



National University Rail Center - NURail
US DOT OST-R Tier 1 University Transportation Center

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Home School Student Visit and Introduction to Rail Transportation and Engineering

By

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DISCLAIMER

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TECHNICAL SUMMARY

Title

Home School Student Visit and Introduction to Rail Transportation and Engineering

Introduction

This project consisted of hosting local Champaign-Urbana, Illinois home school students for a visit to the Rail Transportation and Engineering Center (RailTEC) at the University of Illinois at Urbana-Champaign (UIUC). Beyond visiting RailTEC, students were able to visit other aspects of the Department of Civil and Environmental Engineering (CEE). This NURail educational project was conducted to serve the students by introducing them to the basics of rail engineering in hopes that they would be further encouraged to consider transportation in general and rail specifically in the future. Additionally, it is our vision that the materials that were created will be used for future outreach efforts.

Description of Activities

Students traveled to the campus of RailTEC at UIUC, and were introduced to rail engineering fundamentals through the demonstration of research, discussion of research outcomes, and through classroom technical presentations of rail engineering concepts.

Specifically, the group of students was divided into six smaller groups; 1A, 1B, 1C, 2A, 2B, and 2C. The 3 "1" groups started with Newmark Civil Engineering Laboratory tours, while the "2" groups started in the classroom learning more about fundamentals of rail engineering. Half way through the visit we rotated the groups.

For the classroom portion of the visit, RailTEC graduate research assistants developed rail engineering presentations that they presented to the students. The presentations included interactive slides that required the students to think and participate.

The Newmark Civil Engineering Laboratory tour stops were as follows:

- Demonstration of railway ballast (aggregate) Shear Box Testing that relates to the stability of the railway track substructure
- Demonstration of Concrete Crosstie Testing on Newmark Crane Bay Floor to provide further insight into the railway track superstructure and its importance
- A general tour of the Newmark Civil Engineering Crane Bay to learn about structural engineering, materials sciences, and in general – other non-rail facets of civil engineering.

Outcomes

The primary result of this project was to educate students, and the project was a success in this regard. We had over 30 students present for this event, and the engagement and interest from the students was very high. Another benefit of this effort was the involvement of NURail-supported Graduate Research

Assistants at UIUC. They had the opportunity to explain some of the fundamentals of rail engineering to the students, providing a chance to further their spoken communication skills.

Additionally, the content that was developed can be made available for future events.

Conclusions/Recommendations

The event was quite successful, and approximately 30 students were educated in the rail domain, having no prior experience to such teaching. Many of these students also visited campus for the much larger Engineering Open House (EOH) event, which sparked the idea (via their instructors) for them to re-visit for this focused event. We recommend further publicity of EOH as a recruitment tool for more focused groups to visit RailTEC/UIUC or other partner schools to learn more about the rail domain.

The materials that were developed for this visit are usable by others, and this event is certainly scalable. A future task could be posting these and other materials on a shared site that could be accessible for NURail partner institutions and others.

Publications/Examples

Not applicable

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