“Wood-to-Wheels”
Research Experiences for High School Teachers in Sustainable Transportation Technologies

Would you like to?
- Be an active participant in one of three established research projects.
- Develop your knowledge of engineering, engineering careers, and “Wood-to-Wheels” (W2W) biofuels?
- Transfer your knowledge and experiences in research to your classroom?
- Improve instructional practice by engaging your students in active learning around real-world challenges?
- Build a collegial network of teachers and faculty?

The W2W Research Experience for teachers will include laboratory activities that progress from fundamental science and engineering concepts through applications of those concepts in the laboratory and conclude with integration of the concepts to gain deeper understanding of an engineered system.

Each teacher will be part of a research team of faculty and graduate students engaged in a major, funded research project. During the experience, you will collaborate with a faculty mentor to create a teaching unit that incorporates content knowledge, research, science and engineering.

What’s involved?
- 6 week research experience July 9 – August 17, 2012
- $1,000 per week stipend
- room and board in university apartments provided
- supplies for your classroom provided
- modest travel stipend to/from Michigan Tech and Professional Conferences provided
- draw upon the expertise of Michigan Tech’s engineering and natural sciences faculty
- incorporate research into your teaching units
- earn graduate credit at no additional cost

- Produce and purify a liquid transportation biofuel starting with wood biomass using an integrated set of laboratory-scale experiments.
- Gain a more complete understanding of the sustainability issues surrounding biofuels produced from forest resources

- Help develop fast growing bioenergy trees through molecular genetics and genomics of cell wall synthesis
- Study genetic improvements of lignocellulosic products for bioenergy industries

- Conduct research in a suite of labs from fundamental combustion with laser based diagnostics to hybrid vehicles to assess tank-to-wheel outcomes of biofuels coupled with advanced technologies as methods to meet future CAFE, CO₂, and emissions regulations.
"Wood-to-Wheels"
Research Experience for Teachers
Participant Application
July 9 – August 17, 2012

Please type or print in ink. Duplicate as needed.

Name______________________________________________________________________________________________
First     Middle     Last

Home address _______________________________________________________________________________________
Street     City      State    ZIP

Date of birth_____________________________ SS# or Michigan Tech M # ______________________________________

Home phone (         )_____________________________ Work phone (         ) _____________________________________

Fax (         ) ____________________________   Work email ___________________________________________________

Home email__________________________________________________________________________________________

School name_________________________________________________________________________________________

School address_______________________________________________________________________________________
Street     City      State    ZIP

Current subject areas taught____________________________________________________________________________

Grades taught _______________________________________________________________________________________

School District________________________________________________________________________________________

Degree earned/areas of certification ______________________________________________________________________

Please indicate which area of research you are interested in:

☐ Forest Biotechnology      ☐ Biofuels Conversion      ☐ Biofuels Combustion

I agree to all of the following to participate in the "Wood to Wheels" Research Experience:

1) Write a letter of intent including my interest in this program and how your courses/labs will be enhanced
1 – 2 pages.
2) Return this application, letter of intent, and a letter of recommendation from my school principal.
3) Read and respond to all preparatory materials and communications prior to the course.
4) Consent to the release of my name, address, and email address to other participants in the course.
5) Fully participate in each day of the course and in the evaluation of the program.
6) Understand that my final project will be published in some format
7) Consent to the release of my photograph for publications.
8) Consent to use of my written work for project evaluation.

Signature _________________________________________________________________ Date _____________________

Return your completed application by **February 17, 2012**

To:
Lori Witting
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Houghton, MI 49931-1295
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Applicants will be notified of selection by **March 1, 2012**