K-12 Workforce Development

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LTAP Region IV Meeting
Why?

• The transportation profession is losing over half of the state agency transportation engineers and many more local agency professionals as baby boomers retire.

• This shortage has increased demand on universities to work harder at recruiting more and brighter students to the field.
UFTI Outreach Activities

• LEGO Robots – Vehicle Lesson Plans for Secondary Education
• GatorTRAX
• UF Engineering Fair
• Family Engineering
• Transportation Career Day
• Engineers Change the World – A Hands-on Workshop for Girls
In April 2011, T2 began work on the USDOT Tier 1 UTC-funded grant developing lesson plans to introduce students in grades 5-8 to Transportation Engineering as a potential career path using LEGO Robots as an intelligent vehicle.
LEGO® Robot Vehicle Lesson Plans

Lesson plans include five modules:

- What do Transportation Engineers do?
- LEGO® Education Software Tutorials for an Intelligent Vehicle
- Pulling over for Emergency Vehicle, Following a Bus Route Programming Exercise
- Stopping at an Intersection and Calculating Travel Time Exercise
- Pedestrian and Vehicle Detection Exercise
7 workshops have been conducted with 75 students participating.

The curriculum is available online and has been downloaded by 75 educators.

http://www.t2ctt.ce.ufl.edu/Forms.asp?MODE=NEW&Forms_FormTypeID=-17

Curriculum is being utilized by FIU and NCSU as part of the STRIDE regional UTC.
May 2011, the US Department of Transportation announced a National Education Initiative for Girls and Young Women in Science, Technology, Engineering and Math (STEM), named Transportation YOU.

Partnering with the UF-WTS student chapter, we developed an Outreach Action Plan for 13- to 18-year old girls and submitted this plan as a partnership application.

Applied for Education Blueprint grant for LEGO materials.
Student Volunteers from ITE and WTS Join Forces
GatorTRAX is a once a month, Saturday morning program for students K-12 to conduct hands-on activities run by various student engineering chapters. It is organized by student volunteers from the engineering honor society Tau Beta Pi and the University of Florida's College of Engineering.
Engineering Fair
Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE) – Regional UTC

Funded K-12 workforce development effort

- LEGO Robots – Vehicle Lesson Plans for Secondary Education
- Transportation Career Day
- Family Engineering
Transportation Career Day

- Faculty presentation – What is Transportation Engineering?
- Panel of UF students – What you need to know?
- Signal Lab Tour
- Traffic Simulation Workshop
- Jeopardy Game
Family Engineering

• To engage families in engineering with fun, hands-on activities
• To increase public appreciation and understanding of the role engineering plays in everyday life
• To introduce children at an early age to the many career opportunities in engineering
• To increase parents’ interest in and ability to encourage their children to pursue an engineering career
Family Engineering
Family Engineering Event with 158 students in attendance
Engineers Change the World
A Hands-on Workshop for Girls

• NCSU and UF STRIDE project
• Less than 20% of university engineering students are women
• 11% of registered professional engineers are women
• A significant part of the talent pool isn't even considering engineering as a career – missing out on some of the best and brightest
• Many young adults look to mentors and role models when contemplating career choices. Girls may not consider a career in engineering due to the lack of female engineering role models and mentors.
Engineers Change the World
A Hands-on Workshop for Girls

• Labor shortages predicted
• Good diversity tends to relate to better outcome, such as increased innovation and profitability
• Engineering is a well paid, stable career choice that our best and brightest should consider.
Engineers Change the World
A Hands-on Workshop for Girls

- Speakers, women engineers from throughout the state, will discuss their goals, ambitions, and experiences.
- Teach students engineering is all about solving problems and helping communities.
- Utilize hands-on activities to help students understand engineering.
Partners Include

Woman’s Transportation Seminar (WTS) International,
WTS North Florida and Central Florida Chapters
   UF WTS Student Chapter
   UF ITE Student Chapter
Lawton Chiles Elementary
   Williams Elementary
Kimball Wiles Elementary
PK Yonge Research School
   Lincoln Middle School
   Bishop Middle School
   Mebane Middle School
   Boone High School
   Arlington Middle School
   Cade Museum
21st Century Community Learning Center
   Girl Scouts of Gateway Council
UF Center for Pre-collegiate Education and Training
   University of North Florida
National Transportation Workforce Summit

UF committed $10,000 sponsorship to the summit to be held in Washington DC spring 2012
More Information on UFTI Outreach Activities

http://www.stride.ce.ufl.edu/workforce-development

Any Questions?