



Technovations in Transportation

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NIATT Honored by ITE for Innovation in Education

The Institute of Transportation Engineers (ITE) recognized NIATT at its 2009 Annual Meeting and Exhibit in San Antonio, Texas, in August 2009, by awarding the Transportation Education Council's Best Innovation in Education award. ITE President Kenneth H. Voigt presented the award to Michael Kyte at the summer ITE meeting. (Photo courtesy of Sunrise Images Photography/ITE ©2009). Two educational programs initiated at NIATT by Michael Kyte, the Traffic Signal Summer Workshop and the MOST project, were selected due to the "real life impact" the programs have on attendees. Kyte accepted the award on behalf of NIATT. The educational programs were recognized as an "excellent example of researchers at universities and members of the consultant community coming together to fulfill a need to educate the transportation workforce."

The Institute of Transportation Engineers is an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs. ITE facilitates the application of technology and scientific principles to research, planning, functional design, implementation, operation, policy development and management for any mode of ground transportation. Through its products and services, ITE promotes professional development of its members, supports and encourages education, stimulates research, develops public awareness programs and serves as a conduit for the exchange of professional information.



NIATT's Traffic Signal Summer Workshop, held seven consecutive years from 2000-2007 at the University of Idaho campus in Moscow, Idaho, was a five-day, intense hands-on workshop during which participants worked with industry professionals using state-of-the-art traffic control equipment and hardware. The workshop served students and professionals from 26 states. As a result of the workshop's success, FHWA asked NIATT to develop a version for professionals that supports FHWA's signal timing roadmap, awarding a grant of \$705,274.

The "Mobile (Hands-On Traffic) Signal Timing Training, or MOST, project is a new approach to learning about traffic signal timing. MOST uses a new simulation environment to let users directly observe how the signal timing parameters selected affect the quality of traffic operations at a signalized intersection. The completed MOST on-line course (located at <http://www.webpages.uidaho.edu/most/>) includes seven separate laboratories, with nearly forty individual experiments. Each experiment has one or more specific learning objectives that will guide the user's work during that experiment. Five of the laboratories cover isolated actuated intersection operations, while two cover coordinated signal systems

Judy LaLonde Retires After Ten Years



Judy LaLonde was the Assistant to the Director of NIATT for ten years before she decided to retire. She retired on July 31, 2009, but stayed on part time to help train her replacement, Tami Noble. After the 2009 fall semester started, she was surprised with a retirement party that was disguised as a "Back to School Ice Cream Social." Judy was greeted by co-workers, students, and

faculty who came out to wish her well with her retirement.

She was honored with a book of retirement wishes from current and former students. She is spending her retirement running an Alpaca Farm.

She will be missed greatly by students, staff, and faculty. We wish her the best in this new chapter of her life. Thank You Judy!



Annual Advisory Board Meeting Set for April

The Annual Advisory Board Meeting is set for Thursday, April 29, 2010, coinciding with the University of Idaho's annual Engineering Exposition (<http://www.uidaho.edu/engr/newsevents/events/expo2010.aspx>).

UTC Hybrid Vehicle Project

Edwin Odom, Steve Beyerlein, Don Blackketter, professors in the mechanical engineering department, and Joe Law, professor in the electrical and computer engineering department, began the Hybrid FSAE Vehicle Realization project in August. The project will determine an optimal hybrid powerplant configuration (matching IC engine, motor/generator, and transmission components) for the hybrid FSAE competition through coordinated use of a suite of design tools related to engine performance modeling, energy management, vehicle performance modeling, suspension modeling, and frame optimization. This project benefits from preliminary work by a 2008 senior design team on a miniature teststand, various mini-projects in a junior-level machine design course, as well as an advanced CAD technical elective, a master's thesis on planetary gear drive technology adapted for use on hybrid vehicle platforms, and a master's thesis on intake and exhaust tuning for a single-cylinder Yamaha YZF 250 cc engine.

The intent of this project is to create the foundation for a viable University of Idaho entry in the hybrid FSAE competition scheduled for 2011 and beyond. Analytical and empirical methods will be used to demonstrate feasibility of a robust, well-modeled powerplant design, transmission design, and motor/generator selection (UTC Goal 2/Strategy 2.1). Supporting vehicle systems and control strategies will be integrated on a competition platform in subsequent years. Throughout the lifecycle of this project, we will engage a broad population of graduate and undergraduate students in implementation of sustainable transportation technology (UTC Goal 3/Strategy 3.4).

Training for ITD Employees on Traffic Signal Components

A traffic signal system components training workshop was conducted on the UI campus on December 15-17, 2009 for Idaho Transportation Department employees. The focus of the training was the Centrax Central Control System. The first two days of training were in the UI NIATT traffic laboratory using virtual controllers. The last day of the training was at the Moscow City Hall using the traffic signal system communication server connected to some intersections in the city.

New controllers and cabinets have been installed at all 16 intersections in the city traffic signal system in the city of Moscow. The City of Moscow crew is continuing its efforts to splice and connect the fiber optic cables to each of the 16 cabinets. This work should be completed within the next month and will allow all intersections to communicate with the central server located in the Moscow City Hall.

HERC Projects Completed in 2009

The Idaho State Board of Education's Higher Education Research Council (HERC) projects were completed in 2009. Drs. Judith Steciak, Steven Beyerlein, Karen Den Braven and Ralph Budwig were co-principal investigators on the HERC award of \$550,000 for "Sustainable Transportation Engine and Fuel Systems" that was completed at the end of December. The team worked along with industry partner Automotive Resources, Inc. (ARI) of Sandpoint, ID, the developer of catalytic igniters permitting the use of fuel-lean mixtures in internal combustion engines. The research focused on developing catalytic ignitions for the combustion of fuel-lean mixtures in a mixture of basic and applied research. The funding was used to support graduate and undergraduate students as well as to improve capital equipment to strengthen infrastructure and boost their ability to conduct research in sustainable transportation fuels and innovative engine technology.

HERC also awarded \$75,000 to support the work of the Smart Signals research team, Drs. Richard Wall and Jim Frenzel, for their project "Interactive Signals for Able-Bodied and Disabled Pedestrians" which was completed at the end of September. In their report to HERC, they reported that a complete Advanced Accessible Pedestrian Signal (AAPS) device was designed, constructed and tested within their laboratory. The design uses Ethernet communications to implement a distributed control system. This is an advance over current Accessible Pedestrian Systems (APS) that represent a safety risk factor having undetectable failure modes that could play incorrect audible messages. The AAPS consists of a controller unit housed in the traffic controller cabinet and interfaces to existing National Electrical Manufacturers Association (NEMA) TS1 and TS2 traffic controller cabinets at the field terminals and supports from one to 16 pedestrian stations.

Wall and Frenzel also received additional funding from an industry partner, Campbell Company of Boise, ID, an established manufacturer of APS devices. Campbell provided funding of \$61,535 to oversee the beta field testing, manufacturing, and marketing of the AAPS. In the summer of 2009, a UI graduate student worked at the Campbell manufacturing facility.

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