Mission**

Inspire – Enable – Empower and Engage Members of IEEE at the local level.

For the purpose of:

- Fulfilling the mission of IEEE to foster technological innovation and excellence for the benefit of humanity,
- Enhancing the members’ growth and development throughout their life cycle, and
- Providing a professional home.

**Section Goals**

- Increase member engagement,
- Improve relationships with and among members,
- Increase operational efficiency and effectiveness, within the section and its interfaces,
- Enhance collaboration – serve as the local face of IEEE to the community,
- Increase membership, and
- Ensure the collection of appropriate information necessary to assist the IEEE to become a data driven organization.

## Volunteer Portal

In July, the Nominations and Appointments Committee (N&ACom) released a [Google Form](#) designed to identify volunteer opportunities available at all levels of our Section, including

- Executive Committee,
- Standing Committees,
- Affinity Groups,
- Technical Chapters, and
- Student Branches.

Simply stated, the tasks and volunteer needs change with time, and it is not unusual for these tasks to require more time and energy than one elected or appointed officer can handle alone. When we find ourselves in that situation, we reach out to our members for assistance.

### From Officers to Members:

With the help from our officers, the new Volunteer Portal will become a central depository for all our volunteer needs easily accessible to all members. This site will feature links to details for each volunteering opportunity being advertised, including estimated time commitment, a detailed job description, where applicable, and the name of the geo-unit and officer requesting the assistance along with pertinent contact information.

You can view a preliminary version of the Portal at:

<http://sites.ieee.org/sem/about-sem/volunteer-portal/>

Currently there are about 20 vacant positions for consideration and we encourage all members to view them and select those that may help them grow in knowledge and experience through volunteering.

The Portal will be a 'one stop shop' for all members interested in volunteering with any of the SEM organizations. And each potential volunteer can select those opportunities that look most interesting to them and contact the particular officer seeking help to discuss the opportunity in more detail.

**Note:** While elected officer positions require membership level above the Student level, as well as, membership within the geo-unit, neither of those restrictions apply to appointed volunteer positions. This means that a volunteer position obtained through the Portal may be a great introduction to operations of a particular geo-unit and its management team.

### Web Site Access:

The new Volunteer Portal is now accessible and shows a small selection of volunteering opportunities currently available with SEM. We expect that new opportunities will be added as the officers seeking help enter them into the system.

We hope that our members will find Volunteer Portal helpful in becoming actively engaged with the local IEEE organization that interest them and will give them the experience to grow new talents and skills.

IEEE SEM Geo-Unit Officers, Committee Chairs, etc. have been asked to fill in the Volunteer Survey form in order to populate the Volunteer Portal with the positions information about the area where you need volunteer help, or to replace vacant positions in their Administrative Committees.

SEM Officers may find the form at:

[https://drive.google.com/open?id=1DAyfMNlv4W0lh\\_hwlsKKvvIPGNLHexoEi99FFmhnile](https://drive.google.com/open?id=1DAyfMNlv4W0lh_hwlsKKvvIPGNLHexoEi99FFmhnile)

kw

## Division Election

**For IEEE Region Delegate-Elect/Director-Elect, 2019-2020**  
**IEEE Region Delegate/Director, 2021-2022**  
**Region 4 (Central USA)**

(Nominated by IEEE Region 4)



Strategy Leader  
General Motors  
Global Validation Department  
Warren, Michigan, USA  
[lahdhiri@ieee.org](mailto:lahdhiri@ieee.org)

Dr. Lahdhiri received his MS-EE in Communication Systems in 1990 and PhD in Control Systems in 1995. He is currently working for General Motors LLC in Warren, Michigan, where he is holding the position of Strategy Leader for Real-Time Control Systems Simulations and Automation within the Global Validation Department.

Dr. Lahdhiri is a Senior IEEE Member, licensed Professional Engineer (PE) in the State of Michigan, licensed Project Management Professional (PMP) by the Project Management Institute (PMI), Black Belt DFSS certified by General Motors LLC, and holder of the Electrical Validation Journeyman and Vehicle Validation Apprentice Certifications, General Motors, Warren, Michigan, USA.

Dr. Lahdhiri has been involved with several universities, where he held the positions of Research Associate, Adjunct Professor, and Lecturer at the University of Windsor, Ontario, Canada, University of Detroit Mercy, Detroit, Michigan, and University of Michigan, Dearborn, Michigan. He taught several classes in many Electrical Engineering disciplines and was involved in many research projects.

## Statement

I have dedicated my time and effort to enhance IEEE member services.

My activities are member driven and I believe that the only way to growth for our Region 4 is to:

- Engage our members and interact with them at the Section/chapter level.
- Increase the effectiveness of the current product and services and develop new ones that fit our member needs.
- Timely reaction to the challenges in today's dynamic workplace.
- Build stronger relations with industries.
- Leverage my IEEE, industry, and academic experience to bridge the gap between academia and industry.
- Promote YP, WIE and Student Activities.
- Increase collaboration between the different Committees.
- Establish University and Corporate Liaison positions at the region level.
- Devote more resources to assist with the continued rejuvenation of all sections within the Region.
- Implement new initiatives to decrease the declining number of members within the Region.
- Collaboration with other Regions.
- Balanced Budget while getting the best service to our members.

I would like to be given the opportunity to leverage my IEEE, professional, and educational experience in better serving our members.



## **IEEE Accomplishments and Activities**

(S'92-S'96-M'99-SM'03)

Dr. Lahdhiri has been involved and active IEEE member for more than 26 years. He started as a student member in the Central Tennessee Section. Then he moved to Region 4, where he started being active and held the positions of PACE Chair, Southeastern Michigan Section (SEM) and IEEE Student Counselor, University of Windsor (IEEE-SEM Section), and member of the IEEE-USA 1998 GOLD Committee. These assignments gave him a better and broader idea about IEEE. He then moved to the Region and USA levels, where he held the position of Region 4 Membership Development Chair, member of the IEEE RAB Industry Relations Committee (IRC), member of IEEE-MGA Nominations and Appointments Committee, IEEE-USA Career Workforce Policy Committee Career Outreach co-chair, and member of the IEEE-USA Employment & Carrier Services Committee. He is currently the Region 4 PACE Chair and Vice President of IEEE-USA Career and Member Services/Professional Activities.

Dr. Lahdhiri has been promoting raising the awareness and the need of soft skills for engineers through IEEE-USA PACE, ECS, and CWPC committees. He contributed in the development and deployment of several IEEE-USA packages in following topics: Project Management for Engineers, Design For Six Sigma (DFSS), Leadership Skills, Resume Development, Job Interview, Career Development, Job Transition. He provided more than 100 free Professional Seminars, Workshops, and webinars across all six regions in the United States.

Dr. Lahdhiri has been promoting many IEEE events through the PACE program: IEEE-USA Annual Meetings, Future Leader Forums, IEEE WIE, K-12 STEM, Government Relations, students SPACs, and Career events.

Dr. Lahdhiri received several awards: 2012 IEEE-Region 4 Jack Sherman Award, 2007 IEEE-USA Citation of Honor, 2004 IEEE-USA Leadership Achievement Award, 2003 IEEE Southeast Michigan Best Involvement Award, and 2001 IEEE-USA Professional Achievement Award.

2018 IEEE Day



IEEE Student Branch of the University of Michigan in conjunction with IEEE Southeastern Michigan and IEEE Region 4 would like to invite you to an upcoming



**Social Mixer**  
**Thursday, October 4th**  
**7:00 PM-10:00 PM**

East Room, Pierpont Commons  
University of Michigan North Campus  
2101 Bonisteel Blvd, Ann Arbor, MI 48109

IEEE Day is celebrating the first time in history when engineers worldwide and IEEE members gathered to share their technical ideas in 1884.

**WHAT:** Join students, faculty, young professionals, and members for a networking dinner.

**WHY:** Expand your network, meet others!

**HOW MUCH WILL IT COST ME?** It's **\*FREE\*** to attend! Well, you do still have to get here...

**NOT A MEMBER?** No problem! We want to meet you, so come see what IEEE is all about!

**DRESS CODE?** Absolutely, positively, no suits.

**HOW DO I GET IN?** RSVP at:

[https://events.vtools.ieee.org/meeting\\_registration/register/176421](https://events.vtools.ieee.org/meeting_registration/register/176421)

**CAN I BRING A GUEST?** Sure, but they have to RSVP as well!

## EMC Classes



# Become an EMC Expert!

Professional EMC training in the Midwest

2018

### Detroit, Michigan

- Sept 17-18 Design for Automotive EMC Compliance
- Sept 19 Automotive Printed Circuit Board Layout
- Sept 20 Power Electronics Design for Electromagnetic Compatibility

### Stoughton, Wisconsin

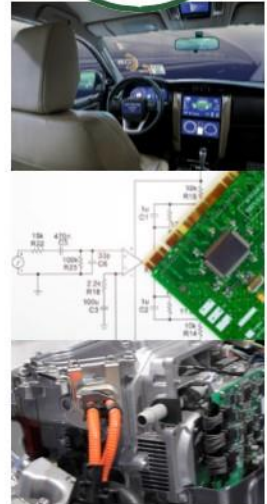
- Oct 15-16 Fundamentals of Electromagnetic Compatibility
- Oct 17-18 Design for Guaranteed EMC Compliance

For Details & Registration, visit [LearnEMC.com](http://LearnEMC.com)

10% discount for IEEE Members! Use Coupon IEEE-EMC at checkout.

*Register early, classes are expected to fill!*

Prof. Todd Hubing, IEEE Fellow and past-president of the IEEE EMC Society, is the primary instructor for LearnEMC short courses. His unique approach to EMC education uses real applications to demonstrate important fundamental concepts.



## Membership Event

Who doesn't like some quality time at the **Henry Ford Museum** to visit with their fellow IEEE members and their families?



## Save-the-Date

Sunday, November 11  
Afternoon  
20900 Oakwood Blvd, Dearborn



We'll be gathering for a stroll among some of the finest historical exhibits and artifacts in the Metro Detroit Area.

More information and registration details will follow soon.

So, grab your spouse, kids, friends, and neighbors, and we look forward to seeing you there!



## ESW 2018 Flyer

Lawrence  
Technological  
UniversityIEEE  
Southeastern  
MichiganIEEE  
computer  
society

# Embedded Systems Workshop 2018

October 20, 2018, 8:30 a.m. to 4:30 p.m. (Saturday)

Lawrence Technological University (LTU)

21000 West Ten Mile Road, Southfield, MI, 48075

IEEE South East Michigan Computer Chapter is offering a one-day (**free**) workshop on Embedded Systems on Saturday, October 20<sup>th</sup>, 2018. The workshop is open to all engineers & students. This is the 16<sup>th</sup> year that the event is being held.

The aim is to disseminate knowledge, directly benefitting the IEEE members, at the same time **improve the technology skills pool, indirectly boosting the Michigan economy**. Speakers and experts from the embedded systems industry will be making presentations, and will also be available for discussions and networking throughout the day. In addition to the technical presentations, there will be industry information display and professional recruitment tables. Use this opportunity for networking with other engineers, industry experts and embedded enthusiasts.

Please confirm your participation by registering on the IEEE events web site (**Deadline is 18<sup>th</sup> October 5 pm!**):

<https://bit.ly/esw2018>

**Venue:** LTU, Room A200, Architecture Bldg, 21000 West 10 Mile Road, Southfield, MI, 48075



**Sponsors:** Vector CANtech, Beningo, DataSpeed Inc, LTU, SimuQuest, iSystem, Intrepid CS, Altair and many others...

Vendor tables with demos, technical booklets, and job recruiting opportunities will be available. There is no cost to attend. A complimentary lunch is provided. Random raffle and door prizes representing the embedded controllers and systems industry will take place. All are welcome. **Do post** this flyer in your workplaces, share/inform your peers and colleagues about this event. It is a great way learn not only what is going on, but network with other professionals as well.

*Brought to you by the IEEE SE Michigan Computer & Education Society. Do consider choosing to become a member, boost your technical skills, broaden your awareness of compute-based engineering in the region, support numerous similar initiatives & learn other benefits this brings.*

**Open to all, Pre-registration is necessary prior to attending! The deadline to register is 18<sup>th</sup> October 5 PM**

When responding, please indicate your lunch preference: **turkey, chicken, tuna or vegetarian sandwich**

For Technical questions, contact the Program Committee at: [esw2018@ieee-sem.org](mailto:esw2018@ieee-sem.org)

A PDH Certificate will be made available for participants who Pre-register and attend the full event.

**ESW 2018 Program & Organizing Committee:** Subra Ganesan (Chair), Sharan Kalwani, Ashok Prajapati, Ramesh S, Carla Gerst and Ben Sweet

## ESW 2018 Announcement

**The 16<sup>th</sup> Annual IEEE Embedded System Workshop is planned on October 20<sup>th</sup>, 2017, 8:30 AM to 4:30 PM (Saturday), in Auditorium Room A200, Architecture Building, LTU, 2100 West 10 Mile Road, Southfield, Michigan 48075**

IEEE Southeastern Michigan Computer Society (aka Chapter 5), and LTU are offering a one-day workshop on Embedded Systems from 8:30 am to 4:30 pm, Saturday October 21<sup>st</sup>, 2018. This is a **free** workshop open to all engineers, students and this is the 16<sup>th</sup> year of this annual workshop. Many of the attendees have gained valuable insights after attending the workshop.

The aim of this workshop is to disseminate knowledge, which will directly benefit the IEEE members and indirectly **improve the technology expertise and the Michigan economy**. Speakers and experts from a number of areas within the embedded systems industry will be making presentations; the speakers and experts will also be available for discussions and networking throughout the day.

**Please see November 2017 issue of Wavelengths Newsletter for a summary of the last year's event**  
[http://sites.ieee.org/sem/files/2017/11/November\\_2017\\_WL\\_Rev1.8-1.pdf](http://sites.ieee.org/sem/files/2017/11/November_2017_WL_Rev1.8-1.pdf)

Please be sure to share as much as possible about this event in your organization for maximum participation in this workshop. In addition to the presentations, there will be vendor display tables and recruitment tables. We encourage all IEEE members to use this opportunity to interact & network with fellow professionals & engineers.

Please confirm your participation by **registering** on the IEEE vTools site: <https://bit.ly/esw2018>.

Lunch will be provided courtesy of several workshop sponsors, supporters, and conference well-wishers. When responding, please indicate *your lunch preference: turkey, chicken, or vegetarian sandwich*. Coffee/tea, water, juice, and snacks will be provided during the breaks.

For Technical Questions, feel free to contact:

**Prof. Subra Ganesan at:** [ganesan@oakland.edu](mailto:ganesan@oakland.edu); or by phone: (248) 370 2206

or

**Sharan Kalwani at:** [sharan.kalwani@ieee.org](mailto:sharan.kalwani@ieee.org); or by phone: (248) 980-UNIX

A Certificate of Attendance will be available for participants who preregistration and attend the full event.

A little glimpse/snippets from the 2017



*1) Attendees of the 2017 ESW event*



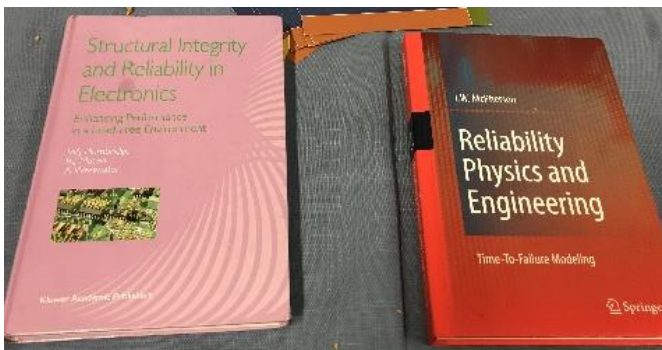
*2) Fruitful interactions among the attendees*



4) *Member Support & Information table*



Hope to see as many of you there at the 2018 edition!



3) *Several Engineering Textbooks on Display*



## Robotics &amp; Mcity

**PRESENT****Connected and Automated Vehicles: History, Development, Mcity, and Future outlook****ABSTRACT**

Mcity is a research center established 3 years ago at the University of Michigan, which focuses on the research and early deployment of Connected and Automated Vehicles (CAVs). A unique feature of Mcity is the development of living laboratories, and their use as tools for research and education. In this talk, Dr. Peng will discuss current status of CAVs, major activities at Mcity, and their future challenges, including their societal impacts.

**WHERE**

University of Michigan Mcity Campus  
2901 Baxter Road  
Ann Arbor, Michigan

**WHEN**

Thursday October 18, 2018  
6:00 PM to 8:00PM

The event is sponsored by Mcity of the University of Michigan at Ann Arbor. Admission is free, but **registration is required** for an accurate food head count. Pizza and drinks to be provided by Mcity. This is a great opportunity to network and meet peers in the Robotics field!

Register at <https://events.vtools.ieee.org/m/174406>

**SPEAKER BIOGRAPHY**

Dr. Huei Peng is the Roger L. McCarthy Professor of Mechanical Engineering at the University of Michigan and currently serves as the Director of the University of Michigan Mcity. Huei Peng received his Ph.D. in Mechanical Engineering from the University of California, Berkeley in 1992. His research interests include adaptive control and optimal control, with emphasis on their applications to vehicular and transportation systems. His current research focuses include design and control of electrified vehicles and connected/automated vehicles.

In the last 10 years, he has been involved in the design of several military and civilian concept vehicles, including FTTS, FMTV, Eaton/Fedex, and Super-HUMMWV—for both electric and hydraulic hybrid concepts. He served as the US Director of the DOE sponsored Clean Energy Research Center—Clean Vehicle Consortium, which supports more than 30 research projects related to the development of clean vehicles in the US and in China.

**STEM Classes****Dearborn Heights****Science Mondays!****Mondays at 7:00 pm**

Join us for science and engineering events every Monday evening! We will begin our programming with a series about Observation & Measurement. Other science topics will be added later in autumn. These stand-alone events are led by the Institute of Electrical and Electronics Engineers (IEEE). Sessions often include demonstrations, experiments, videos, and hands-on activities. Students are invited to attend whichever dates fit their schedule, registration is not expected.

**7:00 pm until 8:15 pm**

Intended for kids in grades 5 – 8

(3rd and 4th Graders are invited with permission of the Youth Librarian)

Monday, September 10 and through Monday, December 10.

No program on November 12, because the library is closed for the Veteran's Day holiday.

**Amateur Radio License:****Saturdays at 10 AM**

Amateur Radio operators are leading hands-on workshops to help students of all ages prepare for the examination for their FCC Amateur (HAM) Radio License and to learn to use Morse code.

Session begins on Saturday September 15<sup>th</sup> and run for 10 weeks.

**NOTE:** **Registration** and detailed class information on the classes and how to obtain study materials is available at the library reference desk. (See below)

**Safe Soldering & Ham Radio Kit Building:****Saturdays at 1:00 PM**

Amateur Radio operators are leading hands-on workshops to help students learn safe and effective methods for soldering electronic kits. The series of kits will assemble into the student's first, low power, Morse code, Amateur Radio station.

**NOTE:** Students must have their Amateur Radio License to take this class

Class begins Saturday September 15<sup>th</sup> and run for 10 weeks.

**Classes are limited to only 12 students, so register early.**

The detailed class schedule and information on the electronic kits, and how to obtain them to prepare for class is available at the library reference desk. (See below)

All classes listed on this page will be conducted at the:

**Caroline Kennedy Library**  
**24590 George Street**  
**Dearborn Heights, MI 48127**

Register at the library reference desk, or by phone is recommended, [313-791-3800](tel:313-791-3800).



STEM Classes – Continued:

## Wyandotte, MI

### Observation and Measurement



#### Wednesdays at 7:00 pm

IEEE Engineers are leading hands-on workshops on the observation and measurement. This is a class for our youngest students and stresses hands on measurement of physical objects, (linear and circular), forces, velocity, acceleration and gravity, the limitations and variability of physical measurements, and calculations based on the measurements of area, volume, mass and density. We also stress the differences between objective and subjective observations, direct measurement and estimates and explain why each is a valuable human skill. The class concludes with verification that Archimedes was correct!

Session begins on September 12 and run for 10 weeks.

**NOTE:** Classes are limited to only 10 students, so register early. (See below)

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**NOTE:** Students must have their Amateur Radio License to take this class

Class begins Saturday September 15 and run for 10 weeks.

**Classes are limited to only 10 students, so register early.**

The detailed class schedule and information on the electronic kits, and how to obtain them to prepare for class is available at the library reference desk.

All classes listed on this page will be conducted at the:

**Bacon Memorial District Library**  
**45 Vinewood**  
**Wyandotte, MI 48192**

Register at the library reference desk, or by phone is recommended, [734-246-8357](tel:734-246-8357).

**STEM Instructors Needed**

We hope that the above class notices have inspired at least a few of our readers, be they engineering students or professionals, to devote some spare time to exposing young people to technology by conducting STEM classes at the community libraries. Two sets of classes are currently being planned for the Dearborn Heights and Wyandotte libraries beginning this September. We need instructor teams (*no prior teaching experience is necessary!*) in each library interested in guiding young minds as they learn how to use some of the basic tools of modern technology.

Several classes are planned for the libraries in the following parallel sequences:

**Basic Tools:**

- Observation & Measurement:
- Fundamentals of Electricity:
- Micro-controller programming:
- Micro-controller expansion:

**Amateur Radio Technology**

- Technician Amateur Radio License
- Morse Code
- Safe Soldering & Kit Building
- Digital Communications

**Instructors Needed:**

IEEE engineers and engineering students are expected to teach the Basic Tools sequence, beginning with the first classes in September, the week after Labor Day.

Classes in Amateur Radio technology benefit from licensed Amateur Radio Operators to conduct the training. IEEE members who are also licensed 'Hams' are most welcome but IEEE membership for teaching these classes, it is not an absolute requirement.

Those interested in exploring teaching STEM classes are requested to fill in the form at:

[https://docs.google.com/forms/d/e/1FAIpQLSe0IZVY9mrJZ6YDMsG2\\_VxQNInbzeEAO14M7c0swiu7wm836g/viewform?usp=pp\\_url](https://docs.google.com/forms/d/e/1FAIpQLSe0IZVY9mrJZ6YDMsG2_VxQNInbzeEAO14M7c0swiu7wm836g/viewform?usp=pp_url)

I look forward to meeting and working with you.

Kimball Williams

[k.williams@ieee.org](mailto:k.williams@ieee.org)

ZF Employment Ad

A recruitment advertisement for ZF. The background is a blue-tinted image of a man with a beard wearing Google Glass, looking down at a tablet. Overlaid on the image are glowing, semi-transparent mechanical diagrams of automotive components like a transmission and suspension parts. In the top right corner is the ZF logo, a white 'ZF' inside a circle. The text 'WHAT'S NEXT?' is in large white letters, followed by 'JOIN ZF' in smaller white letters. Below that, in smaller white text, is 'WORK AT THE FOREFRONT OF AUTOMOTIVE INNOVATION WITH ZF, ONE OF THE WORLD'S LEADING AUTOMOTIVE SUPPLIERS.' At the bottom right, the URL 'ZF.COM/CAREERS' is written in blue. Dotted lines with arrows connect the text elements in a path.

**WHAT'S  
NEXT?**

JOIN ZF

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AUTOMOTIVE INNOVATION WITH ZF,  
ONE OF THE WORLD'S LEADING  
AUTOMOTIVE SUPPLIERS.

**ZF.COM/CAREERS**

**This Month in History*****Ernst Weber; Born 6 Sep 1901; Died 15 Feb 1996 at age 94.***

Austrian-American electrical engineer who contributed to the development of microwave technology, applied in radar and communications systems. During WW 2, he led researchers solving the problems of accurately measuring very high frequency microwaves, essential for the calibration of radar. (This involved learning how to coat glass tubes with a very thin layer of conducting metal, which Weber derived from the ancient skill of decorating chinaware with gold and silver, followed by success using a mixture of platinum and palladium.). The team created other designs and production techniques that helped the overall development of radar during the war. His expertise later guided the growth of the Polytechnic Institute in New York City.

***David Packard; Born 7 Sep 1912; Died 26 Mar 1996 at age 83.***

American entrepreneur and electrical engineer who co-founded the Hewlett-Packard Co., a leading manufacturer of computers, computer printers, and analytic and measuring equipment. In 1939, he formed a partnership known as Hewlett-Packard Company with William R. Hewlett, a friend and Stanford classmate. HP's first product was a resistance-capacitance audio oscillator based on a design developed by Hewlett when he was in graduate school. The company began with \$538 in initial capital, and its first production facility was a small garage in Palo Alto.

***Edward Johnson; Died 9 Sep 1917 at age 71 (born 4 Jan 1846).***

Edward Hibberd Johnson was an American electrical engineer and inventor who spent many years in various business projects with Thomas Edison, including as vice-president of the Edison Electric Light Company. They met when Johnson, as manager of the Automatic Telegraph Company, hired the 24-year-old Thomas Edison. As Edison's talent as an inventor propelled him into developing his invention laboratory and commercial enterprises, Johnson became his business executive and eventually president of Edison Electric Illuminating Co. of New York (organized 17 Dec 1880) which later became today's Con Edison. Johnson created the first electric lights on a Christmas tree on 22 Dec 1882, which he displayed in the window of his New York home. The hand-wired string of bulbs had been made for him, with 80 walnut-sized lamps glowing in equal numbers of red, white and blue light.

***Harvey Fletcher; Born 11 Sep 1884; Died 23 Jul 1981 at age 96.***

American acoustical engineer who was the first to demonstrate stereophonic sound (1934). He was a trail blazing investigator of the nature of speech and hearing, noted for his contributions in acoustics, electrical engineering, speech, medicine, music, atomic physics, sound pictures, and education. He guided the development of the Western Electric Hearing Aid, the first such device to use vacuum tubes. He developed a group survey method using recorded sound of decreasing volume which has wide acceptance in schools throughout the nation.

***Alexander Meissner; Born 14 Sep 1883; Died 3 Jan 1958 at age 74.***

Austrian engineer whose work in antenna design, amplification, and detection advanced the development of radio telegraphy. In 1907 he joined the Telefunken Company of Berlin, where he conducted research on radio problems. He improved the design of antennas for transmitting at long wavelengths, devised new vacuum-tube circuits and amplification systems, and developed the heterodyne principle for radio reception. In 1911 Meissner designed the first rotary radio beacon to aid in the navigation of the Zeppelin airships. In 1913 he was the first to amplify high-frequency radio signals by using feedback in a vacuum triode; this principle made it possible to build radio receivers more sensitive than any earlier type.

***Sir Arthur Percy Morris Fleming; Died 14 Sep 1960 at age 79 (born 16 Jan 1881).***

English engineer who was a major figure in developing techniques for manufacturing radar components. During WW 1, Fleming made important advances in submarine-detection gear. In 1920, as a pioneer in the development of radio, he established in Manchester the second British transmitting station to broadcast programs on a daily basis. His work on demountable, high-power thermionic tubes made it possible to establish radar stations in Great Britain by the time WW 2 began in 1939.

***Georges Leclanche; Died 14 Sep 1882 (born 1839).***

French engineer who invented the wet cell Leclanché battery (1866), ancestor of the familiar carbon-zinc dry cell batteries used to power portable electric lights and electronic devices. His wet cell, provided an e.m.f. of about 1.5 volts. A porous pot containing manganese dioxide and a carbon rod as current collector was immersed in an electrolyte of ammonium chloride solution with a negative terminal of zinc metal. From 1867, Leclanché gave full-time attention to his invention, which was adopted the following year by the Belgian telegraph service. He opened a factory to manufacture the battery. In



1881, J.A. Thiebaut had the idea of packing the chemicals in a zinc cup. Carl Gassner made the first commercially successful “dry” cell.

***Oswald Garrison Villard; Born 17 Sep 1916; died 7 Jan 2004 at age 87.***

American electronics engineer who developed over-the-horizon radar (a way to detect objects out of direct sight by bouncing radar off the ionosphere, an electrically charged layer in the upper atmosphere) so radar could peer around the Earth's curvature to detect aircraft and missiles thousands of miles away. His interest in electricity began with a copy of Harper's Electricity Book for Boys. At age 12, he put together a radio from a kit. During WW 2, he researched countermeasures to protect Allied forces against enemy radio and radar devices. He made pioneering studies of radar jamming. In 1947, he designed a simplified voice transmitter permitting two-way communication on a single radio channel, such as a telephone conversation.

***William Playfair; Born 22 Sep 1759; died 11 Feb 1823 at age 63.***

Scottish engineer and economist who pioneered the graphical representation of statistics, creating the line graph, bar graph and pie chart, though his name is little known. His inventions and patents included metal-working machines, the mass-production of silver-plated spoons, improvements to agricultural implements, and modification of the bows to ships to improve speed. He had gained experience as apprentice to Andrew Meikle (inventor of the threshing machine) and working with James Watt and Matthew Boulton (manufacturers of steam engines). Playfair's book Commercial and Political Atlas (1786), which introduced his graphical display methods, was the first major work to use statistical graphs.

***Robert Bosch; Born 23 Sep 1861; died 9 Mar 1942 at age 80.***

German engineer and industrialist who was responsible for the invention of the spark plug and magneto for automobiles and whose firm produced a wide range of precision machines and electrical equipment in plants throughout the world.

***Seymour R. Cray; Born 28 Sep 1925; died 5 Oct 1996 at age 71.***

American electronics engineer who pioneered the use of transistors in computers and later developed massive supercomputers to run business and government information networks. He was the preeminent designer of the large, high-speed computers known as supercomputers.

***Nils Bohlin; Died 26 Sep 2002 at age 82 (born 17 Jul 1920).***

Swedish engineer who invented the familiar three-point lap and shoulder seatbelt which is considered one of the most important innovations in automobile safety. Bohlin left the aircraft industry, where he worked on jet ejector seats, including restraints, and joined AB Volvo in 1958 as safety engineer, where he invented and patented this device. In Aug 1959, Volvo was the first car manufacturer to introduce the three-point seat belt in their cars. They made this design freely available to other car manufacturers to save more lives. Bohlin holds several patents related to automotive and aviation design. After retiring from Volvo in 1985, he continued to give lectures and present papers relating to automotive restraint issues.

This concludes the yearlong feature of interesting **engineering** events or milestones that occurred in a specific month. Readers are invited to share their views and opinions (or suggestions) at the accompanying link.

Submissions can also be made using direct email to the editors at: [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org).

(YOUR FEEDBACK on this item) Link/QR code: <https://www.surveymonkey.com/r/CGNLTLP>

***Sharan Kalwani***

*Associate Editor, Wavelengths,*

*Vice-Chair, Chapter 5 (Computer Society), Chair, Chapter 13 (Education Society) and PACE*

*Passionate Engineering History Buff/Aficionado*



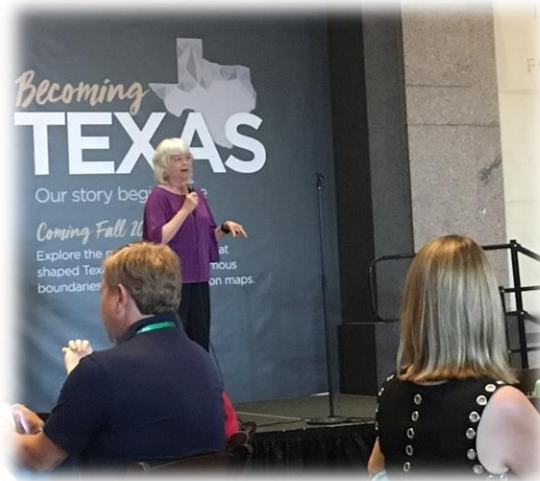


## Future Leaders Report

IEEE Future Leader Forum held in Austin, Texas last July was truly one of a kind. So much so, that every young professional and student member should aim to attend at least one such event early in their professional career. I am thankful to IEEE SEM section for supporting me in participating in this year's Forum. The event featured great leaders, entrepreneurs, inventors, and excellent technical speakers. FLF offered sessions in a variety of specialties and the kind of professional development guidance that young engineers would need to ensure a bright professional future.



The activities and sessions were well planned. There were multiple simultaneous sessions in progress, and all of them had such diverse and interesting contents, that it was difficult to choose which ones to attend. Every session was interactive and led attendees to move a step further in self-development and a Headshot Event provided an excellent opportunity for interested individuals in attendance to upgrade their LinkedIn profile photo with a professional headshot.



The breaks between sessions were a great opportunity to relax and enjoy the snacks. Indeed, in the short time between sessions everyone became so engaged in conversations with one another and with session presenters that, at times, the organizers were greatly challenged to encourage everyone to continue to their next session. I am grateful to Kristen MacCartney for her efforts in bringing together a great group of students to attend this event. As aspiring engineers, the students were clearly thrilled to return to campus having added to their professional development repertoire, as well as, having made many new friends, great memories, and experiences. A big shout-out to IEEE Future Leaders Committee for organizing such a fantastic event.

**Chaitali Naik**  
Avid EE

## Chapter 5 Report

The first half of 2018 has been quite busy as many of you have already noticed. We did several events – mostly technical meeting on the topics of:

- ✚ Internet Security: the Ransomware Virus
- ✚ Block chain technology (and the inevitable discussion on Bitcoin)
- ✚ Introduction to Data Science
- ✚ Using test methods to manage electronics thermal profiles
- ✚ The 2018 International Conference on Electro Information technology (joint event with Region 4)
- ✚ The rise of computing in Automotive DNA (joint event with VTS)
- ✚ Automotive regulatory framework (joint speaker at the Spring 2018 section conference)

Thus it has indeed been a busy season. You will be glad to learn that the 2nd half of 2018 promises an equal number of engaging events. On deck we have speakers lined up on the topics of:

- ✚ Encryption methods (by an award winning graduate student researcher)
- ✚ Recent applications projects using IoT methods
- ✚ The dark web and what it is all about
- ✚ Recent advances from the world of high performance supercomputing
- ✚ Automated Driving Assist technology
- ✚ 3D printing
- ✚ Modern programming languages
- ✚ Data file systems and technologies which can accelerate them
- ✚ Geek/Tech Movie nights (with popcorn and post-screening discussions)
- ✚ Several joint events with local student branches

Of course, the biggest major event happening in October is the Embedded Systems Workshop, which is the 16<sup>th</sup> edition of this event. An event flyer and description of the event from 2017 is presented elsewhere in this September edition of the Wavelengths, and it has also been posted to the section's Facebook, LinkedIn.com, website and it has been shared with the nearby sections as well. Flyers have also been distributed to many peer societies too, so it will be hard to escape. Also in the works are several half day tutorials being planned with several professional topics and skill enhancing subjects, which will give an edge to IEEE members (by the way 1 of the several good reasons to join!).

### **Sharan Kalwani**

*Associate Editor, Wavelengths,*

*Vice-Chair, Chapter 5 (Computer Society), Chair, Chapter 13 (Education Society) and PACE*

*Passionate Engineering History Buff/Aficionado*

## Chapter 8 Award

IEEE SEM Chapter 8 (EMC) was named the Electromagnetic Compatibility Society “Chapter of the Year” for 2018. The award, submitted by Jim Woodyard (Below right) was presented to Chapter Chair, Scott Lytle (Center) by EMC Society Board member, Joanna Hill (Left).

Joanna stressed that this award declared that the Southeastern Michigan EMC Chapter was; “...the best Chapter on the planet!” We agree, and Chair Scott Lytle and all the members of the Chapter administrative team deserve a hearty “Thank You!” for all they do every year to make this Chapter an outstanding example for the rest of us to emulate.



The award was presented at the Chapter's August 16<sup>th</sup> technical presentation meeting. Below, Chapter Chair, Scott Lytle presents our speaker, Steve Layla of Chicago's Elite Electronics Laboratory with a letter of thanks, advising that the Chapter will donate \$100 in Steve's name to the EMC Society President's Scholarship fund.

Steve presented an excellent report on the state of WIFI module development and certification methods and opportunities. 45 Chapter 8 and Chapter 3 members attended this joint meeting and enjoyed a light meal of salad and pizza before the presentation.

Slides of the presentation material may be found on the Chapter 8 website.





## Amateur Radio Classes

# AMATEUR RADIO LICENSING CLASS

The Motor City Radio Club  
presents a 10 part series of  
Amateur Radio License Classes  
finishing with an exam to obtain  
your Amateur Radio License.  
Participants must pay a \$15.00  
exam fee to take the licensing  
exam. There is no class on  
Saturday, October 27.



Please register by phone, in person or online at  
[baconlibrary.org](http://baconlibrary.org)

**Saturday, September 8 @ 10AM**

**Class Runs for 10 Weeks**

Please register by phone, in person or online at [baconlibrary.org](http://baconlibrary.org)



45 Vinewood  
Wyandotte, MI 48192  
734-246-8357  
[www.baconlibrary.org](http://www.baconlibrary.org)



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**BECOME A HAM RADIO OPERATOR!**  
**THE HAZEL PARK AMATEUR RADIO CLUB IS OFFERING**  
**A 10-WEEK COURSE FOR**

**THE TECHNICIAN (ENTRY) AMATEUR RADIO LICENSE EXAMINATION**  
(NO MORSE CODE REQUIRED)

**WHEN:** Every Monday, from September 10, 2018 TO November 12, 2018—7PM- 9PM  
**WHERE:** FOP Lodge 130, 2233 Burdette St., Ferndale, MI

**COST:** *INSTRUCTION IS FREE; LICENSE MANUAL IS \$25, AVAILABLE FROM THE INSTRUCTORS AT THE FIRST SESSION.*

*This class will use the 2018-2022 Edition of the ARRL Technician Manual*

**FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (Nov. 12) FEE:**  
**\$15**

**\*\*\*PRE-REGISTRATION IS NECESSARY\*\*\***

**AMATEUR RADIO IS ALIVE AND WELL! WE ARE AT THE CUTTING EDGE OF TECHNOLOGY! JOIN OVER 2.5 MILLION HOBBYISTS AROUND THE WORLD--and in Orbit-- WHO ARE INVOLVED IN EMERGENCY RESPONSE, INTERNATIONAL FRIEND-MAKING, RADIOSPORT CONTESTS, DIGITAL SIGNAL PROCESSING, SATELLITE DESIGN/BUILDING. A GREAT PLAYGROUND FOR HACKERS/MAKERS.**

**QUESTIONS AND REGISTRATION—CONTACT Jerry: [W9NPI@ARRL.NET](mailto:W9NPI@ARRL.NET)**

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## GENERAL CLASS LICENSING COURSE



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THE HAZEL PARK AMATEUR RADIO CLUB IS OFFERING  
A 12-WEEK COURSE FOR

### THE AMATEUR GENERAL CLASS LICENSE EXAMINATION

**WHEN:** every MONDAY, from September 10, 2018 TO November 26, 2018—7PM TO 9PM

**WHERE:** I-3 DETROIT DIY SPACE, 1481-A Wordsworth, Ferndale, MI

**COST:** *INSTRUCTION IS FREE; LICENSE MANUAL IS \$25, AVAILABLE FROM THE INSTRUCTORS AT THE FIRST SESSION.*

**FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (Nov 26) FEE:**  
**\$15**

**\*\*\*PRE-REGISTRATION IS NECESSARY\*\*\***

**YOU'VE THOUGHT ABOUT IT--NOW, YOU CAN FINALLY GET AROUND TO IT! THERE'S NOTHING LIKE SEEING YOUR HARD WORK PAY OFF—HF PRIVILEGES WILL OPEN A NEW WORLD OF DXING TO YOU!**

**REGISTER: [W9NPI@ARRL.NET](mailto:W9NPI@ARRL.NET)**

**SPONSORED BY  
THE HAZEL PARK AMATEUR RADIO CLUB, [HPARC.ORG](http://HPARC.ORG)**

# AMATEUR EXTRA LICENSING COURSE



**BECOME THE BEST YOU CAN BE!**

**THE HAZEL PARK AMATEUR RADIO CLUB OFFERS A 14-WEEK COURSE  
FOR**

## THE AMATEUR EXTRA CLASS LICENSE EXAMINATION

**WHEN: MONDAYS from September 10, 2018 TO December 10, 2018—6PM TO 9PM**

**WHERE: HAZEL PARK HIST. MUSEUM, 45 E. PEARL AVE, HAZEL PARK, MI**

**COST: INSTRUCTION IS FREE; LICENSE MANUAL IS \$25, AVAILABLE FROM  
THE INSTRUCTORS AT THE FIRST SESSION.**

**FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (Dec 10) FEE:  
\$15**

**\*\*\*PRE-REGISTRATION IS NECESSARY\*\*\***

**NOW, YOU CAN FINALLY GET AROUND TO IT! THERE'S NOTHING LIKE SEEING YOUR  
HARD WORK PAY OFF—OUR INSTRUCTOR IS INNOVATIVE AND THOROUGH, AND  
YOU'LL HAVE AN EXCELLENT CHANCE OF PASSING, IF YOU DO YOUR HOMEWORK.**

**REGISTER: [W9NPI@ARRL.NET](mailto:W9NPI@ARRL.NET)**

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## KB6NU's 1-Day Tech Class

KB6NU's One-Day Tech class covers all the material you need to know to pass your Technician License amateur radio license exam. And, you'll be given the exam right after the class, so you don't forget anything!

### Details

#### WHEN:

Saturday, September 29, 2018 at 9 am

#### WHERE:

Room TBD in the Electrical Engineering and Computer Science (EECS) Building  
University of Michigan's North Campus, 1301 Beal Ave., Ann Arbor, MI. The class will start at 9 am and run until 3:30 pm, at which time the license exam will be given.

#### HOW MUCH:

There is a \$20 fee for the class, except for high school and college students, who can attend free.  
In addition, there is a \$15 fee to take the test.

#### INSTRUCTOR:

Dan Romanchik, KB6NU. Dan is the author of the "No Nonsense" amateur radio license study guides and the *CW Geek's Guide to Having Fun with Morse Code*. He has been teaching ham radio classes for more than ten years and has helped thousands get their first license and upgrade to General Class and Extra Class.

#### FOR MORE INFORMATION AND REGISTRATION:

Register before the class. To do this, send \$20 to [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com) via PayPal or send a check to:

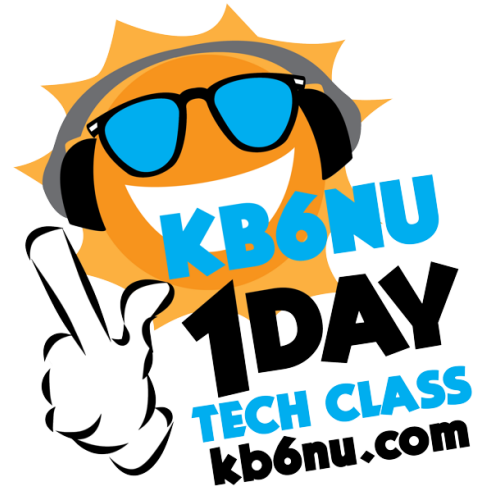
**Dan Romanchik**  
**1325 Orkney Dr.**  
**Ann Arbor, MI 48103**

When I get your registration, I will put you on another e-mail list and send you more details a week or two before the class. After you register, download my study guide from <http://www.kb6nu.com/study-guides>. The PDF version is free. Before the class, read through the study guide a few times, then take some online practice tests. If you don't study before the class, I can guarantee that you'll have a hard time passing the test.

Finally, just show up on Saturday, September 29. I'll be sending out more details, such as the exact room where the class will be held and where to park, a week before the class.

-----  
CW Geek, Ham Radio Instructor

Read my ham radio blog at <http://www.kb6nu.com>



## Maker Faire 2018

Exact attendance numbers from The Henry Ford are not available but, we are told that the Detroit event is the third largest Maker Faire in the USA, behind only New York and San Francisco. This is easily believed, given the crowds, both inside (as you can see from the two photos here) and outside, and 'standing room only' in many areas.



We don't know how many exhibitors were present helping youngsters build their own projects, or providing food or entertainment. However, the table number where INCOSE and IEEE SEM set up STEM demonstrations was number 823. So that was at least one number we can believe as a minimum.

Malcolm Lunn (of both INCOSE and IEEE) is shown here during the final phase of setting up the STEM demonstration table with the multiple exhibits on electricity and magnetism to catch the interest of potential students for our library classes beginning another cycle in September.

The range of demonstrations here spanned from simple repelling magnet rings on vertical pencil holders, to crank up generators, LED circuits to demonstrate current flow and direction, magnets next to a box with iron filings to show magnetic fields. There were magnets falling slower through a brass tube than through a PVC tube, magnets being pulled and pushed from inside coils of wire with each current application, magnetic compass needles moving when current was flowing through nearby wires, and many more.

All in all, an astonishing number of demonstrations of magnetic and electric fields were on display.







Here, Mac is showing one of the experiments to an interested student, and father.

As to the traffic at the table, we do know that we passed out 260 fliers giving visitors information about INCOSE, IEEE and the STEM classes. Each flier directed students to contact the two libraries we are currently supporting:

- Caroline Kennedy library in Dearborn Heights, and
- Bacon Memorial library in Wyandotte.

Both libraries will begin STEM classes in fundamental science topics the week of September 10<sup>th</sup>.



Occasionally, some friends from a galaxy far, far away stopped by to say hello.

The soft rockets being held by the young makers in the background were being helped by the members of the Society of Women Engineers (SWE) at the table next to ours.

We had teams of instructors from INCOSE and IEEE to give each other breaks and allow us to wander about to see some of all that was offered in the way of construction crafts, science demonstrations, maker materials and tools for sale, books and paintings by authors and artists and all the various types. What a blast!



There was even a complete, multi-mode (Voice / Morse code / Packet / etc.) Amateur Radio station set up in one of the court yards courtesy of the Ford Motor Company Amateur Radio League (The Tin Lizzys).





Notice the mountain with tunnels next to a flat plane with an English garden layout next to it. Amazing things can happen when you work in miniature.

Of course, also on display were all the usual exhibits one expects to find at The Henry Ford, including a “Giant – Miniature” model rail road with multi-level tracks, switching systems, model stations and towns. In short, everything that a miniature gage rail fan would want to see.

For those interested, this is part of the permanent exhibit at the museum, so the next time you take your family on a history outing, you might want to make this one of your planned stops.



Makers are also diverse people with diverse interests and talents. There were several who also brought along their musical instruments, as evidenced by the young lady with the Scottish bag pipes shown to the left.

There was also a number of unusual devices, such as the bicycle built for six shown below. I did not have a chance to ride this myself, and I continue to wonder whether it is steered by a committee decision or by one rider alone.







Another variation on bicycles that I would have liked to try is the one at the left. The young man is helping the young lady in the (I have no idea what this is called) ... thing..., to get started. She then can peddle from her resting place to propel the craft. Again, I have no idea how this device is steered.

Below is the launch site for model rockets.

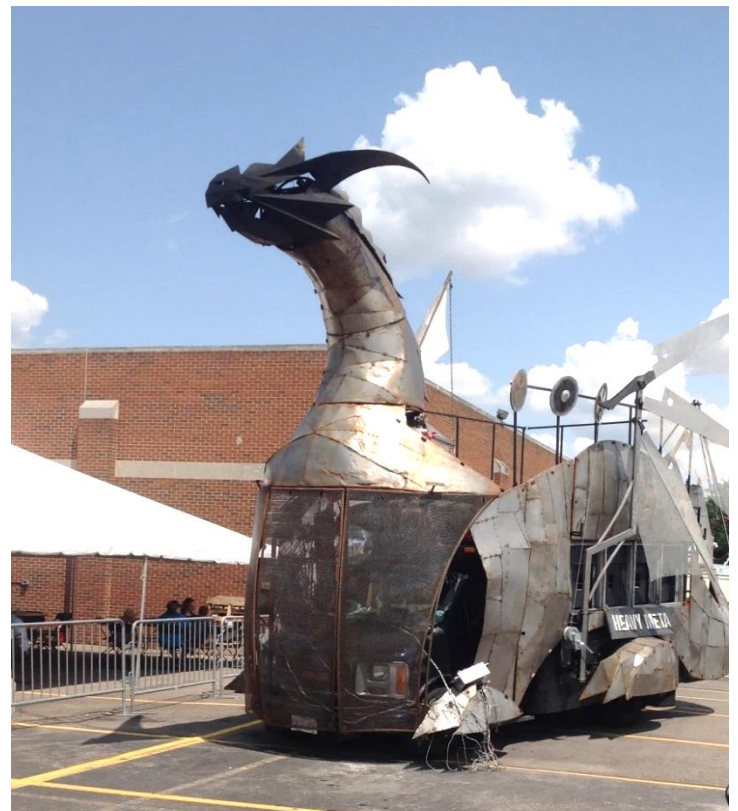
I was sure that, if I waited long enough, I would be able to capture a rocket leaving the launch pad. But, all I was ever able to catch was the blast-off cloud at the base of the launch tower. Still, this was so much fun to watch, that I spent more time here than I had planned.



Next to the rocket launch pad were our friends from the Math Hulbert solar observatory in Lake Angelus, MI. Unfortunately, the photos of their radio telescopes did not turn out well but, it was encouraging to see them represented at this event.

Included were also several realizations of pure fantasy, such as the giant (truly!) fire breathing dragon! The fire is a propane blow torch, and strict safety guards were in place, so we could all safely enjoy the spectacle! Many of these projects are not something one can throw together in a single afternoon. Indeed, many of the more ambitious exhibits and demonstrations were obviously the result of months, or even years, of planning and careful execution.

One that I was delighted to see was this realization of the "Time Machine" from H. G. Wells' novel by the same name. In fact, it appears, Mr. Wells himself was on hand to drive the Machine around the Maker Faire parking lot.



**ORG UNITS cheat sheet****Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)**

Consultants Network Affinity Group: (CN40035)

Life Members:

Young Professionals:

Women in Engineering:

Chapter: 01 (SP01) Signal Processing Society,  
(CAS04) Circuits and Systems Society and  
(IT12) Information Theory Society

Chapter: 02 (VT06) Vehicular Technology Society

Chapter: 03 (AES10) Aerospace and Electronic Systems Society and  
(COM19) Communications Society

Chapter: 04 "Trident" (AP03) Antennas and Propagation Society,  
(ED15) Electron Devices Society,  
(MTT17) Microwave Theory and Techniques Society,

Chapter: 05 "Computer" (C16) Computer Society

Chapter: 06 (GRS29) Geosciences and Remote Sensing Society

Chapter: 07 (PE31) Power Engineering Society,  
(IA34) Industrial Applications Society

Chapter: 08 "EMC" (EMC27) Electromagnetic Compatibility Society

Chapter: 09 (IE13) Industrial Electronics Society,  
(PEL35) Power Electronics Society

Chapter: 10 (TEM14) Technology and Engineering Management Society

Chapter: 11 (EMB18) Engineering in Medicine &amp; Biology

Chapter: 12 (CS23) Control Systems Society

Chapter: 13 (E25) Education Society

Chapter: 14 (RA24) Robotics And Automation Society

Chapter: 15 (NPS05) Nuclear Plasma Sciences Society

Chapter: 16 (CIS11) Computational Intelligence Society,  
(SMC28) Systems, Man and Cybernetics Society

Chapter: 17 (NANO42) Nanotechnology Council

**Section Unit Name or Affinity Group or Chapter Name (Organizational Unit is in parentheses)**

University Of Detroit-Mercy: (STB00531)

Michigan State University: (STB01111)

University Of Michigan-Ann Arbor: (STB01121)

Wayne State University: (STB02251)

Lawrence Technological University: (STB03921)

Oakland University: (STB06741)

Eastern Michigan University: (STB11091)

University of Michigan-Dearborn: (STB94911)

**Curated & Formatted By**

**Sharan Kalwani,**  
**Associate Editor, Wavelengths,**  
**2017-2018**

## Non-IEEE Events

We try to publish IEEE events in several places to ensure that everyone who may want to attend has all the available relevant information.

### SEM e-Wavelengths:

[www.e-wavelengths.org](http://www.e-wavelengths.org)

This is our 'Active' event listing site where everyone should look first to see what events are scheduled for our Section in the near future.

### SEM Web Calendar:

<http://sites.ieee.org/sem/>

Select "SEM Calendar" button in the top row of the website.

### SEM Web Meetings:

<http://sites.ieee.org/sem/>

Select "SEM Meeting List" button in the left-hand column.

### vTools Meetings:

<http://sites.ieee.org/vtools/>

Select "Schedule a Meeting" button in the left-hand column of buttons.

### Other IEEE Local Meetings:

<http://www.e-wavelengths.org/>

## Other Happenings

Here are some of the non-IEEE events that may be of interest to you or someone you know. Let us know if you have a special interest in a field that encourages technical study and learning, and wish to share opportunities for participation with members of the section.

Send details to: [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org)

**Michigan Institute for Plasma Science and Engineering:** Seminars for the 2017-2018 academic year: <http://mipse.umich.edu/about/seminars.htm>.

**Amateur Radio Clubs in Southeastern Michigan**  
A fairly comprehensive listing of all the 'Ham' clubs in SEM.) <http://www.wa2hom.org/ham-radio-clubs-in-se-michigan/>

**Model RC Aircraft**  
<http://www.skymasters.org/>

**Model Rocketry** - <http://team1.org/>

**Astronomy** - <http://www.go-astronomy.com/astro-clubs-state.php?State=MI>

**Experimental Aircraft Association**  
<https://www.eaa.org/en/ea/eaa-chapters/find-an-eaa-chapter>

**Robots**  
<http://therobotgarage.com/about-us.aspx>

**Science Fiction Conventions**  
<http://www.conclavesf.net/>  
<https://2018.penguicon.org/>

<http://2018.confusionsf.org/>

**Mad Science**  
<http://www.madscience.org/>

**ESD PE Review Class**  
[www.esd.org](http://www.esd.org)

**Maker Faire:**  
<http://www.thehenryford.org/events/makerFaire.aspx>



## Executive Committee

The **SEM Executive Committee** is the primary coordination unit for Southeastern Michigan (SEM) IEEE operations. The basic organization chart below shows the 2018 arrangement of communications links designed to provide inter-unit coordination and collaboration.

The SEM Executive Committee meets in a teleconference each month on either the first Wednesday or first Thursday at noon. The specific meeting days, times, phone or WebEx numbers and log in codes are published on the IEEE SEM Website calendar: <http://sites.ieee.org/sem/> Click on the “Calendar” button in the top banner on the first page of the web site.

If you wish to attend, or just monitor the discussions, please contact Eric George, the section secretary at: [eric.george.us@ieee.org](mailto:eric.george.us@ieee.org) and request to be placed on the distribution list for a monthly copy of the agenda and minutes.

More meeting details are available on the next page of this newsletter.

### Other Meetings:

About half of our members maintain memberships in one or more of the IEEE technical societies, which automatically makes them members of the local chapter which is affiliated with that society. As a result, they should receive notices of the local chapter meetings each month.

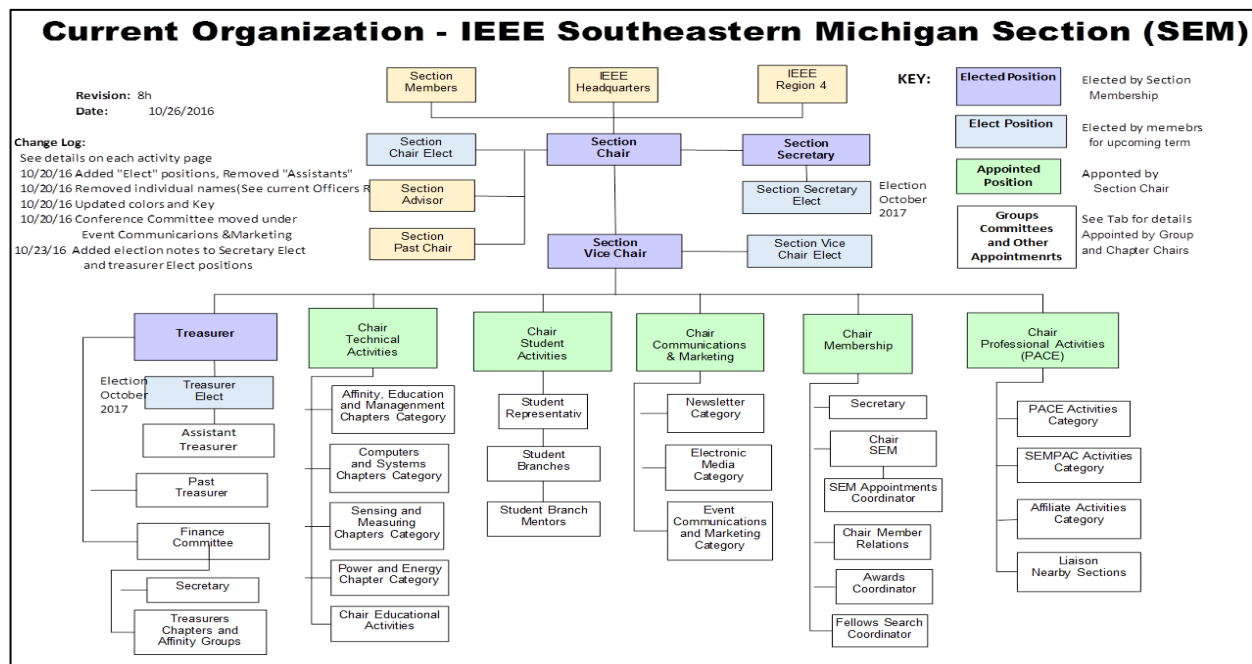
However, members of the section may have multiple technical interests and would like to have meeting information of other chapters. In order to communicate the meeting dates of all the chapters, affinity groups etc., to our members to facilitate their attendance, leaders of the groups are requested to send meeting information to our webmasters for posting on section’s calendar.

More detailed information on meetings may be found through the IEEE SEM Website: <http://sites.ieee.org/sem/> and clicking on the **SEM meetings list** button near the bottom of the left-hand banner.

Automatic e-mail notification of web updates may be received using the “**Email Notifications**” button at the top of the **SEM Tools/Links** side banner.

**Eric George** - SEM Asst. Secretary

Download the complete SEM Organization Chart, in PDF format, from our Website at: <http://sites.ieee.org/sem/> Click on “About SEM” Tab and “Current Officers” (*NOTE: this is now password protected*)



## ExCom Meeting Schedule

Below is the 2018 schedule for the Section ExCom meetings with links to add the events to your calendar. It is important that at least one person from each Chapter/Affinity Group attends each scheduled ExCom meeting. Information on each Face-to-Face (in-person) Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the 2018 meetings. Or, link your personal calendar to the SEM Web calendar.

September 5, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49036>

October 4, Thursday, F2F (in-person meeting), 5:30 – 7:00 P.M., <https://meetings.vtools.ieee.org/m/49037>

November 7, Wednesday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49038>

December 6, Thursday, Teleconference (online only), 12:00 – 1:00 PM, <https://meetings.vtools.ieee.org/m/49039>

**Note:** All IEEE Members are welcome at any IEEE meeting, at any time but, please register so we can be sure to accommodate you.

**Eric George**  
**SEM Assistant Secretary**

## Section Focus

The IEEE SEM Section Officers have reaffirmed the Mission and Goals of the section with the guidance of the Region 4 leadership. The Mission and Goals conform to those of IEEE worldwide.

You have probably seen the Mission and Goals before. However, it is important to keep these clearly in mind and remind ourselves often that this is what we are about and what we are trying to accomplish.

### Section Mission

Inspire – Enable – Empower and Engage Members of IEEE at the local level.

For the purpose of:

- Fulfilling the mission of IEEE to foster technological innovation and excellence for the benefit of humanity,
- Enhancing the members' growth and development throughout their life cycle, and
- Providing a professional home,

### Section Goals

- Increase member engagement,
- Improve relationships with and among members,
- Increase operational efficiency and effectiveness, within the section and its interfaces,
- Enhance collaboration – serve as the local face of IEEE to the community,
- Increase membership, and
- Ensure the collection of appropriate information necessary to assist the IEEE to become a data driven organization.

It is now the task of the section leadership to guide and coach all section officers and elements to focus their activities on achieving those goals.

## Editor's Corner

Previous editions in this series may be found on the IEEE SEM website at: <http://sites.ieee.org/sem/>. Click on the "Wavelengths" button in the top row of selections.

Comments and suggestions may be sent to the editorial team at [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org)

OR

[k.williams@ieee.org](mailto:k.williams@ieee.org)  
[sharan.kalwani@ieee.org](mailto:sharan.kalwani@ieee.org)  
[jrwwoodyard@gmail.com](mailto:jrwwoodyard@gmail.com)  
[isullivan@ieee.org](mailto:isullivan@ieee.org)

We also recommend a cc to the chair of the Communications and Marketing Committee, Ravi Nigam at: [ravi.nigam@ieee.org](mailto:ravi.nigam@ieee.org)

We rely on our officers and members to provide the 'copy' that we finally present to readers of the newsletter. The **Wavelengths Focus Plan and Personal Profiles** plan shown in the matrix below is presented to ensure coverage of section activities and events.

*We try to complete the newsletter layout a week before the first of the month to allow time for review and corrections. If you have an article or notice, please submit it two weeks before the first of the month or earlier if possible.*

The plan below relies on the contributions of our members and officers, so please do not be shy. If you

have something that should be shared with the rest of the section, we want to give you that opportunity.

### Editors:

We are always looking for members interested in helping to edit the newsletter. The process is always more fun with more people to share the duties. Having more participants and contributors also helps us keep the newsletter interesting.

### Heads Up

We are contemplating making the submissions of articles and events for the Wavelengths, a little easier and a little more inviting. Ideas are of course welcome and to this end, we are toying with setting up a little "newsletter portal". Stay tuned for some news on that end!

### Join the Team:

If you feel you might like to join the team, or would like to train with us, please contact one of us at: [wavelengths@ieee-sem.org](mailto:wavelengths@ieee-sem.org) OR any one of the following:

[sharan.kalwani@ieee.org](mailto:sharan.kalwani@ieee.org)  
[jrwwoodyard@gmail.com](mailto:jrwwoodyard@gmail.com)  
[k.williams@ieee.org](mailto:k.williams@ieee.org)  
[isullivan@ieee.org](mailto:isullivan@ieee.org)

*Wavelengths Annual Publication Plan for Articles*

Month	AG's	Ch's	Ch's	SB's	Special Notice	Reporting Events	Monthly Focus	Awards
Jan		1		OU	Future Cities Judges	Election Results	Resolutions	
Feb	Cons	2		MSU	Science Fair Judges	Officer's Welcome	Surviving Winter	Future Cities
Mar		3	13	EMU	Spring Conf. Flyer	Spring Conference	Spring Conference	Science Fair
Apr		4		U/M-D	National Engrs Wk.	Future Cities	Chapter Focus	ESD - GOLD
May	Life	5	14		Outstanding Eng Awd	Science Fair	Elections - Prep	New Fellows
Jun		6			IEEE-USA Apmts.	ESD Banquett	Leadership Skills	SEM Awards
Jul		7	15		Nominations Call	MD-Webcasts	Students Issues	Region 4
Aug	WIE	8			MGA - Apmts.	Tech-Webinars	Womens Issues	
Sep		9	16	LTU	Region 4 Apmts.	Engineers Day	Professional Skills	
Oct		10		U/M-AA	Fall Conf. Flyer		Fall Conference	
Nov	YP	11	17	WSU	ELECTIONS!		Humanitarian	
Dec		12		U/D-M	IEEE-Com Apmts.	Fall Conference	Happy Holidays	

*Wavelengths Annual Publication Plan for Personal Profiles*

Month	Profiles	Profiles	Committees
Jan	Chair	New Officers	
Feb	V-Chair	Secretary	Communications
Mar	Treasurer	Sect-Adviser	Conference
Apr	Stud-Rep		Education
May		Sr Officers	Executive
Jun			Finance
Jul			Membership
Aug			Nominations
Sep			PACE Activities
Oct			Student Activities
Nov			Technical Activities
Dec		Editor-WL	





## Web & Social Sites

### SEM Website

<http://sites.ieee.org/sem/>

Each of the sites below may be accessed through the SEM Website:

### Section Website Event Calendar

(Select the “SEM Calendar” button - top row.)

### SEM Facebook Page

(Select the “” button under the top row.)

### SEM LinkedIn Page

(Select the “” button under the top row.)

### SEM Officers:

For a complete listing of all - Section - Standing Committee - Affinity Group - Chapter and Student Branch Officers, see the SEM Officers Roster on the SEM web page under the “About SEM” button and select “Current Officers.”

Online Community <http://sem.oc.ieee.org>

## Section Officers

### Section Chair

Robert Neff

### Section Secretary

Eric George

### Section Vice-Chair

Nevrus Kaja

### Section Treasurer

Michael Folan

## Standing Committees:

### Section Adviser

Don Bramlett

### Chair Communications & Marketing

Ravi Nigam

### Chair Educational Activities

### Chair Finance

Nevrus Kaja

### Chair Membership

Irina Sullivan

### Chair Nominations & Appointments

Kimball Williams

### Chair Professional Activities (PACE)

Sharan Kalwani

### Chair Student Activities

Mel Chi

### Student Representative

### Chair Technical Activities

Kimball Williams



Visit Us on the Web at:

<http://sites.ieee.org/sem>



### Advertising Rates

SEM Website & Newsletter  
Advertising is coordinated through  
our e-Wavelengths website at:

[http://www.ieee-sem.org/ewavelengths/?page\\_id=181](http://www.ieee-sem.org/ewavelengths/?page_id=181).

Please see the information listed on  
the site, and contact our web editor  
of e-Wavelengths, Ben Doerr, for  
further details.

### Leadership Meetings

#### SEM Executive Committee Monthly Teleconferences:

- 1<sup>st</sup> Wednesday or Thursday of Each Month @ Noon
- Check the Section Web Calendar at:  
<http://sites.ieee.org/sem/sem-calendar/>  
(Select the "SEM Calendar" button in the top row.)

#### SEM Executive Committee Face-to-Face Meetings:

- 1/Qtr. Find the location, and Registration at:  
<https://meetings.vtools.ieee.org/main>

#### SEM Standing Committee Meetings:

#### SEM Affinity Group Meetings:

#### SEM Technical Society/Chapter Meetings:

#### SEM University Student Branch Meetings:

- Meeting schedules are announced on SEM Calendar  
<http://sites.ieee.org/sem/>  
(Select the "SEM Calendar" button in the top row.)
- Registration for all at:  
<https://meetings.vtools.ieee.org/main>