IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

Volume 57 – Issue 8

Contents

Section Chair's Message

Section Chair's Message:

Where is SEM Section Stuff?
The easiest way to learn answers to your "Where is….?" Questions, is our web site. **www.ieee-sem.org** May I encourage you to take a few minutes and refresh your familiarity with it. Right up front is upcoming events and the calendar.

In the tabs across the top you will find access to your officer's roster and organization, links to membership, officers duties, training materials, v-tools, the On-Line Community and much more in the "About SEM" tab. Information on jobs in the "Careers" tab, the latest news letters and calendar are available. In the "Chapters" tab the left column provides links to the SEM Chapter and Affinity Group web sites and information. The right column has links to the IEEE Societies these Chapters and Affinity Groups represent.

May I also encourage our Chapter and Affinity Group officers to keep this information updated with current information for those looking at your pages?

Elections and Volunteering:
Elections are coming up. Next month nominations for officer positions in the Chapters, Affinity Groups, and Section will open up. The reward for the Section, Chapters and Affinity Groups is that you bring your experience, fresh ideas and outlook. The rewards to you are the opportunity to build your leadership and interpersonal relationship skills while you build your network and learn more about your areas of technical interest. That's a pretty amazing offer isn't it?

Volunteering doesn't have to be in an elected officer position. There are plenty of appointed positions that make this organization function. These appointed positions offer the same great benefits as the elected positions.

Please consider volunteering.

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

Robert Neff
IEEE SEM Section Chair
RLNeff1@gmail.com

Wi-Fi for European Aircraft

The following press article has been reprinted with kind permission from the BBC (British Broadcasting Corporation).

Originally published at http://www.bbc.com/news/science-environment-40435832

You can follow the author on social media, via Twitter **@BBCAmos**,

A new Europe-wide Wi-Fi service for airplanes came a step closer on June 21-2017, Wednesday night with the launch of a key satellite from French Guiana.

(Image Copyright: ESA / CNES/ ARIANESPACE)

Airline passengers will soon be able to connect to the internet either through this spacecraft or a complementary system of cell towers on the ground.

The company behind the so-called European Aviation Network is **Inmarsat**, the UK's biggest satellite operator.

It is building the system in tandem with **Deutsche Telekom** of Germany.

The pair hope to start services at the back end of the year, with **IAG Group (Aer Lingus, British Airways, Iberia and Vueling)** being the first to install their planes with the necessary equipment. Lufthansa will be doing some testing also.

Antennas will be fixed on the top of aircraft to connect upwards to space, and other terminals will be put in the belly of planes to link down to what initially will be 300 **4G-LTE** towers concentrated along Europe's main short-haul routes. The hybrid system would be a first for the continent.

Passengers in cabins wanting to surf the web or watch a video would simply join a hotspot as they would if they were in a cafe or a hotel.
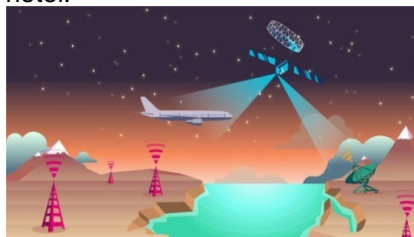
The EAN is designed to be a hybrid network – connecting passengers via space and ground links (Image Copyright: INMARTSAT)

The **European Aviation Network (EAN)** has been a while coming. The European Commission first awarded two licenses for satellite communications operating in the *S*-band part of the radio spectrum back in 2009; and expected services to be up and running by December of last year.

But both Inmarsat and the other license holder made slow progress in developing a business case that would make best use of the frequency allocation.

In the beginning, many commentators thought that case might involve mobile phones which could connect either to a satellite or a local cell network. However, this was before in-flight connectivity (IFC) became a boom market.

Wi-Fi on planes has traditionally had a wretched reputation, but the

technologies are changing and the user experience is fast improving.
"We conjured lots of business cases and then during that journey along came IFC and it's a perfect fit," said Rupert Pearce, the CEO of Inmarsat.

"The short-haul market is growing twice as fast as in North America in terms of planes and passenger journeys, and it's set to become the largest short-haul aviation market in the world. Only briefly because I think China will overtake it. China are going to build 50 airports in the next five years, so it's very hard to compete with them; but absent that, the European opportunity is very exciting."

Already, the aero market is one of Inmarsat's fastest growing sectors, and it has big *Ka*-band satellites, dubbed *Global Xpress*, feeding connections to long-haul flights. The EAN is targeted specifically at the single-aisle planes making quick hops around Europe.

Deutsche Telekom has still to switch on the ground segment and debug it, says Mr Pearce; and the new satellite, launched on an Ariane rocket from Kourou on Wednesday, will take three to four months to commission. IAG and Lufthansa, who the CEO describes as strategic partners, can then start a period of testing, he adds.

But there is some serious push back from the competition.

Other satellite operators are critical of the Inmarsat offering, believing it to be an infringement of the original terms of the S-band license awarded by the EC.

ViaSat, a big US concern best known for providing connections on aircraft in North America, is lodging a complaint with the European Court of Justice. It is being supported in this action by

its European partner, **Eutelsat**, and **Panasonic Avionic**s, which sells IFC services.
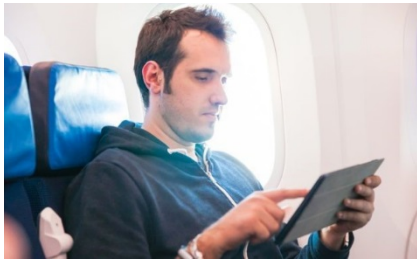
Satellite operators are engaged in a fierce battle to win a big slice of the IFC market (Image Copyright: GETTY IMAGES)

The trio contend that the *S*-band license was supposed to be predominantly a satellite service with a back-up ground segment. Inmarsat, they say, has produced the opposite.

"There is a strong deviation from the original purpose," argued Wladimir Bocquet, Eutelsat's director of spectrum management and policy.

"Just one example - from calculations we see that the total capacity of the satellite component is, for Europe, 100 Megabits per second (**Mbps**). Compare that to the publicly stated capacity of the terrestrial component: it is around 50 Gigabits per second (**Gbps**). That's a factor of 500 difference. How can that be considered complementary. It's a terrestrial network. That's important when the selection process was done on the basis of the satellite element," he told BBC News.

In 2020/21, **Viasat** and **Eutelsat** intend to put above Europe the most powerful satellite ever built, which will have a total throughput of 1 Terabit per second. This, they say, will offer far superior connections to planes than the EAN, but fear airlines may be about to lock themselves into an inferior service that was developed under a false prospectus.

"You either respect the rules and develop the business under the framework that has been agreed, or you say the framework is not appropriate and in that case you develop a new framework and you open to competitors the opportunity to enter into this new business with a new framework," said Mr Bocquet.

But the complaints have prompted a stinging response from Inmarsat and Mr Pearce. Asked to comment, he responded: "It's all tosh, to use the technical term."

Double Licenses: INMARSAT needs two permissions from each member states of the European Union (Image Copyright: INMARSAT)

And he essentially accused Eutelsat in particular of sour grapes. "They actually held the opposite licence. They won it with [the SES satellite operator] at the same time as we did. They could do nothing with it and eventually abandoned it by selling it to [the **ECHOSTAR** satellite operator] for not much money.

"Now they have the temerity to come back and say it was all evil. To say that the EC didn't know what it was doing is disingenuous at best.
"They're just trying to slow us down. They know we've backed a cool piece of technology that's going to drive jobs and growth as well as fantastic services on planes."

In order to run the **EAN**, **Inmarsat** does however need the individual permissions of each member state of the European Union - to have both a national license for the space segment and the terrestrial element.

Inmarsat claims to have all EU member state space permissions (including from Norway and Switzerland), and is awaiting just three licenses for the operation of the ground tower network - from Germany, France and the UK.

The London-based company told the BBC that the German and French authorities looked set for approval in the next few weeks. Ironically, Inmarsat expects the UK telecoms regulator, **Ofcom**, to be the last to fall in place.

*Reformatted by **Sharan Kalwani** for publication in the IEEE SE Michigan section Wavelengths Newsletter and its members reading pleasure*

Satellite Mega-Constellation

European aerospace giant Airbus and its partner, OneWeb, have begun the production of a satellite mega-constellation.

Each satellite is about a meter cubed and weighs less than 150kg

The network will comprise at least 600 spacecraft in the first instance, but could eventually encompass more than 2,000.

The aim is to deliver broadband links from orbit to every corner of the globe.

In particular, the project wants every school to have a connection.

Building so large a constellation requires a step-change in the manufacture of satellites - especially for Airbus.

It can take Europe's biggest space company many months and hundreds of millions of dollars to build some of today's specialist platforms. But for the OneWeb venture, it is all about high volume and low cost.

That means new assembly line methods akin to those in factories producing cars and planes.

The idea is to turn out three units per shift at well less than a million dollars a piece.

The boss of Airbus, Tom Enders, concedes he initially thought the OneWeb concept to be fantasy.

"Everything in space as you know traditionally has been 'gold-plated'; it had to work perfectly, [and have] the most expensive materials, etc.

"Here, we've had to go other ways, to be really commercial and calculating according to the target cost because that is very decisive in the whole business case for OneWeb," he told BBC News.

Airbus and OneWeb have inaugurated the first assembly line in Toulouse, France. Two further lines will be set up in a soon-to-open factory complex in Florida.

The most obvious difference you notice between these new lines and the conventional satellite cleanroom is the trolley robot, which moves the developing satellites between the various work stations. But the "revolution" here goes far beyond automation; it requires a whole chain of suppliers and their components to scale their work to a different game plan.

The Toulouse operation is a joint venture between Airbus and OneWeb

The first 10 satellites to come off the Toulouse assembly line have a deadline to launch in April next year.

Another batch will follow into orbit around November. And then the launch cadence will kick on apace.

The establishment of the OneWeb constellation requires the greatest rocket campaign in the history of spaceflight.

More than 20 Soyuz vehicles have been booked to throw clusters of 32-36 satellites into a web some 1,200km above the Earth.
There should be just under 300 on station by the end of 2020, the start of 2021; more than 600 about a year or so later; and then over 800 by the middle of the decade.

OneWeb and Airbus are not the only companies planning a mega-constellation in the sky. SpaceX, Boeing, ViaSat and others have all sought regulatory approval. But not everyone will succeed in getting the necessary multi-billion-dollar financing, and Airbus believes the OneWeb concept has first-mover advantage.

Equity of $1.7bn has already been raised, and talks are ongoing to secure the loans needed to complete the roll-out. OneWeb describes itself as a "truly global company" but it has company registration in the UK's Channel Islands. And, as such, it must deal with the UK Space Agency as the licensing authority.

"A lot of our revenues are going to flow through the UK. So, from an economic perspective, it is going to be very important for the UK," said OneWeb CEO Eric Béranger.

"And when you have people locally, you are also fostering an ecosystem. And I think the UK being at the forefront of regulatory

thinking on constellations will foster an environment that puts the UK ahead of many countries."
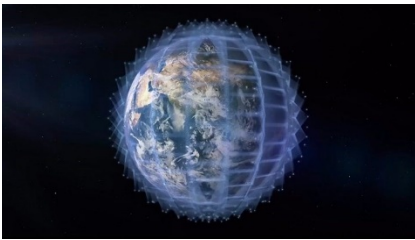
Brian Holz: "The standards today on debris mitigation are very loose"

One aspect that the UKSA is sure to take a keen interest in is debris mitigation. There is considerable concern that a proliferation of multi-satellite networks could lead to large volumes of junk and a cascade of collisions.

The fear is that space could eventually become unusable.

A recent study - sponsored by the European Space Agency and supported by Airbus itself - found that the new constellations would need to de-orbit their old, redundant spacecraft within five years or run the risk of seriously escalating the probability of objects hitting each other.

Brian Holz, who is CEO of the OneWeb/Airbus manufacturing joint venture, said the ambition of his constellation was to set new standards in debris mitigation.

"We can bring down the satellites and re-enter within two years; we've made that commitment," he told BBC News.

"We've put extra hardware into the system to improve the reliability of that de-orbit process. We're also committing to put a small adapter device on to each spacecraft that will allow those spacecraft, in the small probability that one of them dies on the way down, to be

grabbed by a small chase vehicle and pulled out of orbit."

Eric Béranger: "The UK will be at the forefront of regulatory thinking on constellations"

Time will tell how disruptive the new manufacturing approaches adopted in Toulouse will be to the satellite industry as a whole.

Airbus and OneWeb hope also to be making satellites for other companies on their assembly lines. But not every platform in the sky will require such volumes and a good number of spacecraft will still need the bespoke treatment.

"Not everything here is application to the whole space industry. When we launch to Jupiter, there are things that will remain gold-plated whether we like it or not; unless of course we start to manufacture 900 satellites to go to Jupiter but this is not the case today," said Nicolas Chamussy, who runs the satellite division of Airbus.

Reformatted by **Sharan Kalwani** *for publication in the IEEE SE Michigan section Wavelengths Newsletter and its members reading pleasure*

Internet Security
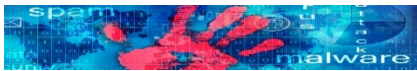
On July 15th, a 3 hour seminar was held as one of the first events for Chapter 13. Inspired by a spate of cyber-attacks, it was felt that a short seminar on various cyber threats out there and some good practices to adopt, would be very timely. It was held at the Oakland University and covered the following topics:

- Ransomware
- Viruses
- Phishing Scams
- Privacy settings on web sites and social media forums
- Identity Theft and
- Other types of malware
- General tools (and reliable resources) one can use to assist you

Some of the attendee response, reactions and feedback are shared below:

"The presentation covered topics on using Personal Computers to access securely the Internet. It was quite educational and practical. We were provided also a good handout on the presentation. I am using the suggestions to safely use the internet from my home personal computer." (Life Member feedback)

We were very fortunate to also have an international guest attendee, who took copious notes and plans to use some of the learning back in her host country, where she leads the organization's computing department.

Also among the attendees was a future Chair Elect (2018) of a sister affiliate professional society, who stated he learned a lot and found it very useful.

"While world is struggling with cyber-attacks and everyday life is affected, there can't be a best time than now to learn how to protect our crucial data unintended access. This lead me to attend the seminar on 'Internet Security Awareness' which was very much designed what a user needs to know. It was great interaction and learning the deeper understanding of the security." (Senior Member feedback)

By unanimous acclamation, it was suggested to hold periodic updates of the same seminar at regular or frequent intervals, as the cyber security methods are always dynamically changing. The SEM Education Society Chapter is planning to provide a few more information seminars in whatever time is left for the 2017 calendar year via speaker events. We do also seek locations that members can suggest, and will cover topics such as modern day tools for the EE engineer, students and educators.

Other potential plans we have are perhaps joint activities with other societies such as study groups towards certification, etc. We hope you can participate in some of these events, take some time to strike up a conversation & perhaps contribute as well.

Sharan Kalwani, Senior Member
Chair, Education Society (Chapter 13)

For further correspondence, contact Sharan via his email:
sharan.kalwani@ieee.org

2017 Summer Picnic

On July 23rd we held the first collaborative WIE+CS summer potluck picnic at the Rochester Municipal Park. Fortunately for us, the weather gods were kind and there was no hint of rain, the breeze was light and conditions were just perfect!

We had a total of 43 people attend out of which were 17 members and 26 guests (including folks from the SWE). Many many thanks to all who came with family and friends. As you can see everybody had a good time, we were delighted to sample an extraordinary range of cuisines.

Also many thanks to Dr. Harpreet Singh (Chair Life members Affinity Group) who brought not just a few Life members' along, but several students members as well - encouraging them to network with potential future colleagues. The music system and PA were also instrumental (pun intended) in helping to break the ice (in more ways than one) allowing each and every one to introduce themselves.

Also bravo to all the team members of the WIE who, in equal measure, were able to bring members of the SWE. Amanda, Alexandra, Tia and Irina were present in force along with their near and dear ones. It was a pleasure to interact with so many new faces.

Folks had a wide choice of cuisines!

Gorging in full swing….

Plenty of fruit & desserts too!

Amanda and Alexandra

Subra & Sharan

The IEEE Flag was very prominently visible to all curious passersby…….

Introductions…..

Kimball attempting to get everyone's attention

Kids enjoying themselves

Embedded Systems 2017

Embedded Systems Workshop 2017 Announcement

The 15th Annual IEEE Embedded System Workshop is planned on October 21, 2017, 8:30 AM to 4:30 PM (Saturday), at Hannah Hall – Room 190, Oakland University, Rochester, Michigan 48309

IEEE South East Michigan Computer Society (aka Chapter 5), and Oakland University are offering a one-day workshop on Embedded Systems from 8:30 am to 4:30 pm, Saturday October 21st, 2017. This is a **free** workshop open to all engineers, students and this is the 15th year of this annual 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 the wide spectrum embedded systems industry will be making presentations, and also be available for discussions, networking throughout the day (***see the next page for a summary review of last years - 2016 event***). 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, which will be published soon.

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

For Technical questions, feel free to contact:

Prof. Subra Ganesan at: ganesan@oakland.edu; by phone: (248) 370 2206
 or
Sharan Kalwani at: sharan.kalwani@ieee.org ; by phone: (248) 980-UNIX

Register and attend for a chance to win multiple door prizes (Books/ Boards/T-shirts/gifts)

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

Summary from the 2016 Workshop event
(reprise)

The 14th Annual Embedded Systems full day workshop was held on October 22nd 2016. There was a huge response as we had over 175 registrants. There were 8 speakers representing different areas of the industry, all around the SE Michigan geography. The topics can be seen from the agenda in the text of this article.

2016 Flyer.
IEEE Embedded System Workshop
October 22, 2016, 8:30 a.m. to 5 p.m. (Saturday)

Primary Sponsors
IEEE SEM CS and Oakland University

2016 Agenda

1) "Validation & Verification of Embedded Systems", DSPACE, Joe Cassar
2) "AUTOSAR Workflow Overview - Software Development and Integration Based on Descriptions", Salvador Almanza-Garcia,   Vector CANTech
3) "Real-time Software Techniques using Micro Python" Jacob Beningo, Beningo Engineering
4) "How much Cyber Security & Functional Safety is Really Sufficient?" Dr. Chandrasekhar Potluri, Mercedes-Benz Research & Development North America, Inc.
5) "IOT and Big Data Analysis"   Sharan Kalwani
6) "Ethernet/IP Enhanced Data Access (EDA) system for Industrial Robots", Dr. Ashok Prajapati, FANUC America Corp
7) "Heartfulness Meditation - A Stress Buster for Engineers " Ajoy
8) "Model based Verification", Subra Ganesan, Oakland University
9) "Future of Autonomous Cars- Design and acceptance Challenges", Panel Discussion

vTools Update

It is with great pleasure that I am able to give you a 'heads up' on the coming changes to the vTools suite of administrative tools provided to assist local Geo-unit officers to manage their organizations and organize local activities with a specialty focus unique to each of our Chapters, Affinity Groups and Branches.

Student Branches & HKN Chapters:
Targeted for release at the end of August we should see all Student Branches and HKN Chapters become an integral part of the vTools Event scheduling and reporting (L31) systems. This will be of special interest to the Student Branch and HKN leadership at the Section level for two reasons:

1st: All the Student officers, and their Faculty Advisers and Consolers will need to be trained in the use of the vTools systems, in order to be able to take advantage of the potential benefits of their use.

2nd: The visibility of activity at each Branch and Chapter will now be elevated to the point where we will be able to clearly see which organizations are doing well, and which need help and encouragement in order to fulfil the objectives for which they were formed.

Personalized eNotices:
Also planned for release is an update to the current eNotice system used to send focused messages to individual Geo-units, about topics of interest to all members within each group. The new release will address each e-mail message to each member using the individual member name, rather than as a general broadcast message. It is our hope that this more 'personalized' message system will find greater acceptance among the recipients.

Updated Training:
Along with new changes, expect to see new training tutorials about these features on the vTools primary website at: http://sites.ieee.org/vtools/ as well as updated and enhanced training on our own Section website training page at:
http://sites.ieee.org/sem/about-sem/training/.

If the current set of training modules is lacking something that may help you with your Section volunteering tasks, please do not hesitate to use the virtual 'training' Forum link at the top and bottom of the training page to suggest new topics or enhancements to current topics.

'Tech' Ham Class:

AMATEUR RADIO LICENSING COURSE

BECOME A HAM RADIO OPERATOR!
the Hazel Park Amateur Radio Club offeʀs a 10-week Course
for

THE TECHNICIAN (entry) AMATEUR RADIO LICENSE Examination
(NO MORSE CODE REQUIRED)

**WHEN: Mondays, September 11, 2017 TO November 13, 2017—7PM TO 9PM
WHERE: FOP Lodge 130, 2233 Burdette St., Ferndale, MI**

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

FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (Nov. 13) 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.

CONTACT: W9NPI@ARRL.NET

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GENERAL CLASS LICENSING COURSE

TAKE THE NEXT STEP!
the Hazel Park Amateur Radio Club offers a 12-week Course
for

THE AMATEUR GENERAL CLASS LICENSE EXAMINATION

**WHEN: MONDAYS, SEPTEMBER 11, 2017 TO DECEMBER 4, 2017—7PM TO 9PM
WHERE: I-3 DETROIT DIY SPACE, 1481-A Wordsworth, Ferndale, MI**

COST: INSTRUCTION IS <u>FREE</u>; LICENSE MANUAL IS $25, AVAILABLE FROM THE INSTRUCTORS AT THE FIRST SESSION.

FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (DEC. 4) 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!

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Extra Ham Class:

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: Wednesdays, SEPTEMBER 6, 2017 TO DECEMBER 6, 2017—6PM TO 9PM

WHERE: FOP Lodge 130, 2233 Burdette St., Ferndale, MI

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

FCC License EXAM WILL TAKE PLACE AT THE LAST SESSION (DEC. 6) 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 THERE'S AN EXTREMELY HIGH PASS RATE, IF YOU DO YOUR HOMEWORK.

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Ballot Preparation:

As we mentioned in last month's Wavelengths newsletter, August not only time for everyone to take a work break (we call them 'vacations') but, also to consider how, and how much involvement in our IEEE activities we want, and how that involvement can benefit not only the IEEE but, us as well.

Officer 'Churn':

You may have noticed the tendency for officers in a Chapter, or Affinity Group, or Branch to rotate from year to year, taking on one position for a year or two, then moving to another position and rarely staying in a single position for a long period of time. This is something that is encouraged by the MGA when it suggests that a 'Chair' of a Chapter should not hold the position for more than 3 contiguous years.

There are three factors of concern here:

1st: By working as an officer, in any position, we learn and develop a unique set of skills. By changing office positions from time to time to another position, we develop and sharpen other skills, and can continue to grow. If we were to remain in only one office for an extended time, we limit the scope of those skills we can develop.

2nd: By moving from position to position, and especially when we advance from positions within a Chapter or Branch to those at the Section, and then on to positions at the Region or Society levels, we expand the possible set of tools we can learn, while also expanding our personal and professional contacts within the areas were we volunteer.

3rd: By making 'room' for new officers to step into positions we have left, we give younger volunteers the opportunity to gain those skills we have already acquired.

What's Next for you?

This continual development of skills, talents and contacts is one of the primary reasons for the existence of an organization like IEEE, to give our members the setting and opportunity needed to develop and grow as individuals, and successful engineers.

However, some of us are aware of our IEEE affiliations only within the context of the technical Society to

which we have focused our career goals. We may not even be aware of the local activities which occur around us in our Section all through the year. To help sort out the mixture of Societies and local Chapters, Sharan Kalwani, one of our Wavelengths Editors, has created the 'cheat sheet' on the following page which gives a condensed overview of the Geo-units in our Section and their associated technical 'parent' organizations.

Let me encourage you to review that overview page, and consider what involvement in the local organization for your technical discipline could do to enhance your personal skill set and foster the development of skills that can promote a more successful engineering career.

Next month we will be calling for ballot nominations to the elected offices, and you may find that a position within the Administrative Committee (AdCom) of a Geo-unit may be just the thing to help you on the next step of your career. Alternatively, simply volunteering with the Geo-unit to help out with its normal functions can give you a more subtle entry into local activities. This often leads to more responsibility and an elected position in the future.

Section level Standing Committees

also can provide a more general and diverse set of skills. These are all appointed positions and do not require election to an office to begin active involvement with the Section. Contact any one of your Section officers to discuss your abilities, background, and where you might both 'fit in' and benefit from becoming a more active volunteer.

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	(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 & 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

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
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

However, since IEEE members tend to have eclectic interests, we want to give everyone a heads up for some of the non-IEEE events that may be of interest.

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 the particulars to
wavelengths@ieee-sem.org
OR
anyone of the following….
k.williams@ieee.org
karen.burnham@gmail.com
sharan.kalwani@ieee.org

An announcement may be placed in the newsletter.

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Links:

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

Below are links to local SEM Clubs engaged in technical hobbies as well as links to sites that may be useful for locating clubs in the area.

Amateur Radio Clubs in Southeastern Michigan
(This is 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/eaa/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

Makers 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 2017 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 David Mindham, the section secretary at: **dmindham@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 by using the IEEE meetings site. This 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.

David Mindham - SEM Secretary

Current Organization - IEEE Southeastern Michigan Section (SEM)
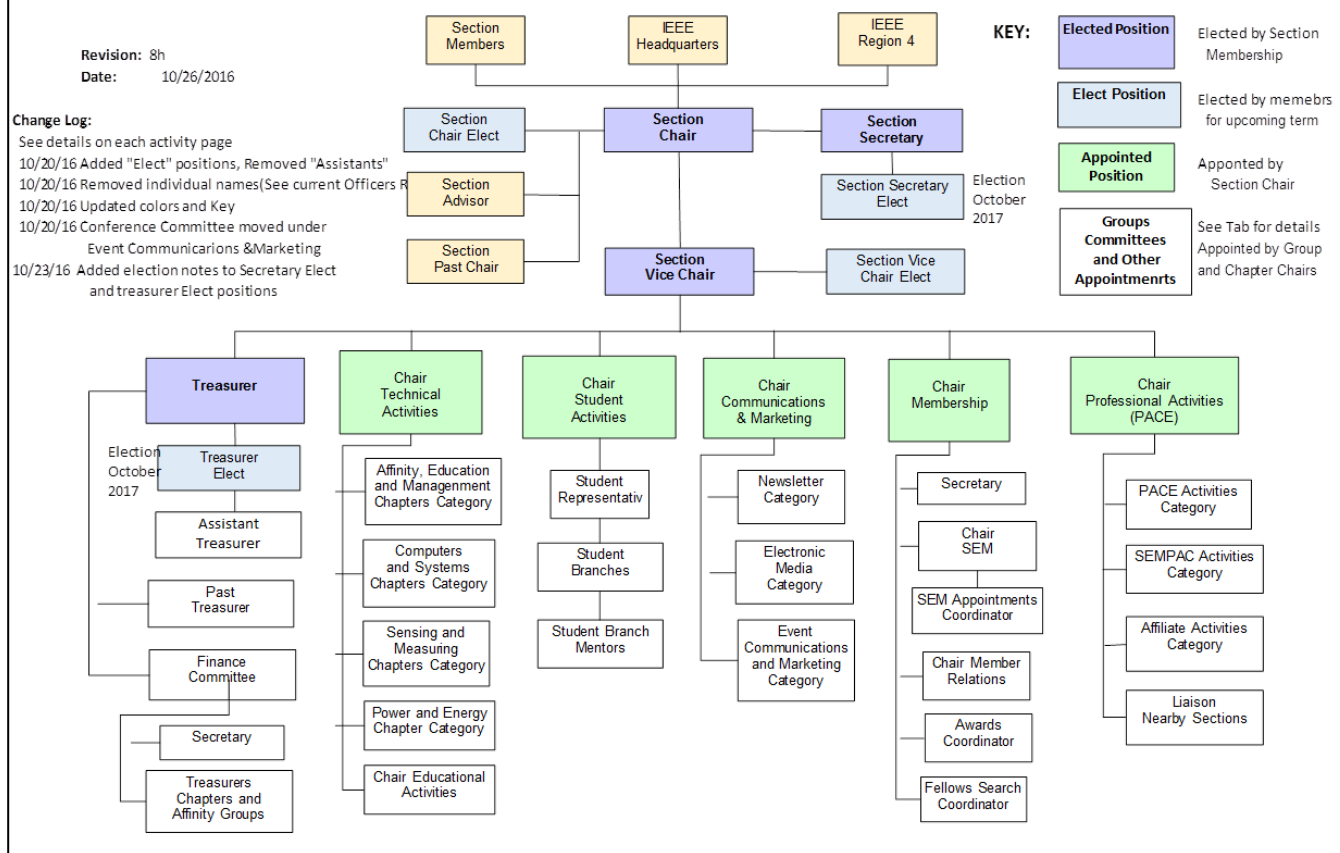
Download the complete SEM Organization Chart, in PDF format, from the SEM Website at: www.ieee-sem.com
Then, click on "About SEM" Tab, followed by, click on "Current Officers" *(NOTE: this is now password protected)*

ExCom Meeting Schedule:

Below is the 2017 remainder 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 the meetings.
Information on each Face to Face Meeting will be sent out once the venue is confirmed.

Please mark your calendars for the meeting.

August 3, Thursday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42554

September 6, Wednesday, Teleconference, 12:00 – 1:00.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42555

October 5, Thursday, Face to Face, 5:30 – 8:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42559

November 1, Wednesday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42556

December 7, Thursday, Teleconference, 12:00 – 1:00 P.M. https://meetings.vtools.ieee.org/feed/meeting_ical/42557

**David Mindham
SEM Secretary**

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

**David Mindham
SEM 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 (…**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.

SEM Monthly Meetings

Scheduled Meetings:
The regular meetings of the SEM Leadership (Executive Committee) are scheduled well in advance to allow everyone to place them in their personal planning calendars, and then defend those dates against encroachment. (*Not always possible.*)

Two types of Monthly meetings are normally scheduled:

Monthly Teleconference / WebEx as well as:

Quarterly Face-to-Face (F2F). See schedule on the page above:

Note: All IEEE meetings are **'Open' for all members to attend.**
The only caveat is that you please register using the specific meeting form on the vTools site at:
https://meetings.vtools.ieee.org/main

Registering will ensure there is sufficient space, refreshments and support for attendees.

**Teleconference Schedule
    (Held from 12-1 p.m.):**

F2F Meeting Schedule:

More information for F2F meetings will be emailed to all officers, (and any members requesting the schedule), in a timely manner before the meeting dates.

Contact **David Mindham** the SEM Section Secretary.at:
dmindham@ieee.org
for more information.

Additional information may be found at (**http://sites.ieee.org/sem/**).

The links to the SEM Facebook or LinkedIn pages on the SEM website may also be checked for updates.
All the normally scheduled meetings of each of the other section chapters, affinity groups etc. are listed each month in the vTools area of our SEM website at:
http://ewh.ieee.org/r4/se_michigan/calendar1.php

The information is for:
   Standing Committee Meetings
   Affinity Group Meetings
   Technical Chapter Meetings
   University Student Branch Meetings
   University HKN Chapter Meetings

Calendar Schedule:
Meetings are also announced on the SEM Calendar web page
    http://sites.ieee.org/sem/
(Select the "SEM Calendar" **button** in the top row.)

Note: Often meetings of the Executive Committees of Chapters and Affinity Groups (and standing committees, of course) are listed only in the SEM Calendar page, since it is felt that most members would not wish to sit through administrative meetings.

However, if this type of meeting is just your 'cup of tea', then contact the officers of the unit that is conducting the meeting, and ask to be 'linked' into their teleconference, SKYPE, Google Hangout, or WebEx meeting. They will be happy to have you as a participant.

Many volunteers become interested in section activities when they get a chance to attend a monthly meeting and 'peek under the hood' to find out how the machinery of the section actually runs. It can be a rewarding experience.

David Mindham
SEM Section Secretary.
dmindham@ieee.org

Editors 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
OR
k.williams@ieee.org
sharan.kalwani@ieee.org
jrwwoodyard@gmail.com
karen.burnham@gmail.com

We also recommend a cc to the chair of the Communications and Marketing Committee, Ravi Nigam at: 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 members to share the duties, and help keep the newsletter alive and lively by providing alternative points of view.

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   OR
anyone of the following:
karen.burnham@gmail.com
sharan.kalwani@ieee.org
jrwwoodyard@gmail.com
k.williams@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	

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	

← *Wavelengths Annual Plan for Personal Profiles*

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 "f" button under the top row.)

SEM LinkedIn Page
(Select the "in" 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".

SEM On Line Commu Section Officers
"http://sem.oc.ieee.org" **http://sem.oc.ieee.org**

Section Officers

Section Chair
Robert Neff

Section Secretary
David Mindham

Section Vice-Chair
Nevrus Kaja

Section Treasurer
Xinhua Xiao

Standing Committees:

Section Adviser
Don Bramlett

Chair Communications & Marketing
Ravi Nigam

Chair Educational Activities
Michael Kent

Chair Finance
Nevrus Kaja

Chair Membership
Aisha Yousuf

Chair Nominations & Appointments
Kimball Williams

Chair Professional Activities (PACE)
Sharan Kalwani

Chair Student Activities
Hashim Abdul

Student Representative
Mehdi Mohammadi

Chair Technical Activities
Kimba Advertising Rates
Section Chair
Kimball Williams

IEEE Southeastern Michigan

Visit Us on the Web at:
http://sites.ieee.org/sem
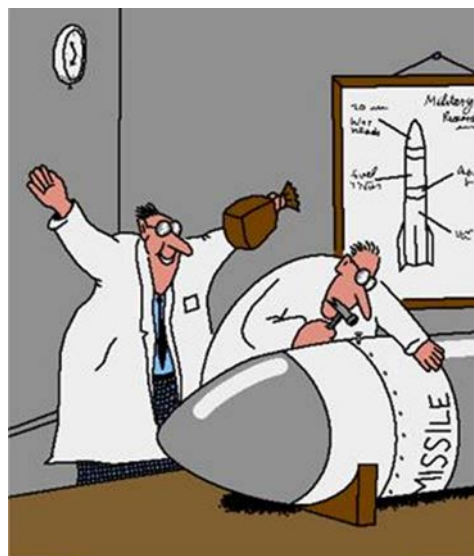
Leadership Meetings
All IEEE members are welcome to join us at any regularly scheduled meeting:

SEM Executive Committee Monthly Teleconferences:
- 1st 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 Web 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