Mechanical Engineering (School of Dynamic Systems)
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: March 1, 2012

The Mechanical Engineering Program in the School of Dynamic Systems is pleased to offer the following research project for the summer of 2012. Interested students are urged to contact the faculty member(s) directing the project that most interests them.   By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

PROJECT TITLE: Electric Vehicle (EV) Battery Prognostics and Health Management

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Project Description

We would like to express our interest in recruiting an undergraduate student from the WISE program to work with our Center for Intelligent Maintenance Systems (IMS) in the area of Electric Vehicle (EV) Battery Prognostics and Health Management (PHM).

At IMS, we are conducting research on instrumenting EV batteries to sense current, voltage, temperature, and other measurements, and to utilize this research in building predictive systems that can estimate the state of charge (SOC) and the state of health (SOH) of advanced EV battery cells and battery packs. The role of the undergraduate student will be to gain understanding of and setup the required instrumentation to collect data from EV batteries, and to use the data to setup health (performance) assessment, diagnosis, and predictive PHM for EV batteries. We have purchased an electric vehicle on-site (called the TWIKE,) and we will work with the student to familiarize her with the EV, its battery pack/cells, and how to instrument and collect data from the EV. In addition, we have an internal experimental test-bed to instrument various types of batteries, including Lithium-ion and others.

This project will give the student a deep understanding of electric vehicle battery technologies, and how to model the performance of these batteries, and to gain good experience working with PHM predictive tools for various applications.