SUMMARY OF 2013 UB NATIONAL SUMMER TRANSPORTATION INSTITUTE

July 8 – 12, 2013
Goal of NSTI

“To support the inclusion of high school students, from diverse backgrounds, within National Summer Transportation Institutes that result in an increase in the number of students pursuing transportation related careers”
Closing Remarks

Associate Dean for Research and Graduate Education, School of Engineering and Applied Sciences, and Professor of Department of Industrial and Systems Engineering
Introduction to Federal Highway Administration (FHWA)

Christine Thorkildsen
Kara Parnett

Civil Rights Program
2013 UB NSTI Overview

• Five-day non-residential summer program.
• Program Curriculum: 8 lectures, 4 projects, 3 field trips and 3 enhancement sessions.
• 20 out of 21 high school students finished the program
• 8 – 11 grade
• 12 different middle/high schools
• 7 female and 13 male
• 5 minority students
## NSTI Program Curriculum

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Projects</th>
<th>Field trips</th>
<th>Enhancement activities</th>
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</thead>
<tbody>
<tr>
<td>4 Lectures (45 min each)</td>
<td>Career Opportunities in Transportation</td>
<td>Land transportation.</td>
<td>Leadership, Team Build and Communication Skills</td>
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<tr>
<td></td>
<td>Hazmat Transportation and Safety</td>
<td>· Bus garage at Niagara Frontier Transportation Authority (NFTA)</td>
<td>College Preparation and Admission Process</td>
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<td></td>
<td>Transportation Practice in NY State</td>
<td>· Traffic operation center at Niagara International Transportation Technology Coalition (NITTEC)</td>
<td>Computer lab and PowerPoint Presentation Preparation</td>
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<td></td>
<td>Railway Engineering</td>
<td>Water transportation.</td>
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<tr>
<td>4 Projects with lectures (1.5 hr – 3 hr each)</td>
<td>Traffic Data Collection and Signal Optimization</td>
<td>· Erie canal cruise at Lockport</td>
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<td>Human Factors and Driving Simulator</td>
<td>Air transportation</td>
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<td>Multi-modal Traffic Signal Control</td>
<td>· Air Control Tower at Buffalo Niagara International Airport</td>
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<tr>
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<td>Bridge Design</td>
<td>· Field Tour of Buffalo Niagara International Airport</td>
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<tr>
<td>3 Field trips (3.5 hr each), 5 hosts</td>
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</table>
Academic: Lectures

• Career Opportunities in Transportation (Mon)

Athena Hutchins
Executive Director
Niagara International Transportation Technology Coalition (NITTEC)

• Discuss various opportunities within the transportation career, including government, industry and academia.
Academic: Lectures

• Safety in Hazmat Transportation (Wed)

Changhyun Kwon
Assistant Professor
Department of Industrial & Systems Engineering, UB

• Introduce transportation safety and security issues associated with the transportation of hazardous materials.
• Learn the current status of hazmat transportation, and how transportation engineers can help reduce risk
Academic: Lectures

• Transportation Practice in NY State (Thu)

Susan Surdej
Assistant to the Regional Director
Regional Public Information Officer
NYS Department of Transportation - Region 5

• Introduce mission, current transportation practice and future development of NYS Department of Transportation
Academic: Lectures

• Railway Engineering (Fri)

Garvie Freeman  
Supervisor, Metro Rail Division  
Niagara Frontier Transportation Authority (NFTA)/Metro System

• Introduce how NFTA runs the metro system in Buffalo
Academic: Lectures and Projects

• Highway Transportation (Tue)
  • Project: Traffic Simulation and Signal Optimization

Adel Sadek
Professor and Director of Graduate Studies
Civil, Structural and Environmental Engineering, UB

• Collect real-world traffic volume data at an intersection
• Design and optimize traffic signal plans by SYHCRON
Academic: Lectures and Projects

- Traffic Safety and Human Factors (Wed)
  - Project: Driving Simulator

  **Jingyan Wan**
  Ph.D. Candidate
  Department of Industrial & Systems Engineering, UB

- Learn how researchers use driving simulation laboratories to safely conduct human factors research,
- Develop and test “driving” scenarios using UB’s state-of-the-art driving simulator.
Academic: Lectures and Projects

• Multi-modal Traffic Signal Control (Wed)
  • Project: Manual multi-modal signal control

Nan Ding
Ph.D. Candidate
Department of Industrial & Systems Engineering, UB

• Learn how to be a police officer!
• Control multimodal traffic at an intersection, including pedestrians, buses and passenger cars.
• Compete with results from police officer
Academic: Lectures and Projects

- Construction and Transportation Infrastructure (Thu)
  - Project: Bridge Design

Mettupalayam V. Sivaselvan & Jongmin Shim
Assistant Professor
Department of Civil, Structural and Environmental Engineering, UB

- Introduce basic knowledge of building a bridge
- Design your own bridge with lowest costs
Field Trips

- Trip 1: Land transportation (Tue):
  - Bus garage at Niagara Frontier Transportation Authority (NFTA)
  - Traffic operation center at Niagara International Transportation Technology Coalition (NITTEC)
Field Trips

• Trip 2: Water transportation (Wed):
  • Erie canal at Lockport
  • “Locking through” and being raised the 49 ft. elevation
Field Trips

- Trip 3: Air transportation (Thu)
  - Airport Control Tower
  - AirField Tour

Brady Zdrojewski
Support Specialist

Thomas C. Dames
Airfield Superintendent,
Enhancement

- Leadership, Team Build and Communication Skills (Mon)

**Jude Butch & Terri Budek**  
Leadership Programming Coordinator  
Center for Student Leadership & Community Engagement
Enhancement

• College Preparation and Admission Process (Mon)

Amanda Casali
Admissions Advisor
Office of Admissions, UB
Enhancement

- Computer lab and PowerPoint Presentation Preparation (Fri)

Ming Ni & Charles Asamoah
NSTI Staff
<table>
<thead>
<tr>
<th>NO</th>
<th>FIRST NAME</th>
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