Group 2 Sectors: Health & Wellness, Sports, Information & Communications Technology, Aviation

SHSM Experiential Learning Day at Ontario Tech University

The SHSM Experiential Learning Day will provide students with an immersive introduction to engineering, technology, and sector-related career pathways at Ontario Tech University. Students will participate in a hands-on engineering design competition connected directly to their SHSM sector, hear from an industry professional, and explore university laboratories and facilities.

The experience is designed around a common theme: How can engineering and emerging technology be used to solve real-world challenges across different industries? Students will work in teams to apply the Engineering Design Process by identifying a problem, developing a solution, building or prototyping their concept, testing and refining their design, and presenting their final solution to judges.

Also, please note that this invitation has been sent to all schools across all school boards, as the program is sector-based rather than school board-based.

Schedule

- 9:30 am 10:00 am Drop in everyone at SIRC Building. Please let us know when you plan to arrive.
    - 📍40 Conlin Rd, Oshawa, ON L1G 0C5, Canada
- 10:00 am -12:30 pm **Team Design Challenge Work Period**
- 12:30 pm - 1:00 pm **Lunch(Pizza Included) and Keynote speaker**
- 1:00 pm - 1:30 pm **Sector Based Tours**
- 1:30 pm: Students depart.

Team Design Challenge Details

Group 2 Sectors: Health & Wellness, Sports, Information & Communications Technology, Aviation

- Wednesday February 17, 2027 OR
- Friday February 19, 2027

In this hands-on **SHSM Micro:bit Wearable Innovation Challenge**, students work in teams to design and program a wearable technology solution using the BBC Micro:bit and MakeCode. Students first explore how wearable technologies are used in Health & Wellness, Sports, and Information & Communications Technology, then learn core programming concepts such as inputs, variables, loops, accelerometer data, counters, and display outputs. Teams are challenged to create a Micro:bit application that tracks, monitors, or encourages a meaningful behaviour, while also designing a wearable attachment or housing for the device. Each solution must connect directly to the team's SHSM sector, whether supporting healthy habits, improving athletic performance, or collecting and displaying useful data. The activity emphasizes human-centred design, problem solving, creativity, and practical application of digital technology. Students conclude by presenting a one-minute pitch explaining what they created, who it is designed for, what it tracks, how the wearable works, and how it connects to their sector, with projects judged on innovation, functionality, sector relevance, and presentation quality.

Takeaways:

- Each student will receive a certificate
- Winners of the challenge will receive a microbit and certificates.

Team Design Challenge Activity Breakdown:

Activity (G2)
Welcome, Land Acknowledgement, Icebreaker
Introduction to Wearable Technology & Micro:bit
Guided Micro:bit Activity
Wearable Innovation Challenge
Prepare Pitch & Upload Screenshot
Presentations & Judging

Sector-based tours

Please note that tours are offered based on sector relevance and lab availability. Please select your top three preferred labs.

- Automotive Centre of Excellence (ACE) Facility

A multi-purpose testing facility featuring climatic wind tunnels and heavy-duty shaker tables used for evaluating structural and material durability under extreme weather conditions.

- **The GaMER Lab** is Ontario Tech's state-of-the-art graduate student and experimental research space for games. It is an interdisciplinary research laboratory where research related to serious games, human factors, virtual simulation, games for fitness and health, applied game design, mixed reality, stereo-vision gaming, multimodal interactions, and affective computing are conducted. There are four core research areas within the GaMER Lab:UXR logo
  - Human-Computer Interaction (HCI) and Games User Research (GUR)
  - Serious Games and Gaming
  - Gamification
  - Health Games

  The GaMER Lab is also focused on developing computer vision and photogrammetry techniques and on ways to automatically generate photorealistic 3D models of environments from video and imagery.

- **Networking Laboratory** and **The Retro Room.** The Ontario Tech Networking Lab includes a significant investment in state-of-the-art networking equipment that will properly prepare our students for the current and future demands of the IT industry, while ensuring that all of our students have ample hands-on access to real equipment.

  The Retro Room. The Retro Room offers students an interactive environment to experience the history of computing and game development firsthand. As many incoming students have never worked with early technologies and their limitations, this space helps contextualize the remarkable pace of technological change. It also highlights the ingenuity required for optimization within constrained systems and reinforces the importance of preserving computing and game development history.

- Mechatronic and Robotic Systems Laboratory (MARS Lab)
  The MARS Lab is part of the Faculty of Engineering and Applied Science, Ontario Tech, located in Oshawa, Ontario, Canada. The MARS Lab conducts research and contract work for industry in the areas of mechatronics, robotics and automation, and optimal design. Please follow the links below to find out more about the activities of the MARS Lab.