The Latest on RUSS COLLEGE RESEARCH

Avionics Engineering Center
The Avionics Engineering Center is supporting Lockheed Martin Aeronautics and SAIC (Science Applications International Corporation) in testing the GPS and inertial guidance systems installed on the F-35, the nation’s new Joint Strike Fighter jet. The result will be a proven aircraft sensor suite serving as the keystone of safe navigation, precision landing, and other missions for the U.S. Air Force, Navy, Marines, and eight allied nations.

Center for Advanced Software Systems Integration
Russ College researchers are working in partnership with PolymerOhio to develop a cost model that would estimate the costs associated with off-shoring and re-shoring manufacturing operations for polymer products (molds, molded parts, and assembly). The team has finished the first part of the project, interviewing a number of polymer companies in Ohio to determine their reasons for going abroad or bringing back manufacturing.

Center for Electrochemical Engineering Research (CEER)
CEER was recently awarded a $74,946 EAGER (Early Concept Grant for Exploratory Research) grant from the National Science Foundation to study the development of novel photonic chemical sensors. The sensors are based on nanoscale membranes composed of amorphous semiconductor materials. They are predicted to be significantly more sensitive than what is currently available. Among other advantages, advanced sensors have applications in the diagnostic and design of batteries, fuel cells, and other energy storage technologies.

Institute for Corrosion and Multiphase Technology (ICMT)
In January 2011, ICMT started a new joint industry project sponsored by six major oil and gas companies (Baker Hughes, BP, Chevron, ConocoPhillips, Petrobras, and Statoil) focusing on naphthenic acid corrosion. Corrosion caused by naphthenic acids occurs at high temperatures and high velocity, causing significant damage to distilling units in oil refineries.

Institute for Sustainable Energy and the Environment (ISEE)
Ohio University is the lead in the Ohio Third Frontier’s Wright Project, “Center for Algal Engineering Research and Commercialization.” Working with the University of Toledo, Algae Producers of America, Algaeventure Systems, and 11 other academic, nonprofit, and commercial entities, ISEE researchers will help advance the commercial potential of algal technologies in the state of Ohio.

Ohio Coal Research Center
In partnership with a leading utility company, the Ohio Coal Research Center is developing two biomass pre-treatment methodologies that will increase the ability to utilize biomass as fuel in large power plant facilities. The first methodology focuses on biomass integration within existing coal power plants, utilizing thermal energy from within the facility to produce a biomass product with higher energy density. The second utilizes supercritical carbon dioxide from an advanced gasification-based power facility to improve biomass feed and gasification properties.

Ohio Research Institute for Transportation and the Environment (ORITE)
Several state departments of transportation are supporting an ORITE multistate study of thermoplastic pipe. The American Association of State Highway and Transportation Officials (AASHTO) sets Load and Resistance Factor Design Bridge Design Specifications, which encompass culverts, including those with thermoplastic pipes. The project will reassess the AASHTO specifications governing installations of thermoplastic pipes in the light of current materials and technologies, develop a rational design procedure better matched to real-world results, and recommend improved installation methods.

Center for Scientific Computing and Immersive Technologies (CSCIT)
CSCIT researchers designed, developed, and deployed a customized, distributed, fully automated sequencing and analysis software for the Illumina Genome Analyzer, a commercial machine for DNA sequencing analysis. Enabling users to specify sequencing and analysis parameters and options, the software provides automatic results.

By Mary Reed
Assistant Professor of Industrial and Systems Engineering Diana Schwerha and PolymerOhio President Joe Jacomet discuss opportunities for reshoring polymer companies to Ohio. Increasing energy costs and labor costs abroad have made offshoring more expensive, while reshoring shortens the supply chain.