ITS Joint Program Office

Building the Future Transportation Workforce: Expanding Learning Opportunities

Mac Lister, ITS PCB Program Manager and Liz Greer, Noblis
January 15, 2013
Agenda

- Background on ITS Job Market
- Role of ITS PCB
- New Offerings for 2014
- Future Plans
- Research Needs
- Discussion
### Average salary of ITS jobs in the United States in US$, 2009

<table>
<thead>
<tr>
<th>Category</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. average</td>
<td>42,270</td>
</tr>
<tr>
<td>Technician/skilled labor</td>
<td>46,000</td>
</tr>
<tr>
<td>Other</td>
<td>56,000</td>
</tr>
<tr>
<td>Finance</td>
<td>69,000</td>
</tr>
<tr>
<td>ITS average</td>
<td>75,000</td>
</tr>
<tr>
<td>Hardware developer</td>
<td>79,000</td>
</tr>
<tr>
<td>Other Engineering</td>
<td>79,000</td>
</tr>
<tr>
<td>Software developer</td>
<td>79,000</td>
</tr>
<tr>
<td>Legal</td>
<td>99,000</td>
</tr>
<tr>
<td>Marketing/sales</td>
<td>103,000</td>
</tr>
<tr>
<td>Management</td>
<td>117,000</td>
</tr>
</tbody>
</table>

Challenges

- Fifty percent of the current workforce is or will become eligible for retirement over the next 10 years.
- Increased competition from other fields for a smaller pool of skilled workers.
- Need for substantially different skill sets and abilities to respond to rapidly changing demands and a transforming industry.
- Responding to different learning styles of younger workers.
Role of the ITS PCB Program

- Part of U.S. DOT RITA ITS Joint Program Office (ITS JPO)
- Authorized by Congress in 1996 to develop the workforce competencies to transform the transportation infrastructure through ITS
- Reauthorized by Moving Ahead for Progress in the 21st Century (MAP-21)
- In 2010 embarked on new strategic direction:
  - Develop new ITS content and fill gaps in existing content.
  - Build partnerships to direct learning to the right audiences.
  - Move to cost-effective, engaging delivery methods.
Broadening the Audience

- Traditional ITS Roles:
  - Decision Makers
  - Program Managers
  - Designers/Engineers
  - Planners
  - Technicians
  - Academics:
    - Faculty
    - Researcher

Role matters more than organization in designing learning.

Use new channels to reach these audiences.

- New Focus on:
  - Students
  - Multi-modal
  - Early Adopters
  - Connected Vehicle

Image Source: Thinkstock/USDOT
## Expanding the Program Content

<table>
<thead>
<tr>
<th>Tier 1: Emerging Technologies</th>
<th>Tier 2: Current Research</th>
<th>Tier 3: Existing Technologies</th>
<th>Tier 4: Foundational Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Connected Vehicle:</td>
<td>• Short-term Intermodal Research</td>
<td>• Arterial Management</td>
<td>• Standards</td>
</tr>
<tr>
<td>• V2V</td>
<td>• Research Initiatives</td>
<td>• Freeway Management</td>
<td>• ITS Architecture</td>
</tr>
<tr>
<td>• V2I</td>
<td>• ICM</td>
<td>• Crash Prevention &amp; Safety</td>
<td>• Systems Engineering</td>
</tr>
<tr>
<td>• Safety Pilot</td>
<td>• MSAA</td>
<td>• Road Weather Management</td>
<td>• Telecommunications</td>
</tr>
<tr>
<td>• Real Time Data Capture &amp; Mgmt.</td>
<td>• Clarus</td>
<td>• Roadway Ops &amp; Maintenance</td>
<td>• DSRC</td>
</tr>
<tr>
<td>• DMA</td>
<td>• IVBSS</td>
<td></td>
<td>• Data Collection &amp; Mgmt.</td>
</tr>
<tr>
<td>• AERIS</td>
<td>• EFM</td>
<td></td>
<td>• Security</td>
</tr>
<tr>
<td>• Road Weather</td>
<td>• Smart Roadside</td>
<td></td>
<td>• Data Communications</td>
</tr>
<tr>
<td>• Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Policy</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Developing New Learning Resources

- **ITS Resources for problem-based learning:**
  - ePrimer – online December 2013
  - ITS Case Studies
    - Adaptive Signal Control
    - National Architecture

- **Online learning:**
  - ITS Standards – 36 modules
  - ITS Transit Standards – coming soon
  - New eLearning Courses from CITE:
    - Telecommunications and Networking Fundamentals
    - Network Design and Deployment Considerations for ITS Managers

- **Professional Certificate programs:**
  - ITS Project Management
  - Traffic Engineering and Operations
  - ITS Systems
  - Road Weather Management

[www.pcb.its.dot.gov](http://www.pcb.its.dot.gov)
Developing New Learning Resources

- Expanded T3 program, with improved T3 archive
- Expanded workshops at ITS America state chapter meetings
  - Connected Vehicle 101
  - ICM, Procurement, Improving Safety
  - Student participation welcome
- University Workshop, Sept. 2013 and Spring 2014

Upcoming T3 Webinar: University ITS Education, hosted by Mohammed Hadi, Ph.D.
Date: Thursday, February 6, 2014
Time: 1:00 PM – 2:30 PM ET
Cost: All T3 webinars are free of charge
PDH: 1.5

www.pcb.its.dot.gov

Participants in ITS PCB University Workshop, September 27, 2013, Source: U.S. DOT

Image Source: Thinkstock/USDOT
Increasing Impact

Growth in ITS PCB Participants 2010-2013

- Presentations/Workshops
- CV Training
- PCB Case Studies
- ITSA state chapter WS (non CV)
- eLearning (CITE)
- P2P Exchanges
- T3s
- Standards Training Modules

U.S. Department of Transportation
Research and Innovative Technology Administration
ITS Joint Program Office
ITS PCB Future Plans

- Develop three credit introductory ITS course
  - Online or instructor-led
  - Course designs for undergraduate and graduate civil engineering students
- Develop an ITS curriculum using the skills and competency structure
  - Supplemented by ITS learning resources
- Develop additional ITS resources for problem based-learning
  - Additional ITS PCB case studies
  - Guest lecture videos
- Develop pilot with a university to offer credit for an online ITS course
- Continue dialogue with Operations Center of Excellence
- Continue dialogue with university partners – Spring 2014 workshop
Research Needs

- Gather data on:
  - ITS skills and competencies needed by public and private sector employers
  - Current and future hiring needs
- Update and expand ITS Competencies and Skills table categories:
  - Include next generation ITS technologies (connected / autonomous vehicles)
  - Add ITS-related professional competency areas (standards, communication and collaboration)
- Provide guidance on updated ITS Competencies and Skills tables:
  - For academic institutions, learning providers, and instructional designers
  - To inform development, and delivery of education and training courses and programs.