

## Educational News from Rose-Hulman Institute of Technology

Professor James McKinney

**The Rose-Hulman Civil Engineering program offers a rigorous hands-on education with in-depth senior project work, allowing students to leave Rose-Hulman exceptionally well-prepared and in-demand. The program is sound in the fundamental principles of science and engineering, providing a solid base for life-long professional learning. It is designed to prepare the student for a productive career in industry as well as advanced graduate study.**

### Railroad Classes

Rose-Hulman Institute of Technology has offered rail related classes for the past 5 years. As a result of attending REES 2008 three weeks (12 class periods) of rail instruction were added to Introduction to Transportation Engineering, a class that had exclusively concentrated on highway engineering.

Following REES 2010 and REES 2012 a new NURail sponsor course - Railroad Engineering - was first offered during the Spring Quarter 2013. The class that was developed was a quarter long (40 class meetings) introductory, interdisciplinary, undergraduate Railroad Engineering course suitable as technical elective for Civil, Mechanical, and Electrical Engineering undergraduate students. The course was designed to include civil, mechanical, and electrical engineering topics relevant to railroad engineering. Course modules included: introduction to the railroad industry; railroad infrastructure; rail systems; curves and gradients; track systems; switches and turnouts; maintenance of way; railroad power; locomotives and rolling stock; signaling; grade crossings; operational safety systems; passenger rail, and future rail opportunities. In addition students were exposed to the rail industry through guest speakers; attendance at professional railroad meetings; site visits; student professional society meetings; local historical rail groups and museums. Railroad Engineering has been taught for the past three years, with yearly evaluation and upgrading of the course. Course content has been reviewed by faculty from Civil, Mechanical and Electrical Engineering.

### Railroad Projects

Three rail related projects were taken on as part of the year long Senior Design Capstone class. Two rail projects were also part of the Freshman Design class. During the spring of 2014 students in the Railroad Engineering class designed and constructed a 60 foot section of track at the Wabash Valley Railroaders Museum. The track is used to display a WW II Pullman Troop Sleeper car.



### AREMA Student Chapter

A valuable addition to the rail related curriculum was the formation of an AREMA Student Chapter. The RHIT AREMA chapter was founded in 2012 as the 12th national chapter. Since its inception the RHIT AREMA Student Chapter has scheduled 19 technical meetings and 13 site visits to Class I and regional railroad operations. Students also attended the 2012, 2013, and 2014 AREMA National Meetings. A number of students have received scholarship from AREMA as well as railroads. A number of students have participated in rail summer internships. Two members of the Class of 2014 accepted permanent employment with BNSF. AREMA is a valuable asset for our rail program.

