

Other ITS PCB Resources (10:15-10:35)

- ITS ePrimer (ITE)
- ITS Standards / ITS Transit Standards (ITE)
- SBIR Grants -
 - MS / HS ITS/CV/AV Lesson Plans
 - Community College / Trade School ITS/CV/AV Lesson Plans
- T3 Webinars
- ITE Student Chapter Outreach (ITE / NCSU)
- Other ITE relevant activities (10:35-10:45)



ITS ePrimer

- Collaboration ITE, APTA and ITS America
- 14 online modules, with multi-medial examples
- Key elements include:
 - Technical content
 - Navigation to individual modules
 - Links to video and interactive material
 - Training and resource links
 - Feedback links
- Posted 2014
- Updates 2016-2017
- 4 webinars in March 2016 covering 7 updated modules

United States Department of Transportation
 OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY
 Intelligent Transportation Systems Joint Program Office

ITS Professional Capacity Building Program / Advancing ITS Education

Knowledge Exchange

ITS ePrimer

Welcome to the ITS ePrimer!
 The ITS ePrimer provides transportation professionals with fundamental concepts and practices related to ITS technologies. This online resource can help practicing professionals and students better understand how ITS is integrated into the planning, design, deployment, and operations of surface transportation systems. The ITS ePrimer is both a stand-alone reference document for the practitioner as well as a text for education and training programs.

Please use the option to send feedback as you read through the ePrimer. The ITS PCB Program welcomes your comments and suggestions.

To view a module, click its plus button +.

Click to expand and view modules		View All +	
Module 1 Introduction to ITS	+	Module 8 Electronic Toll Collection and Pricing	+
Module 2 Systems Engineering	+	Module 9 Supporting ITS Technologies	+
Module 3 Transportation Management Systems	+	Module 10 Rural and Regional ITS Applications	+
Module 4 Traffic Operations	+	Module 11 Sustainable Transportation	+
Module 5 Personal Transportation	+	Module 12 Institutional Issues	+
Module 6 Freight, Intermodal, and CVO	+	Module 13 Connected Vehicles	+
Module 7 Public Transportation	+	Module 14 Emerging Issues	+

The ITS PCB Program would like to acknowledge the following individuals who volunteered their time to review the modules.

The ITS ePrimer is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or the use thereof. Content in the ePrimer does not constitute standards, specifications, or regulations. The United States Government does not endorse products or manufacturers mentioned in the ePrimer. Trade and manufacturers' names appear in the ePrimer only because they are considered essential to the object of the document.



ITS ePrimer

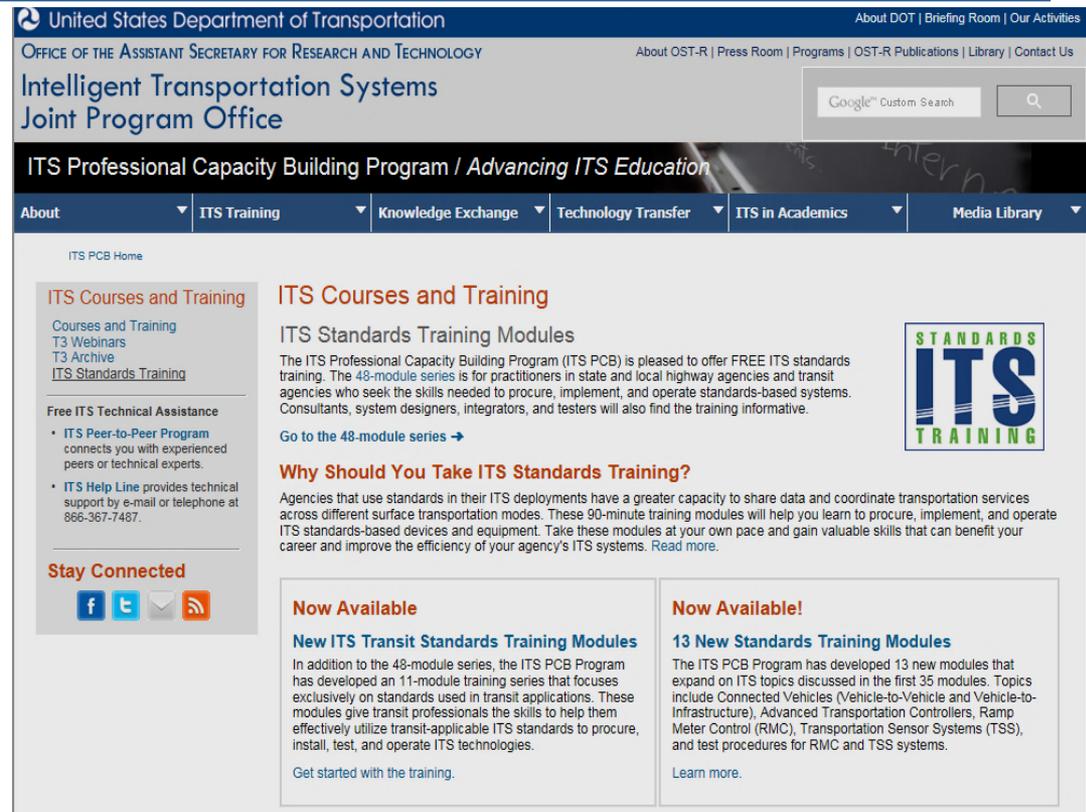
Module 1 Introduction to ITS Updated 2016 	Module 8 Electronic Toll Collection and Pricing Updated 2016 
Module 2 Systems Engineering 2017 	Module 9 Supporting ITS Technologies 2017 
Module 3 Transportation Management Systems 2017 	Module 10 Rural and Regional ITS Applications 2017 
Module 4 Traffic Operations 2017 	Module 11 Sustainable Transportation 2017 
Module 5 Personal Transportation Updated 2016 	Module 12 Institutional Issues 2017 
Module 6 Freight, Intermodal, and CVO Updated 2016 	Module 13 Connected Vehicles Updated 2016 
Module 7 Public Transportation Updated 2016 	Module 14 Emerging Issues Updated 2016 

(<https://www.pcb.its.dot.gov/eprimer.aspx>)



ITS Standards / ITS Transit Standards

- FREE, 1.5-2 hour modules that teach how to procure, implement, and operate ITS standards-based devices
- First posted 2013
- 48 general ITS Standards Training Modules online
- 11 ITS Transit Standards Training online
- New Training Modules in 2017
 - 8 ITS Standards
 - 10 ITS Transit Standards
 - 8 ITS Standards updated



The screenshot shows the website for the ITS Standards Training program. The header includes the United States Department of Transportation logo and the Office of the Assistant Secretary for Research and Technology. The main navigation menu includes About, ITS Training, Knowledge Exchange, Technology Transfer, ITS in Academics, and Media Library. The page content is titled "ITS Professional Capacity Building Program / Advancing ITS Education" and features a sidebar with links to "ITS Courses and Training", "T3 Webinars", "T3 Archive", and "ITS Standards Training". The main content area has a section for "ITS Courses and Training" with a sub-section for "ITS Standards Training Modules". It describes the 48-module series and provides a link to "Go to the 48-module series". There is also a section for "Why Should You Take ITS Standards Training?" and two "Now Available" boxes: "New ITS Transit Standards Training Modules" and "13 New Standards Training Modules".



(https://www.pcb.its.dot.gov/stds_training.aspx)



General ITS Standards Training Modules

Description	Module Title	Number
MODULE 1	USING ITS STANDARDS: AN OVERVIEW	I101
MODULE 2	INTRODUCTION TO ACQUIRING STANDARDS-BASED ITS SYSTEMS	A101
MODULE 3	INTRODUCTION TO USER NEEDS IDENTIFICATION	A102
MODULE 4	INTRODUCTION TO ITS STANDARDS REQUIREMENTS DEVELOPMENT	A103
MODULE 5	INTRODUCTION TO ITS STANDARDS TESTING	T101
MODULE 6	DETAILS ON ACQUIRING STANDARDS-BASED ITS SYSTEMS	A201
MODULE 7	IDENTIFYING AND WRITING USER NEEDS WHEN ITS STANDARDS DO NOT HAVE SEP CONTENT	A202
MODULE 8	WRITING REQUIREMENTS WHEN ITS STANDARDS DO NOT HAVE SEP CONTENT	A203
MODULE 9	HOW TO WRITE A TEST PLAN	T201
MODULE 10	UNDERSTANDING USER NEEDS FOR DMS SYSTEMS BASED ON NTCIP 1203 STANDARD	A311a
MODULE 11	UNDERSTANDING USER NEEDS FOR ESS SYSTEMS BASED ON NTCIP 1204 v03 STANDARD	A313a
MODULE 12	UNDERSTANDING USER NEEDS FOR TRAFFIC MANAGEMENT SYSTEMS BASED ON TMDD v3 STANDARD	A321a
MODULE 13	OVERVIEW OF TEST DESIGN SPECIFICATIONS, TEST CASES, AND TEST PROCEDURES	T202
MODULE 14	SPECIFYING REQUIREMENTS FOR DMS SYSTEMS BASED ON NTCIP 1203 STANDARD	A311b
MODULE 15	SPECIFYING REQUIREMENTS FOR ESS SYSTEMS BASED ON NTCIP 1204 v03 STANDARD	A313b
MODULE 16	SPECIFYING REQUIREMENTS FOR TRAFFIC MANAGEMENT SYSTEMS BASED ON TMDD v03 STANDARD	A321b
MODULE 17	APPLYING YOUR TEST PLAN TO THE NTCIP 1203 v03 DMS STANDARD	T311
MODULE 18	APPLYING YOUR TEST PLAN TO THE NTCIP 1204 v03 ESS STANDARD	T313
MODULE 19	INTRODUCTION TO THE COMMUNICATIONS PROTOCOLS AND THEIR USES IN ITS APPLICATIONS	C101
MODULE 22	UNDERSTANDING USER NEEDS FOR TRANSPORTATION SENSOR SYSTEMS (TSS) BASED ON NTCIP 1209 STANDARD	A312a
MODULE 23	SPECIFYING REQUIREMENTS FOR TRANSPORTATION SENSOR SYSTEMS (TSS) BASED ON NTCIP 1209 STANDARD	A312b
MODULE 24	UNDERSTANDING USER NEEDS FOR FIELD MANAGEMENT STATIONS - PART 1 OBJECT DEFINITIONS FOR SIGNAL SYSTEM MASTERS BASED ON NTCIP 1210 STANDARD	A304a
MODULE 25	SPECIFYING REQUIREMENTS FOR FIELD MANAGEMENT STATIONS - PART 1 OBJECT DEFINITIONS FOR SIGNAL SYSTEM MASTERS (SSM) BASED ON NTCIP 1210 STANDARD	A304b
MODULE 26	UNDERSTANDING USER NEEDS FOR ELECTRICAL AND LIGHTING MANAGEMENT BASED ON NTCIP 1213 STANDARD	A306a
MODULE 27	SPECIFYING REQUIREMENTS FOR ELECTRICAL AND LIGHTING MANAGEMENT BASED ON NTCIP 1213 STANDARD	A306b
MODULE 28	BUILDING AN ITS INFRASTRUCTURE BASED ON THE ADVANCED TRANSPORTATION CONTROLLER (ATC) 5201 STANDARD - PART 1 OF 2	A207a

Description	Module Title	Number
MODULE 29	BUILDING AN ITS INFRASTRUCTURE BASED ON THE ADVANCED TRANSPORTATION CONTROLLER (ATC) 5201 STANDARD - PART 2 OF 2	A207b
MODULE 30	APPLYING YOUR TEST PLAN TO THE TMDD STANDARD	T321
MODULE 31	UNDERSTANDING USER NEEDS FOR ACTUATED TRAFFIC SIGNAL CONTROLLERS (ASC) BASED ON NTCIP 1202 STANDARD	A315a
MODULE 32	UNDERSTANDING REQUIREMENTS FOR ACTUATED TRAFFIC SIGNAL CONTROLLERS (ASC) BASED ON NTCIP 1202 STANDARD PART 1 OF 2	A315b
MODULE 33	UNDERSTANDING USER NEEDS FOR CCTV SYSTEMS BASED ON NTCIP 1205 STANDARD	A317a
MODULE 34	UNDERSTANDING REQUIREMENTS FOR CCTV SYSTEMS BASED ON NTCIP 1205 STANDARD	A317b
MODULE 35	APPLYING YOUR TEST PLAN TO THE NTCIP 1202 ASC STANDARD	T315
MODULE 36	APPLYING YOUR TEST PLAN TO NTCIP 1205 STANDARD	T317
MODULE 37	USING THE ATC 5401 APPLICATION PROGRAMMING INTERFACE (API) STANDARD TO LEVERAGE ITS INFRASTRUCTURES	A208
MODULE 38	Vehicle-to-Vehicle (V2V) ITS Standards for Project Managers	I262
MODULE 39	Understanding User Needs for Advanced Transportation Controllers Based on ATC 5201 Standard v06	A307a
MODULE 40	Understanding User Needs for Ramp Meter Control (RMC) Units Based on NTCIP 1207 Standard v02	A309a
MODULE 41	How to Develop Test Cases for an ITS Standards-based Test Plan	T203, Part 1 of 2
MODULE 42	Understanding Requirements for Actuated Traffic Signal Controllers (ASC) Based on NTCIP 1202 Standard, Part 2 of 2	A315b, Part 2 of 2
MODULE 43	Vehicle-to-Infrastructure (V2I) ITS Standards for Project Managers	I261
MODULE 44	Understanding Requirements for Advanced Transportation Controllers Based on ATC 5201 Standard v06	A307b
MODULE 45	Understanding Requirements for Ramp Meter Control (RMC) Units Based on NTCIP 1207 Standard v02	A309b
MODULE 46	How to Develop Test Cases for an ITS Standards-based Test Plan, Part 2 of 2	T203, Part 2 of 2
MODULE 47	How to Develop Test Procedures for ITS Standards-based Test Plan, Part 1 of 2	T204, Part 1 of 2
MODULE 48	How to Develop Test Procedures for ITS Standards-based Test Plan, Part 2 of 2	T204 Part 2 of 2
MODULE 49	Applying Your Test Plan to a Transportation Sensor System (TSS) Based on the NTCIP 1209 Standard v02	T312
MODULE 50	Applying Your Test Plan to Ramp Meter Control (RMC) Units Based on the NTCIP 1207 Standard v02	T309



ITS Transit Standards Training Modules

Description	Module Title
MODULE 1	Introduction to ITS Transit Standards
MODULE 2	Transit Management Standards, Part 1 of 2
MODULE 3	Transit Communications Interface Profiles (TCIP), Part 1 of 2: Introduction to the Standard and Transit Architectures
MODULE 4	Transit Communications Interface Profiles (TCIP), Part 2 of 2: Structure and Elements of TCIP—Accessing TCIP via TIRCE and TCIP Tools
MODULE 5	Transit Management Standards, Part 2 of 2
MODULE 6	Traveler Information, Part 1 of 2
MODULE 7	Traveler Information, Part 2 of 2
MODULE 8	Arterial Management and Transit Signal Priority: Understanding User Needs for Signal Control Priority (SCP) Based on NTCIP 1211 Standard, Part 1 of 2
MODULE 9	Arterial Management and Transit Signal Priority: Specifying Requirements for Signal Control Priority (SCP) Based on NTCIP 1211 Standard, Part 2 of 2
MODULE 10	Electronic Fare Payment Systems
MODULE 11	Transit and the Connected Vehicle Environment/Emerging Technologies, Applications, and Future Platforms

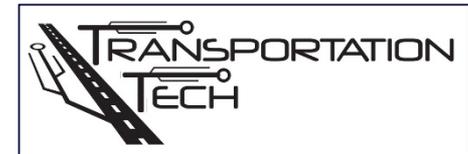


Small Business Innovative Research Grants

- Using SBIR Grants since 2014
- 2 SBIR-funded trials underway to develop ITS-CV educational lesson plans for secondary and higher education use
- Small businesses plan to expand their educational products well beyond their partner schools over the next couple of years.
- NanoSonic, Inc. (Dr. Richard Claus)
 - ✓ Secondary education ITS-CV curricula and supplemental demonstration packages
 - ✓ Giles County School District, Virginia
 - ✓ Completion September 2017



- Integrated Global Dimensions, LLC (Valerie Lefler)
 - ✓ Transportation Tech: Community Colleges / Technical Schools ITS-CV Curricula and Credential Development (resource catalog & network)
 - ✓ Metropolitan Community College in Omaha, Nebraska
 - ✓ Completion September 2018



T3* Webinars

* Talking Transportation Technologies

The screenshot shows the website for the ITS Professional Capacity Building Program. The header includes the United States Department of Transportation logo and navigation links like 'About DOT', 'Briefing Room', and 'Our Activities'. The main navigation bar has categories such as 'About', 'ITS Training', 'Knowledge Exchange', 'Technology Transfer', 'ITS in Academics', and 'Media Library'. The main content area is titled 'ITS Courses and Training' and features a sidebar with links to 'Courses and Training', 'T3 Webinars', 'T3 Archive', and 'ITS Standards Training'. The main text describes the T3 Webinars as free, 90-minute interactive online meetings. It also lists two options: 'T3 Lites' and 'T3e'. Below this is a 'T3 Webinar Schedule' table and a 'Recent T3 Webinars' table.

ITS Courses and Training

Talking Technology and Transportation (T3) Webinars

ITS Training Brought to Your Desktop

Talking Technology and Transportation (T3) Webinars are designed to help agencies feel confident about deploying ITS technologies as a means to address challenges in their transportation systems. These free, 90-minute, interactive online meetings offer knowledge sharing on topics related to ITS planning, design, procurement, deployment, and operations. The goal of the T3 Webinar Program is to increase the planning and technical capabilities of the ITS workforce, leading to a greater number of integrated, strategic, and effectively-deployed ITS system.

In addition to the standard 90-minute T3 webinar, the PCB Program is now offering two T3 webinar options: **T3 Lites** feature one presenter on a specific ITS-related topic or a student research project for 20-30 minutes followed by a question and answer period and **T3e** webinars focus on emerging research from academia.

T3 Webinar Schedule

Date	Time	T3 Webinar Title	Location	Sponsor
September 28, 2016	1:00-2:30 PM ET	Next Generation Traveler Information—Agency Social Media	Online	ITS PCB
October 5, 2016	1:00-2:30 PM ET	Strategies for Implementing Open and Mobile Payment Systems	Online	ITS PCB

Recent T3 Webinars

Date	T3 Webinar Title	Webinar Replay
August 3, 2016	Supporting Freight Operations with ITS	Available in September
July 28, 2016	Connected Vehicles and Rural Road Weather Management	Available in September
June 16, 2016	Network-Wide Impacts of Connected Vehicles on Mobility: An Agent-Based Modeling Approach	Available now
May 26, 2016	Sustainable Urban Traffic Management Using Advanced Technologies	Available now
May 10, 2016	Adapting to Climate Change Using Intelligent Transportation Systems	Available now
April 14, 2016	Give Your Customers More Mobility Options! Utilizing Technology in Coordinated Human Services Transportation Systems	Available now

(https://www.pcb.its.dot.gov/t3_webinars.aspx)



U.S. Department of Transportation
ITS Joint Program Office

T3 Webinars and Archive

- Online, 90 minute, interactive seminars
- FREE by ITS PCB Program
- Past webinars available through T3 archive (posted 3-4 weeks after live event)
- Professional Development Hours (PDHs) eligible
- Invite T3 Webinars proposal:
 - Highlight an ITS related case study, problem solving challenge, or topic
- To join announcement list:
 - Send email to T3@dot.gov with the subject line "Add to Email List."

Just added to T3 Archive:

- Supporting Freight Operations with ITS
- Connected Vehicle and Rural Road Weather Management



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Register at: <https://www.pcb.its.dot.gov/>

T3 Webinar Series:

- Automated Vehicle Awareness Series (2015-2017)
- Open Payment Series (2016-2017)
- Mobility On Demand Series (2017-2019)
- Smart Cities Awareness Series (2017-2020)



ITE Student Chapter Outreach

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Free ITS Technical Assistance

- [ITS Peer-to-Peer Program](#) connects you with experienced peers or technical experts.
- [ITS Help Line](#) provides technical support by e-mail or telephone at [866-367-7487](tel:866-367-7487) **FREE**.

Stay Connected

ITE Student Chapter Series

The ITE Student Chapter series provides current ITS information to students at the undergraduate and graduate level within civil engineering/transportation programs. These presentations demonstrate to students the interdisciplinary nature of highways, transit, infrastructure, and other multimodal requirements within roadway systems.

Presentation 1

Intelligent Transportation Systems: Is it the Right Career Choice for You?

Note: The content on this page is a 508-compliant version of the PowerPoint presentation. The PowerPoint file and a PDF of the PowerPoint presentation are available for download to the right.

Slide 1: Intelligent Transportation Systems: Is it the Right Career Choice for You?

Other Presentation 1 formats

[PPT](#) [PDF](#)

ITE Student Chapter Series

1. Intelligent Transportation Systems: Is it the Right Career Choice for You?
2. ITS Technologies: How Do I Prepare For a Career?
3. ITS Grand Challenges: How Can You Help Meet Them?

Companion Brochure

ITS Career Possibilities:
Three Real World Cases

A Community of Transportation Professionals



ITE Student Chapter ITS Series

Developed for the ITS Joint Program Office

- 1) Intelligent Transportation Systems: Is it the Right Career Choice for You? *(23 slides)*
 - 2) ITS Grand Challenges: How Can You Help Meet Them? *(21 slides)*
 - 3) ITS Technologies: How Do I Prepare For a Career? *(20 slides)*
- + 3 brief ITS Career Case Study briefs

