

Engineers' News

March 2016

Vol. LXXVIII No. 7

[www.FortWayneEngineersClub.org](http://www.FortWayneEngineersClub.org)

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## March Tour

# VOSS

[VOSS Automotive](#)

[4640 Hillegas Road, Fort Wayne, IN 46818](#)

Thursday, March 17th at 7:00 PM

FWEC Vice President Dave Schaller has arranged a tour of VOSS Automotive. The tour is in conjunction with the Fort Wayne Chapter of SAE. 

In the automotive industry, VOSS stands for experience, quality and innovation in line and connection technology. VOSS Automotive offers an extensive portfolio of efficient system solutions for the international commercial vehicle, passenger car, and off-road vehicle industries.

In close co-operation with the customer, VOSS designs and optimizes lines and connectors in the vehicle systems of today and tomorrow.

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## Volunteers Needed at Wayne HS on March 10th

The FWEC has received a request for volunteers to assist [Wayne High School](#). Please contact [Jacob](#) if you are interested.

From: [Jacob Tindall](#)

Subject: Engineering class judging

Dear engineering club,

I am contacting you to ask if you are willing to judge a competition in my school's principles of engineering(POE) class. My instructor is David Flesch, and he has been teaching us mathematics behind machines. For example: mechanical advantage, gear trains, and simple machines. The day that we would like you to come in for judging is March 10th, and before then I would personally like to interview you. Our criteria for judging will be presented if you agree to my interview, Thank you for considering this email.

Sincerely,

[Jacob Tindall](#)

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## April Tour



[City of Fort Wayne, City Utilities](#)

[Tunnel Works Program Presentation](#)

[Citizens Square, 200 E. Berry St, Fort Wayne, IN 46802](#)

Thursday, April 21st at 6:00 PM

Citizens Square, Omni Room

FWEC President Rod Vargo has arranged a presentation regarding the City of Fort Wayne's Tunnel Works Program.

This deep underground sewage transportation tunnel is part of Fort Wayne's agreement with the federal government for how the City will reduce the amount of sanitary sewage mixed with stormwater that is currently being discharged to our rivers during wet weather. The plan for controlling these combined sewer overflows is intended to improve the quality of our rivers. The tunnel is part of a three part strategy to reduce the amount of combined sewage in the combined sewer system by doing sewer separation projects, collect more and transport more combined sewage to the sewage treatment plant and treat more combined sewage.

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**Northeast Indiana DiscoverE**

**Engineers Week Banquet**

**Distinguished Service Award**

**DISCOVER**  
**ENGINEERS WEEK**



**FEBRUARY 21-27, 2016**

[Northeast Indiana DiscoverE](#) held its annual Engineers Week banquet on Saturday, February 27th on IPFW's campus. During the banquet the Fort Wayne Engineers' Club honored Dan Ewing with the Distinguished Service Award recognizing Dan for his outstanding service and dedication to the FWEC.



Dan Ewing accepting the Distinguished Service Award from Secretary Elizabeth Garr

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We're recruiting for a

**Product Design & Industrialization Engineer**

**Job ID: 943440**



Contact: [Lindsey.Carney@trsstaffing.com](mailto:Lindsey.Carney@trsstaffing.com)

**Fort Wayne, Indiana**

We currently seek a Product Design & Industrialization Engineer within our client's team of experienced professionals. The Product Design and Industrialization Engineer optimizes, evolves, and maintains tire designs for all assigned plant dimensions and provides technical assistance to both plant and central groups on issues related to uncured or cured tire quality, performance, standardization, cost and processing.

## Description

- 1. Design** – Acts as the plant liaison to central technical groups on issues related to the uncured and cured product model.
- 2. Development** – Evolves the uncured product model to reconcile performance needs with plant capabilities, and translates it into a workable plant specification.
- 3. Production Launch** – Introduces new product models into production, and supports regular production re-starts on a 24 / 7 basis, as needed.
- 4. Maintenance** – Provides guidance and leadership for plant quality and production improvement efforts.
- 5.** Develops the technical specifications for the manufacturing shop then follows, analyzes, and writes a report for industrialization product builds.
- 6.** Manages the current production evolution to achieve industrial performance targets, while adhering to the central model.
- 7.** Provides input for mold venting and defines dimensional tooling for industrialization builds.

## Job Requirements

- BS/BA degree in Mechanical or Engineering
- 2-5 years of manufacturing experience
- Ability to work with 2 Dimensional CAD systems
- May require extended training assignment in another facility (2 months duration)



**Salary:** \$60,000 with benefits and relocation available.



**Find your next role**

[www.trstaffing.com](http://www.trstaffing.com)

**Join the FWEC on Social Media**

The Fort Wayne Engineers' Club now has a group on LinkedIn®. This group is open to all existing and potential FWEC members. We'll post FWEC tour reminders, photos, tour discussions, and more on the group's page.

Join our group : [Fort Wayne Engineers' Club](#)

Additionally, the Fort Wayne Engineers' Club now has a [Facebook page](#).

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## **2015-2016 Membership Year FWEC Board**

President: Rod Vargo

Vice President: Dave Schaller

Treasurer: Ryan Stark

Secretary: Elizabeth Garr

1st Year Board Members: Marna Renteria & Ellsworth Smith

2nd Year Board Members: Mike Magsam & Jack Phlipot

3rd Year Board Members: John Magsam & Rob Cisz

Northeast Indiana DiscoverE Committee Chair: Jake Dinius

Resident Agent: Ryan Stark

Board positions are crucial to the planning of tours and events for the FWEC. Please consult the [FWEC constitution](#) or contact us at [info@fortwayneengineersclub.org](mailto:info@fortwayneengineersclub.org) for information on specific duties on board positions.

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## **Welcome New FWEC Members**

The FWEC would like to welcome the following new members.

Full Members: Bharat Rajghatta, Brian Windmiller, Rick Kawwsky, John Emenhiser, Chris Nelson, Lane Devin Snowberger

Associate Member: Dan O'Dell

Student Member: Phillip Oprie

Honorary Member: Len Knecht

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*Fluid Power, Safety and Automation Specialists*

Jake Dinius Sales Engineer (260) 797-9819 Cell  
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## FWEC Board Meetings

Fort Wayne Engineers' Club board meetings are open to all FWEC members. The next FWEC board meeting will be Tuesday April 5th at 7:00 PM. Board meetings are held on the [Indiana Tech campus in the Academic Center](#) in room ACC-201.

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## Advertise in the Engineers' News

The FWEC provides advertising space within the Engineers' News. Advertisements are \$10 per issue and limited to ½ page of content. For submissions please contact [info@fortwayneengineersclub.org](mailto:info@fortwayneengineersclub.org).



In Memoriam

The Fort Wayne Engineers' Club would like to remember [John Pawlisch](#).

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## FWEC Membership

The FWEC exists through funding of its membership. Please forward your copy of the Engineers' News

to prospective members and encourage their attendance at tours. Remember, the FWEC is the best deal in town, annual membership is \$10. We offer free monthly tours September through May. Please be sure to recommend FWEC membership to your colleagues and friends.

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## February Tour History - Ultra Electronics, USSI



FWEC President Rod Vargo provides our February tour history.

Twenty-four members and guests attended the February 24th tour of Ultra Electronics, USSI, Inc., which also uses the name Under Sea Sensor Systems, Inc. While currently based in the United Kingdom, it represents a gathering of businesses ultimately going back to the founding of Magnavox in 1917. As with the founding of Magnavox, Ultra Electronics utilizes a wide array of physics and engineering in order to harness sound, combined with stringent manufacturing and management in order to apparently compete effectively and thrive. They employ 391 people.

The mainstream activities at this facility and another in Florida involve manufacturing massive numbers of naval buoys for detecting and tracking submarines. The cardinal factors for USSI's survival are consistency in performance, reliability, and confidentiality, all at lower cost than most rivals can match on a global basis. To achieve these factors, entire complex assemblies (and their tooling) must be manufactured, merged into products, and packaged onsite. Very little can be outsourced except for raw materials. Repetitive but exacting tasks generate millions of subcomponents over time. The workforce and working environment seemed pleasant while also focused and intense. Management of this and product cost/upgrades seemingly had to be demanding.

This was one of increasing numbers of tours where confidentiality, site security, and/or screening of our participants was more evident than in the past. Some tours are no longer possible, most notably in food facilities because visitors could inadvertently carry contaminants.

The naval buoys fit five broad categories from hydrophones (purely listening devices) to dedicated sonar sound generators. They can be dropped from aircraft or vessels. All had closely defined frequency, depth penetration, 3-D directional, lifespan (including stepwise dissipation into oblivion), and other capabilities (note plural) compacted into small packages (<1' cylinder x 1.5-5' long) of self-deploying units. An apt description (using some of USSI's own words) would be elegant Rube Goldberg assemblies involving the breadth of engineering fields and their physics. The Rube Goldberg aspect is

how these expand after deployment, and even passively restrict swaying (which would cause frequency, reflection, and range distortions) within the water afterwards.

Concern for unintended environmental consequences was addressed during the tour and discussed afterward. For instance, narrowing of projected frequency ranges (sidestepping sea life disruption) was necessary anyway to better utilize and identify return sonar signals. Control of harmonics, reflection patterns, and interference patterns between frequencies has been an ongoing improvement process involving multiple engineering fields.

We were treated to a more in-depth than usual presentation of math and physics in the context of anti-submarine warfare (ASW) buoys since about 1960. Included were some basics behind inter-conversion of sound and electrical signals using *piezoelectrics*. USSI was initially concerned with boring us, but virtually all of us really appreciated it. FWEC was given a book on the history of ASW buoys, which can be loaned to members.

Research and acquisitions continue on products beyond buoys. USSI is behind many advances in personal equipment for first responders, especially fire departments. Improved voice communications from within helmets, and status information regarding their equipment and bodies, have been clear advances in survival and effectiveness. This also brought home the reasons for rapid turnover in equipment. Differences are often vast between actual reality and our assumptions from Hollywood movies.

We saw hand-transportable speaker units louder than jet engines for clear, targeted, voice negotiations across enemy lines. Control of distortion and related physics have been the biggest hurdles, but reducing electrical power also involved engineering. Public "documentaries" have played these up as crowd control devices instead of tear gas, rubber bullets, or lines of police in riot gear. But, the real intent has been communications beyond the range of snipers and many other risks.

Other "speaker" devices were for generating explosively-loud defined-frequency sound waves for underground oil and similar exploration. Power input can involve megawatts.

This location has about six full-time engineers with little turnover. Fields of engineering and/or physics in USSI products include chemical, electrical, thermal, low and high frequency, fluid, software, structural, explosives, and packaging. Some of the engineering dates as far back as the 1960's but customers regularly request new specifications or capabilities, including the U.S. Navy.

This was a remarkable tour. We greatly appreciate Ultra Electronics-USSI welcoming us so thoroughly.

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**Fort Wayne Coder Dojo**





[Fort Wayne Coder Dojo](#) is technology club for kids of all ages but is now comprised of +/- 10 to 14 year olds who share an interest in Minecraft modifications. The next club meeting will take place on Saturday March 5th at 1:00 on the [Indiana Tech campus in the Zollner Engineering Center](#) room Z103.

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## TekVenture's "Making it Thru Winter Workshops!"



**A Public Art & Technology Laboratory**  
Interconnecting Imagination, Technology and Community

TekVenture is hosting a variety of "Making it Thru Winter Workshops!" Workshops are for Members and Non-Members, but there is a 20% discount for Members.

Information on all available workshops, dates, and cost can be found on [TekVenture's Workshop site](#).

### March workshops:

Mar. 5

- 9 - Noon - Restoring Doors: \$35
  - Doors on old houses can be a pain, but they can also be a pleasure if they look nice, open, close, and latch securely. Door making, repair, hanging, adjustment, and installation of hardware will be covered.
- 9 - 4 all day - Electronics for Makers: Build Mini-Laser Cutter From Scrap: \$50 + Kit
  - Using former hard drive frames, mini laser, Arduino microcontroller, electronic components and pre-cut parts, build a mini-laser cutter/engraver with a 3 in. build platform. Cut paper, foam and other light materials. There will be a lunch break during this workshop. Purchase of a kit is necessary.
- 1 - 4 pm - Restoring Windows: \$35
  - When a house is made from biodegradable materials, bad things can happen. Windows suffer from deteriorating wood, broken sash-weight cords and broken glass. All wooden

windows are repairable, often one piece of wood is all that's bad. That will be covered, along with weatherstripping, replacing glass, and weight cords.

Mar. 12

- 9 - Noon - Learn To Use A Sewing Machine: \$35
  - Make a custom case for your favorite tool set from your old jeans or other fabric and learn to set up, operate and maintain a sewing machine in the process.
- 9 – Noon - Intro to Marquetry: \$35
  - Marquetry is the art of applying small thin pieces of wood, often of different colors, to a structure to form decorative patterns, designs or pictures. The technique may be applied to furniture, to decorative small objects with smooth, venerable surfaces or to freestanding pictorial panels appreciated in their own right. Learn basic techniques from a master wood artist.
- 1 - 4 PM - Make a 3D Quilt!: \$35
  - 21st Century quilts are not just wall or bed decorations. An award-winning retired engineer guy quilter takes you through the steps of making a 3 dimensional quilt and shows you how to get started. See his 3D quilts! The instructor will welcome into the class any guys who want to try their hand as a beginning quilter!
- 1 - 4 pm - Intro to Robotics: Pieces and Parts: \$35
  - Learn the definition and anatomy, design, electronics, assembly and programming of a robot from a founder of YouthBot, a local high school robotic competition using VEX robots.

Mar. 19

- 9 - 4 all day - Building a Detailed Box Sculpture: \$35
  - All day class. Students will make an elaborate box with several drawers, and ornamentation. Each box will be different. (material cost \$10)

Mar. 26

- 9- Noon - Sewing A Great Ring Kite: \$35 + kit
    - Get ready for Spring by making a Great Ring Kite, a round, shallow-tubular kite. Select your colors of Rip-Stop nylon and sew panels together to form a continuous, seamed band. Then learn to properly bridle the kite. Kit of nylon, hoop, swivel and string may be purchased. Opportunity to learn to use sewing machine if not already mastered.
  - 9 - Noon - Build The Artful Birdhouse: \$35
  - 1 - 4 pm - Building The Artful Cat Castle: \$35
    - Your cats would be jealous of the Artful Bird House if you did not make an Artful Cat Castle for them. How beautifully eccentric a play structure for cats can you create using provided scrap wood and other materials and woodworking tools. Participants may also bring their own special materials.
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## Fort Wayne Inventors Club



The [Fort Wayne Inventors Club](#) will have its next meeting on Saturday March 12th at noon on the [Indiana Tech Campus Center for Creative Collaboration \(C3\)](#).

During meetings FWIC members discuss our experiences—the successes, the failures, the aha's, and the oh-no's. We also bring in speakers to share what inventors need to know. The club is particularly useful as a venue to give inventors time to showcase their work and receive feedback about it from their peer inventors. We also point inventors to resources they need to be more effective and help them meet people to collaborate with on projects.

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## Fort Wayne Astronomical Society



Fort Wayne Astronomical Society, Inc.

P.O. BOX 11093 • FORT WAYNE, IN 46855 • USA 1959

[FortWayneAstronomicalSociety.com](http://FortWayneAstronomicalSociety.com)

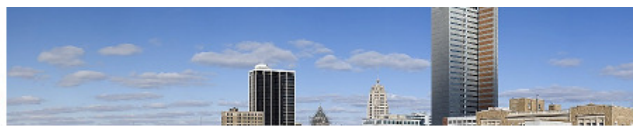
The [Fort Wayne Astronomical Society](#) will have their next general meeting on Tuesday March 15th at 7:30 pm at the [University of Saint Francis Schouweiler Planetarium](#).

### Bright Star Attributes By Dick Evans

Dick Evans has been combining data from multiple data bases from the the Yale Bright Star Catalogue for over three years. 9110 stars of 7th magnitude or brighter. The data base contains over 1.5 million keystrokes. Find out what Dick found and a new table he had to construct.

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## Northeast Indiana Chapter Project Management Institute



The next NEIC PMI dinner meeting is Wednesday March 23rd.

### **Robert Frost presents 'A PMO Model for Strategic Execution and Value Delivery'**

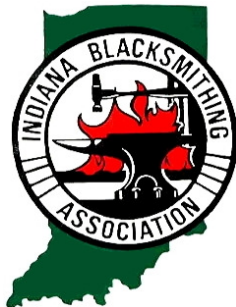
Based on lessons from several successful PMO implementations, including a global PMO transformation, Robert has developed a “PMO Value Model” as a framework for building a world class PMO with a focus on delivering business value.

[Register now](#) and meet with us at Don Hall's GuestHouse. Networking begins at 5:30 PM, dinner will be served at 6:00 PM, chapter announcements at 6:45 PM and the presentation begins at 7:00 PM. Pay now with credit card. Pay at door option is no longer available.

- NEIC chapter members: dinner and speaker-\$20, speaker only-free
- PMI Hardship Provision or PMI Student Membership-\$10
- Non-members: Dinner and speaker-\$30, Speaker only-\$10 Register Now

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## **Maumee Valley Blacksmiths**



The Maumee Valley Blacksmiths, part of the [Maumee Valley Antique Steam & Gas Association](#), meet on the 2nd Saturday of each month in the blacksmith building at showgrounds of [Jefferson Township Park](#), New Haven and also meet on the 4th Saturday of each month at the [Solomon Farm](#). For more information please contact John Schamber via e-mail at: [fwttoolman@hotmail.com](mailto:fwttoolman@hotmail.com).

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## **Engineers' News Past**

The FWEC has a significant history; Treasurer Ryan Stark and his wife were able to find past Engineers News documents dating back to 1938! Here is an excerpt of the past newsletter (a scanned copy of the entire newsletter is available through the FWEC website):

[March 1986](#)

