



Working to Create Michigan's Future Today



Michigan Academy For Green Mobility

Hybrid Electric Vehicle Battery Engineering

Education and Training Provider

Request for Proposals



MICHIGAN ACADEMY FOR GREEN MOBILITY

2009 Education and Training Provider Request for Proposals

BACKGROUND:

Michigan is moving rapidly toward renewable energy and other sustainable technologies to remain economically viable and protect our environment. In response to the rapid growth in this sector, the Department of Energy, Labor & Economic Growth has partnered with automotive manufacturing industry employers to establish the Michigan Academy for Green Mobility. The purpose of the Michigan Academy for Green Mobility is to ensure the automotive industry has the trained workers they need to grow and prosper in the emerging green economy. Driven by the needs of the employers, the academy is administered by a governing board made up of employers, education and training providers, the workforce development system, and state government. It is the role of the governing board to make decisions on behalf of the academy.

The Michigan Academy for Green Mobility delivers rapid skill growth in green technology solutions for advanced mobility to meet industry needs. Its objective is to prepare individuals for emerging technologies in vehicle propulsion, component design, manufacturing, and maintenance. The skill development and training requested in this RFP is in direct response to specific knowledge and skill demands of employers in the automotive manufacturing industry as they diversify into advanced technologies that support Michigan's Green Economy.

As Michigan's automotive industry transitions toward green mobility, there is an increasing demand for individuals with the knowledge, skills, and experience necessary to work on emerging vehicle technologies. There is a need for training that will help prepare individuals to move quickly from jobs working on traditional gasoline-based vehicles to advanced propulsion vehicles that use green technologies and applications. The Michigan Department of Energy, Labor & Economic Growth is working with automotive manufacturing employers, education and training providers, industry associations, and the workforce system to develop a mechanism for providing that training.

Academy Mission:

Provide rapid skill growth in green technology solutions for advanced mobility to meet industry needs.

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Academy Objectives:

- Prepare individuals for emerging technologies in vehicle propulsion and vehicle component design, manufacturing, and maintenance
- Rapid/accelerated training and re-training
- Training targeted toward:
 - Incumbent engineers
 - Engineering students
 - Incumbent technicians
 - Technician program students

The Michigan Academy for Green Mobility provides certificate programs based on the occupations, skills, and knowledge required by employers. Education and training institutions provide learning opportunities that are short-term, targeted, innovative, flexible, and have a strong focus on hands-on practical experience.

Partnership:

Partnerships are critical to make the most efficient use of established curriculums, facilities, laboratories, and equipment to provide the automotive industry with the talent necessary to succeed. Collaboration is necessary to create the right mix of theoretical knowledge with practical experience, and build on the strengths of individual organizations in order to provide the highest quality training available in this emerging field.

REQUIREMENTS

The following outlines the Education and Training Requirements for the RFP.
Applicants are encouraged to be innovative in their course design and delivery to meet the following employer driven needs.

The purpose of this Education and Training Provider Request for Proposals (RFP) is to develop and implement an education and training program delivered by one or more provider(s) in the area of Hybrid Electric Vehicle (HEV) design and manufacturing specific to HEV Battery Engineering. The selected training provider will work with the Michigan Academy for Green Mobility to carry out its mission. The academy will assist in identifying students for this program. This RFP does not obligate the State of Michigan for the costs associated with the development or delivery of the solicited education and training program. This RFP does not address the future costs associated with the education and training program.

Training Requested: Hybrid Electric Vehicle (HEV) Battery Engineering

Target Audience: Engineers transitioning from traditional vehicle design and manufacturing to hybrid electric vehicle battery applications. Training for HEV Battery Engineering should be structured for bachelor or master degreed engineers entering Hybrid Electric Vehicle design and manufacturing.

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Prerequisites:

- Bachelor Degree in Engineering

Learning Objectives: The HEV Battery Engineering training should expose engineers to vehicle fundamentals, battery fundamentals, and the interconnectivity of the two in Hybrid Electric Vehicles. Students should learn the basics of controlling and managing battery technology in Hybrid Electric Vehicles, including power demand, thermal management, the lifecycle of the battery and how it is affected by the vehicle. At a minimum, learning objectives should include:

- Vehicle and powertrain systems requirements, design, implementation, calibration, and validation and verification (overview)
- Energy storage system principles including cells, batteries, and preferred chemistries
- Hybrid electric vehicle powertrain systems
- Batteries and application to hybrid electric vehicles
- Hybrid vehicle battery systems development
- Hybrid vehicle battery cell behavior
- High voltage electrical systems
- Thermal management
- Control systems, Matlab/Simulink environment
- Diagnostics and limp-in strategies

Training Delivery:

- Method of Delivery:
 - o Training should include at least 1 hour of lab/practical experience for every 3 hours of classroom style learning
 - o Training should include team-based, hands on learning opportunities
- Delivery Timeframe:
 - o Training should span no more than 14 weeks
 - o No more than 4 hours of training per week should be scheduled during normal business hours (Monday through Friday, 8:00 a.m. – 5:00 p.m.)
 - o No more than half of the training should be conducted during normal business hours (Monday through Friday, 8:00 a.m. – 5:00 p.m.)
- Number of Students:
 - o Training should be designed to accommodate 100 – 200 students

Student Assessment: Students should be evaluated through a combination of tests and practical projects.

Credit: Education and training resulting in graduate level credits is preferred.

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APPLICATION REQUIREMENTS:

Eligibility:

- ◆ Eligible applicants are education and training providers with a significant presence in the State of Michigan including but not limited to universities, community colleges, private training providers, and industry associations.
- ◆ Proposals may be submitted by a single institution or in partnership with multiple institutions. Cross-institutional partnerships are encouraged to create the right mix of theoretical knowledge with practical experience and make the most efficient use of established curriculums, facilities, laboratories, and equipment. If the proposal is submitted in partnership, a lead agency must be identified to serve as the applicant.

Pre-Bid Webinar:

A Pre-Bid Webinar will be held to answer questions related to the RFP. The Webinar is scheduled for Thursday, May 14, 2009, at 1:00 p.m. We request questions be submitted in writing to rsa@michigan.gov prior to the webinar for responses to be provided during the webinar. Please visit the Michigan Regional Skills Alliances website at www.michigan.gov/rsa or Michigan Green Jobs website at www.michigan.gov/greenjobs for information regarding this Webinar.

All questions, answers, and the Pre-Bid Webinar will be posted to the Michigan Regional Skills Alliances website at www.michigan.gov/rsa and Michigan Green Jobs website at www.michigan.gov/greenjobs by 5:00 p.m., Wednesday, May 20, 2009.

Proposals:

Proposals must be filled out electronically using ATTACHMENT A: Michigan Academy for Green Mobility Application. Proposals received in other formats will not be considered.

Completed proposals **MUST BE RECEIVED BY THE DEPARTMENT OF ENERGY, LABOR, & ECONOMIC GROWTH**, no later than 5:00 P.M., **TUESDAY, MAY 26, 2009**. Submit proposals electronically to Ms. Loretta Crow at crowl@michigan.gov. Hard copies may also be sent to:

Ms. Loretta Crow, Executive Secretary
Regional & Sectoral Strategies Division
Bureau of Workforce Transformation
Department of Energy, Labor & Economic Growth
Victor Office Center, 3rd Floor
201 N. Washington Square
Lansing, Michigan 48913

Review Process:

Proposals received by the Department of Energy, Labor & Economic Growth will be evaluated by a committee consisting of employers, education and training providers, and

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workforce development representatives. The committee will review and select the proposal that most closely meets the needs identified by industry employers using the following criteria:

- Course Content: 50 points
- Course Delivery: 25 points
- Student Assessment: 5 points
- Credit Conferred: 5 points
- Knowledge, Experience, and Expertise: 5 points
- Partnerships: 5 points
- Vision Alignment: 5 points

All proposals will be considered and must be open to negotiation and/or modification. The review committee has the option to recommend changes to applicant's proposals prior to selecting the winning proposal. Once a proposal is selected by the review committee, their recommendation is forwarded to the Michigan Academy for Green Mobility Governing Board for final approval.

Notification:

The successful applicant(s) will be notified of their selection within 30 days of the proposal's due date. This information will also be posted on the Michigan Regional Skills Alliances website at www.michigan.gov/rsa and Michigan Green Jobs website at www.michigan.gov/greenjobs.

Service Agreement: The service agreement between the selected education and training provider(s) and the Michigan Academy for Green Mobility will be for a period of one year with an option for renewal based on employer needs.

Reporting Requirements: Upon completion of the program, the selected education and training provider(s) must report the following information to the Michigan Academy for Green Mobility Governing Board:

- Number of students enrolled
- Education level of enrolled students
- Engineering discipline of enrolled students
- Demographic information of enrolled students (in aggregate)
- Number of students completing the program
- Education level of students completing the program
- Engineering discipline of students completing the program
- Student assessment results including practical project results