

Chapter website link: [SME Minnesota 11 Website](http://www.smechapter11.org)

TOUR: Wednesday, April 24



Meeting Agenda:

5:30 – 6:00 Social / Pizza
6:00 – 6:30 Intro Presentation
6:30 – 7:15 Tour
7:15 – 7:30 Questions / Close



FREE, just RSVP!

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RSVP: registration@smechapter11.org by Monday, April 22

Note: Safety glasses are required, please bring yours!

Location: Emerson / Tescom
12616 Industrial Blvd NW
Elk River, MN 55330

General Directions: Hwy 10 (or 169) to Elk River, North on Proctor Ave to Industrial Blvd, then follow Signs
<http://www.mapquest.com/us/minnesota/emerson-tescom-7141842>

April 2019

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Chapter Leadership

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Chairperson: **Gregg Robinson***
Chair-elect: **Naomi Brill ***
Secretary: **open**
Treasurer: **James Stertz ***

Activity Leaders

Program Chair: **Lee Rensberger**
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Chair's Message

Greetings to all SME members and friends!

Hello Everyone, the SME board is looking forward to spring this time of year. With the change of seasons, I am thinking about improvements that could be made to the Minnesota chapter. In addition to increasing our outreach to college students I would like to form a committee to review our manufacturing site tours. At a high level we would like to hold a series of tours with a theme beneficial to our membership. While we work on the detailed charter for this committee I want to reach out and ask for SME members to help define what type of tours and how to get these specific tour types arranged.

We are planning the fall tours now, let us know if you have a company or industry that interests you. The Minnesota SME board is also looking at other types of events to benefit the local membership. We had a successful networking event earlier this year and will continue these in the future.

Thank you for the opportunity to serve on the board and if you have any questions or ideas please contact me or any of the other board members.

Gregg
Minnesota Chapter 11 Chair

A Word from the Editor

About Troubles in the World of Electronic Communication

I hope this information helps you understand some things that are going on.

- We have received valid complaints telling us that our RSVP response address is not working. We had issues with our email provider in the past; they have been resolved.
- SME International (headquarters organization) now provides and administers websites and Connect for all chapters. We are finding the new system very limiting: we can no longer post things the way we used to, nor post them in the locations you're used to finding things in. We are posting meeting information on our "home" page, and providing links to the bulletin and other information from there, BUT you need to be officially logged in to follow some of the links.
- We have received comments that our bulletin cannot be forwarded easily. We use Mail Chimp for distribution, and it appears to be a security feature with the way we must construct our distribution email that makes that so. There does not appear to be an easy way around that, so I offer this advice...
- We are now posting upcoming meeting information on the home page of our website as soon as we have it, even before the bulletin is created. Here is that link, send it your friends. We LOVE to have visitors and guests at our meetings!

[SME Minnesota 11 Website](https://connect.sme.org/communities/home/55)

AKA <https://connect.sme.org/communities/home/55>



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SME Events

Webinar Central

Webinars are live presentations given by a technical leader that you can take part in from your desk. To review the complete Webinar Central Library offering, www.sme.org/webinars/

Leadership

The SME Leadership Series will benefit anyone preparing to take on a role where leadership style and communication skills directly impacts organizational and personal success.

www.sme.org/leadership/

Events

SME has numerous events scheduled across the USA over the course of the year. To view them visit [.https://www.sme.org/upcoming_events/](https://www.sme.org/upcoming_events/)

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April Meeting Review – Horton, Inc.

Submitted by Lee Rensberger



The SME members of Minnesota Chapter 11 would like to thank Venkat Parameshwaran, Program Chair for the local chapter of SAE International, for welcoming our SME Chapter to attend their meeting on Wednesday, March 20th. The meeting was hosted by Horton, Inc. at their World Corporate Headquarters, and home of the Hugh K. Schilling Technology Center for Research and Development, in Roseville, MN. We would also like to thank the hosts of Horton for taking extra time from their daily schedule to meet with us:

Erik Roell, VP of Engineering
 Chuck Bastien, Test Engineering Manager
 Mike Bieber, Principal Application Engineer
 Michael Leinen, Application Engineering Manager

Venkat opened the meeting by introducing and pre-thanking our hosts, followed by highlighting what the local SAE Chapter has planned over the next few months before taking the usual summer break. Erik Roell then gave a Power-Point presentation of the history of Horton, how the company got its start, and finally, how it evolved to eventually become the world leader in automotive cooling-fan clutch assemblies, and industrial-cooling applications that started as unique but are now common-place.

With the Roseville facility being Horton's headquarters for R&D (and engineering theory), and with the Britton, SD and Carmel, IN, facilities being the North America Manufacturing Centers, the tour was understandably more focused toward the interest of the SAE group than it was for the local SME chapter. Nonetheless, it was fascinating to hear about the history of Horton, the analytics of the engineering behind fan clutches and to see the extent and depth of analysis being performed on prototypes during the tour.

A theme that continued to be repeated throughout the presentation and tour was that the main benefit of automotive cooling with a clutch-controlled fan is to enhance engine efficiency by reducing engine drag and overall operation cost. The purpose of the fan-clutch system is primarily to help maintain engine operating temperatures, which can be accomplished by means of a bi-metallic sensor or through electronic control. Whether this is stated as 'fan clutch' or 'fan drive', the two terms are interchangeable.

A 'fan-drive' is driven off the engine - it is designed to 'spin-freely' when not engaged, and when engine temperatures increase, to engage (utilizing the engine's power) to provide the air circulation necessary to cool engine components. There are three basic fan drive types; each have feature advantages and price trade-offs: basic on/off, two-speed and variable-speed. The Horton tour highlighted where each type is used, various examples of custom designs being tested, and specifically how the application engineer's use of the resources within the facility - through rigorous testing, data collection and evaluation - each customer's specific needs are met.

In just the last 10-years, Horton has invested a vast amount of dollars to expand the R&D facility to provide the space and necessary high-tech equipment required for thorough data acquisition and analysis to afford the engineering staff with the means to accomplish optimizing their products.

With customer-driven needs that entail design simulation and rigorous prototype testing, Horton has established itself as a company second to none in terms of the quality of the product. From real-life scenarios involving lessons-learned, theoretical mathematical modeling, failure analysis, accelerated life-expectancy tests that include wind tunnels, shock and vibrate, temperature extremes, and noise abatement, the engineering staff at Horton is as thorough in analyzing failure potentials and negative impact scenarios as is seemingly possible to provide their customers with the highest quality product available.

Our thanks again to Venkat and our hosts at Horton for a fascinating tour. For more information please visit Horton's website at: <https://www.hortonww.com/>

2019 Program Schedule

- April 24 - Tescom Tour, Elk River
- May 1 - Exec Committee Meeting*
- May TBD - MN Industrial Tool Grinding
- June –July - Summer Break
- August 7 - Exec Committee Meeting*

* Contact Chair Gregg Robinson for location, time is 5:30 pm

Proposals for future programming are always welcome. If you have a program suggestion, contact any member of the leadership team (contact information on page 1).

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Our chapter has a number of volunteer leadership and team member positions currently available. We're always looking for hard working folks who like to have fun.

These opportunities offer members an opportunity to contribute as part of the chapter management team, learn new skills, meet a broader swath of our membership, and perhaps enhance their resume.

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Manufacturing Education at St. Cloud State

Second in a Series

Submitted by Naomi Brill.



St. Cloud State University offers two types of undergraduate degrees in manufacturing engineering: a B.S. in Manufacturing Engineering and a B.S. in Manufacturing Engineering Technology.

The SME students who frequently attend our meetings with their advisor, Nancy Sundheim, are enrolled in the Manufacturing Engineering Technology program. They're a great group of students who are getting a real-life, hands-on education in all aspects of manufacturing. Recently, they honed their skills by assisting T.O. Plastics and Central McGowan (manufacturers in the St. Cloud area) with solving a multitude of production and process problems. Projects in the areas of ergonomics, process flow analysis and improvement, and incorporation of OSHA safety standards into production procedures are representative of what the students contributed to the companies.

The information below comes from the St Cloud State University website. Links to academic requirements for each program is after the information on the program.

B.S. Manufacturing Engineering (109 credits)

When you study manufacturing engineering at St. Cloud State, you'll become a person who plans and builds the production systems for goods that drive the world's economies – everything from computers to automobiles to freezers. You'll use your math and science skills to creatively solve real-life manufacturing problems with tools, production techniques and computers. Working with faculty recognized by industry as experts in their fields, you'll learn to innovate to reduce costs, production times and the use of limited natural resources on products while increasing quality and reliability.

Program Highlights

- Courses taught by faculty with extensive industrial experience, many with professional engineering licenses.
- Faculty expertise in controls and robotics, production management, processes, automation, quality engineering, computer-aided design and lean manufacturing.
- Senior design projects that are company-funded and include a company engineer on the team. Students build real-world experience with budgets, objectives and deadlines.
- Opportunity to innovate and create new manufacturing strategies, systems and facilities.
- Senior projects that sometimes result in patents and/or professional presentations.
- Students often secure a job before graduation, sometimes with companies that funded the student's senior design project.
- Select classes are available [online](#).

B.S. Manufacturing Engineering (continued)

Program Distinctions

- **1 of only 23 accredited programs** in the United States.
- New 100,000 sq. ft. state-of-the-art **Integrated Science and Engineering Laboratory Facility** (ISELF) offers collaborative hands-on work areas for science, technology, engineering, mathematics (STEM) majors for real-world experiences.
- Only manufacturing engineering program in Minnesota **accredited** by the **Engineering Accreditation Commission of ABET**, the U.S.'s only accreditation agency for engineering programs.

Follow this link [BS Manufacturing Engineering](#) for detailed information.

B.S. Manufacturing Engineering Technology (101 credits)

Manufacturing Engineering Technology is an applied engineering field that looks for better ways to manufacture products. This includes reducing cycle times, maintaining quality and keeping costs reasonable.

The field emphasizes engineering problem solving using a hands-on approach rather than the complex analysis that an engineer would typically use. Technologists often work closely with engineers and technicians. In manufacturing the technologist often has the rewarding challenge of working with many departments in the company, from sales to shipping. The curriculum focuses on hands-on experiences to prepare the graduate for an exciting career in the midst of production activity.

Program Highlights

- Variety of labs including robotics, controls, imaging, optics and 3D printing for hands on experience.
- Students have direct interactions with faculty for lecture, lab and research activities.

Program Distinctions

- The program is designed to be aligned and allow maximum flexibility for students transferring from two year schools.
- The program has many technical electives to allow students to develop an area of expertise to meet their interests, including areas of production, statistics, environmental issues, among others.

Follow this link [BS Manufacturing Engineering Technology](#) for detailed information.

The BS Manufacturing Engineering Technology program enrolls talented students, available for internships, summer jobs, and permanent jobs upon graduation. For more information, contact SME Student Chairman, Ali, at askalialbahrani@gmail.com

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- ***Promote education to ensure a future workforce***
- ***Advocate for the benefits of manufacturing and manufacturing careers***