DELIVERING HANDS-ON HEV ACTIVITIES THROUGHOUT THE NATION

The Michigan Tech Mobile Lab partners with government, industry, and nonprofit organizations to deliver HEV education, outreach, and research across the nation. We can bring the Mobile Lab to you for your private or public event.

USES

- Hands-on education: courses, short courses, seminars
- Outreach: schools, exhibits, conferences, community events
- Research partnerships
- Product and research demonstrations

AUDIENCE

- College and pre-college students
- Distance learning engineers
- Corporate decision makers
- Governmental policy makers
- Defense personnel

As an alternative, individuals and groups are welcome to come experience the Mobile Lab right here at our home base—the Michigan Tech campus—located near the shores of Lake Superior in Michigan's Upper Peninsula.

Find Out More

There is no substitute for seeing firsthand what the Michigan Tech Mobile Lab has to offer. We invite you to come take a tour.

CONTACT

Please feel free to contact us with any questions you might have, and to find out about availability and pricing.

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Michigan Tech

Michigan Tech

Hybrid Vehicle Engineering

The Michigan Tech Mobile Lab:

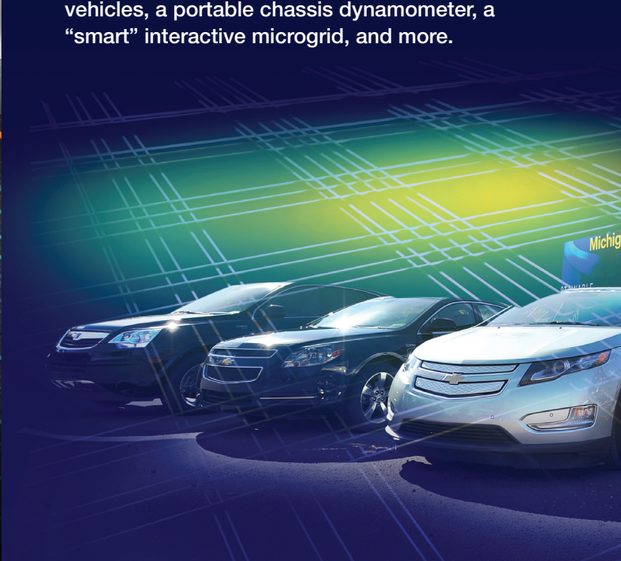
A unique venue for education, research and outreach

Michigan Tech Mobile Lab

Michigan Tech's pioneering program in hybrid electric vehicle engineering, one of the first of its kind in the nation, was started by a $3 million US Department of Energy grant and $750,000 of in-kind contributions from industry sponsors and partners. Graduate and undergraduate courses are offered on campus, online, and—thanks to the showpiece of the program—on the road.

That showpiece is a huge, handsome mobile lab and classroom that enables Michigan Tech to take hands-on hybrid electric vehicle education right to working and displaced engineers, company employees, students, and communities, wherever they may be.

The Michigan Tech Mobile Lab is housed in an expandable, double-wide trailer. It's pulled by a class 8 semi truck with a Detroit Diesel DD15 engine, the latest in heavy-duty diesel technology. Wi-fi accessible throughout, the mobile lab's desks, chairs, and workspaces can be reconfigured to suit. The mobile lab features a powertrain test cell, configurable hybrid electric vehicle, three other state-of-the-art hybrid vehicles, a portable chassis dynamometer, a "smart" interactive microgrid, and more.



Features Of the Mobile Lab

POWERTRAIN TEST CELLS

The Mobile Lab's powertrain "hardware-in-the-loop" test cells are cutting-edge developmental tools that show how hybrid electric vehicle (HEV) components work—batteries, engines, electric machines, embedded controls, and power electronics.

Use the test cells to analyze energy management through the system. Operate the powertrain in a steady state, or while emulating a drive cycle. Investigate torque blending between the engine and motor, regenerative braking characteristics, and more.

CONFIGURABLE HYBRID VEHICLE

The Mobile Lab's configurable hybrid electric vehicle is one of a kind. Everything on it—rear axle, engine controls, motor, and battery—can be changed and changed quickly. For instance, it's possible to switch out gears in three minutes, something that would take three days on a regular vehicle in a shop.

Use the configurable hybrid electric vehicle to evaluate up to 14,000 possible combinations through testing or simulation, then prepare the vehicle for final validation testing.

INTERACTIVE SMART MICROGRID

A portion of the research now taking place aboard Michigan Tech's Mobile Lab is aimed at providing US military installations with safe, reliable power generation for operating bases and humanitarian missions.

We offer education, demonstrations, and research in this area utilizing an on-board, state-of-the-art, interactive, "smart" microgrid.

Smart microgrid features:

- PHEV & 5kW controllable load
- 80kW generator
- PV array & wind turbine
- Wireless communication
- Interactive GUI & data acquisition

HYBRID VEHICLES

Experience the state-of-the-art HEV technology in a Chevy Malibu hybrid, Saturn Vue hybrid, and Chevy Volt. Compare the effects of various parameters on fuel economy and driveability.

Science, Technology, Engineering & Math (STEM) Outreach

WHY USE THE MOBILE LAB FOR YOUR STEM OUTREACH?

We offer hands-on, short duration, high impact experiences in sustainable transportation, sustainability, and energy surety. New activities are continually being developed and can be customized to fit your specific audience and age group. Options include:

- Try your hand at HEV gaming: a virtual garage and drive route
- "Feel" the energy flow with a hybrid electric bicycle
- Conduct hardware-in-the-loop (HIL) testing with a real powertrain
- Improvise with a "seat of the pants" configurable HEV
- Discover how hybrid electric vehicles are produced in the "real world"
- Learn how batteries, engines, and electric machines work

WHAT CAN THE MOBILE LAB DO FOR YOU?

EDUCATORS

Interested in teaching a seminar or short course? Want to set yourself apart from the crowd with a hands-on course? The Mobile Lab provides configurable space for virtually any STEM topic anywhere in the continental US.

RESEARCHERS

Need some additional facilities for a research project? Need to collect field data?

Mobile Lab equipment includes:

- National Instruments PXI & cRIO DAQ
- AC Dynamometers
- Chassis Dynamometer
- Instrumented Production HEVs

INDUSTRY

Need targeted employee training? Short courses can be delivered at your location. Courses can be developed and delivered in collaboration with corporate experts to ensure critical content is covered.

PARTNERS

Need a platform for public relations, product or technology awareness or for hands-on customer training? Content and activities can be delivered by corporate and/or Michigan Tech personnel.

STUDENTS

Want to get out of the classroom and into the lab? Want to learn about hybrid vehicles while sitting in the drivers seat? Classes are taught from the Mobile Lab using production and configurable HEVs each semester.

Sign up for these courses, offered on campus at Michigan Tech:

- MEEM/EE 4296
- MEEM/EE 5296
- MEEM 5250

LEARN MORE AT

WWW.MTU.EDU/HEV