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25th International Training Course (ITC-25) on the Physical Protection of Nuclear Facilities and Materials Evaluation

April 20 – May 8, 2015

Michelle J. Overholt

Prepared by
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Albuquerque, New Mexico 87185 and Livermore, California 94550

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25th International Training Course (ITC-25) on the Physical Protection of Nuclear Facilities and Materials Evaluation Report

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Abstract

The goal of this evaluation report is to provide the information necessary to improve the effectiveness of the ITC provided to the International Atomic Energy Agency Member States. This report examines ITC-25 training content, delivery methods, scheduling, and logistics. Ultimately, this report evaluates whether the course provides the knowledge and skills necessary to meet the students' needs in the protection of nuclear materials and facilities.

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Executive Summary

Course Introduction

The Twenty-Fifth International Training Course (ITC-25) on the Physical Protection of Nuclear Facilities and Materials was held in Albuquerque, New Mexico, from April 20 through May 8, 2015. The goal of the ITC-25 was to enable students to apply the principles of a performance-based methodology to design and evaluate the physical protection of nuclear materials and facilities against the threat of theft or sabotage.

Improvements from the Twenty-Fourth International Training Course

Course organizers reviewed data from the Twenty-Fourth International Training Course to determine necessary course improvements. This year, there were several course improvements. These included the implementation of IPad's simulations to further decrease printing costs and add more tablet functionality. The course materials were updated to present more of a focus on INFCIRC 225 Revision 5, two modules were added to the course, and part of the adversary sequence diagram section was moved forward in an attempt to provide clarity around that topic for the students.

Evaluation Report

The goal of this evaluation report is to provide the information necessary to improve the effectiveness of the ITC provided to the International Atomic Energy Agency Member States. This report examines ITC-25 training content, delivery methods, scheduling, and logistics. Ultimately, this report evaluates whether the course provides the knowledge and skills necessary to meet the students' needs in learning about the protection of nuclear materials and facilities. The students provided both quantitative and qualitative feedback on the course when they completed the daily module evaluation and the final course evaluation form located in the Course Evaluation Results section. The evaluation forms covered the following topics: module lectures and related subgroups, and guest lectures. This report also contains valuable recommendations for course improvement provided by students, instructors, subgroup leaders, and Sandia National Laboratories staff involved in the event. These suggestions are located in the recommendations section of this report.

Course Evaluation Results

ITC-25 students provided high ratings for course lectures, subgroups, guest lectures, and field trips, as referenced in the Course Evaluation Results Section and Appendix A. Students expressed that the course was well organized and that they acquired an understanding of the Design and Evaluation Process Outline methodology. The course exposed students to the importance of having a good physical protection system. Student quiz results revealed varying degrees of comprehension of course material. Quiz results were used as data points to determine topics for morning reviews as well as areas of course improvement within individual modules.

Acronyms

ASD	Adversary Sequence Diagram
CDP	critical detection point
CTA	Central Training Academy
DBT	Design Basis Threat
DEPO	Design and Evaluation Process Outline
DOE	Department of Energy
IAEA	International Atomic Energy Agency
INFCIRC	Information Circular
ITC-25	25th International Training Course: The Physical Protection of Nuclear Facilities and Materials
LIMP	Lagassi Institute of Medicine and Physics
MTS	Material Transportation System
NBR	Neutron Burst Reactor
NNSA	National Nuclear Security Administration
NPP	nuclear power plant
NRC	Nuclear Regulatory Commission
NTC	National Training Center
PPS	physical protection system
PANL	Path Analysis Tool
PN	Probability of Neutralization
PTR	Pool Type Reactor
SNL	Sandia National Laboratories
SPO	Security Police Officer
VEASI	Very Easy Estimate of Adversary Sequence Interruption
MP VEASI	Multipath Very Easy Estimate of Adversary Sequence Interruption

1.0 Introduction to ITC-25

The Twenty-Fifth International Training Course (ITC-25) on the Physical Protection of Nuclear Facilities and Materials was held in Albuquerque, New Mexico, from April 20 through May 8, 2015, at Sandia National Laboratories. The goal of the ITC-25 was to enable students to apply the principles of a performance-based methodology to design and evaluate the physical protection of nuclear materials and facilities against the threat of theft or sabotage.

The U.S Department of Energy's (DOE) National Nuclear Security Administration (NNSA) and the International Atomic Energy Agency (IAEA) jointly sponsored the ITC-25. The sponsors expected the students to gain knowledge of the Design and Evaluation process Outline (DEPO), including skills necessary to conduct an evaluation of their own physical protection system (PPS). Upon returning to their countries of origin, students in the course should be able to understand and apply the principles for the design and evaluation of their facility's PPS, or otherwise use the knowledge and skills gained to increase their state's awareness and capabilities in the area of physical protection.

1.1 Purpose of Evaluation Report

The goal of this evaluation report is to provide the information necessary to improve the effectiveness of the ITC program provided to the IAEA member states. Course students are professionally involved in the management, regulation, and operation of security systems at nuclear facilities.

1.2 Objectives

The objectives of this report are to:

- Report the results of the course evaluation
- Identify improvements needed in course lesson content; these may include relevance of material and appropriateness of level of material required to provide the knowledge and skills necessary to meet students' needs in the protection of nuclear material and facilities
- Identify improvements needed to ensure a clear systematic approach is presented
- Identify changes to overall course organization to ensure optimum use of time, instructor lectures, and associated subgroup content

1.3 Ownership

The ITC-25 was sponsored by Sandia National Laboratories (SNL), the DOE/NNSA, the U.S. Department of State, and the IAEA. SNL's International Physical Security Department organized the three-week course. Stephen Ortiz, Department Manager, was the Course Director. Michelle Overholt, Instruction Designer, produced the IPad applications and course material transfer to the devices, and was the training consultant for the subgroup instructors. Robert Otero, International Protocol, coordinated all logistical support for the course and students.

1.4 Scope

The course content consisted of 29 modules plus a final exercise that covered the DEPO model as it applies to PPS. This model, illustrated in Figure 1, includes the following steps: 1) Define PPS requirements, 2) Design the PPS, and 3) Evaluate the PPS. There were also guest lecturers from U.S government agencies and ITC Alumni from various countries.

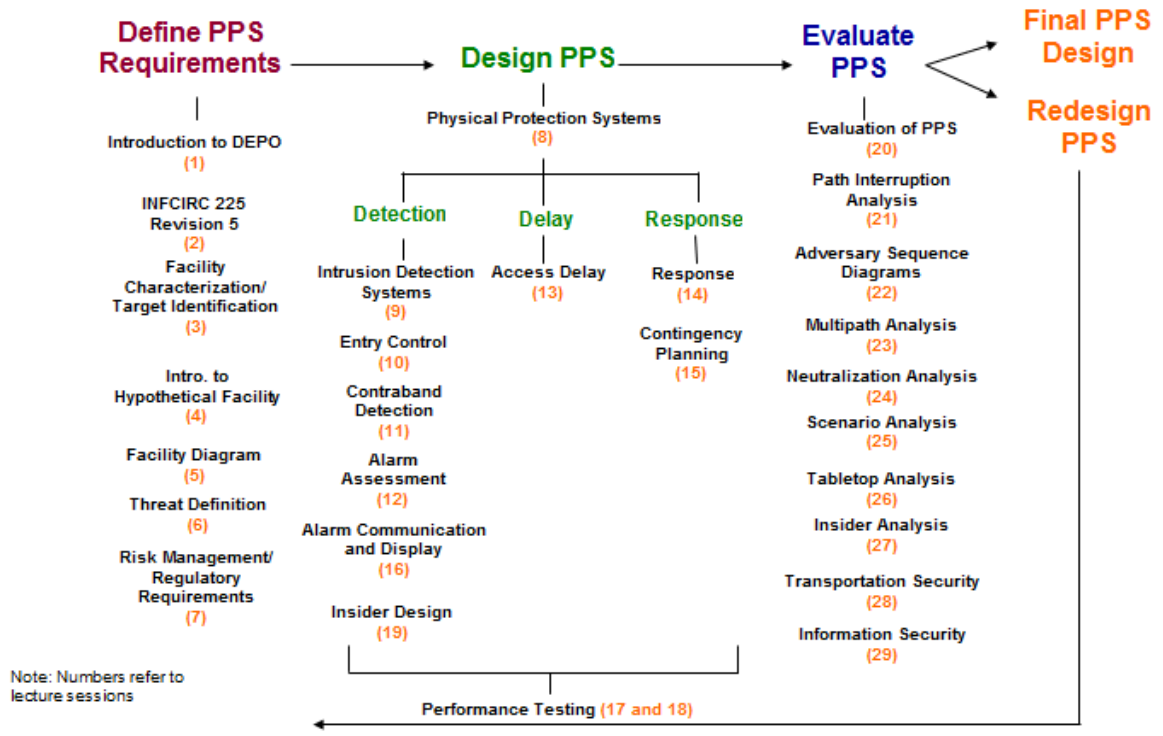


Figure 1. Design and Evaluation Process Outline

ITC-25 Course Introduction and Modules with Presenters

I. Define Physical Protection System (PPS) Requirements
   1. Introduction to ITC and DEPO, Stephen Ortiz
   2. INFCIRC 225 Revision 5, Mark Snell
   3. Facility Characterization and Target Identification, Bruce Berry
   4. Hypothetical Facility, Riyaz Natha
   5. Facility Diagram, Mark Snell
   6. Threat Definition, Mark Murton
   7. Risk Management and Regulatory Requirements, Carol Scharmer

II. Design Physical Protection System (PPS)
   8. Introduction to Design, Pam Kissock
   9. Intrusion Detection, Larry Miller
   10. Entry Control, Pam Kissock
   11. Contraband Detection, Chuck Rhykerd
   12. Alarm Assessment, Dave Furgal
   13. Access Delay, Tommy Goolsby
   14. Response Force, Joseph Sandoval
   15. Contingency Planning, Joseph Sandoval
   16. Alarm Communication and Display, Pam Kissock
   17. Performance Testing: Detection and Delay, Tom Mack
   18. Performance Testing: Response, Gregory Baum
   19. Insider Design, Carol Scharmer

III. Evaluate Physical Protection System (PPS)
   20. Introduction to Evaluation, Mark Snell
   21. Path Interruption Analysis, Mark Snell
   22. Adversary Sequence Diagram, Pam Kissock
   23. Multipath Analysis, Mark Snell
   24. Neutralization Analysis, Joseph Sandoval
   25. Scenario Analysis, Gregory Baum
   26. Tabletop Analysis, Gregory Baum
   27. Insider Analysis, Riyaz Natha
   28. Transportation Security, Robert Cutler
   29. Information Security, Lon Dawson
   30. Final Exercise, Riyaz Natha

ITC-25 VIP's

- Denis Flory, International Atomic Energy Agency
- Anne Harrington, National Nuclear Security Administration
- Jill Hruby, Sandia National Laboratories

ITC-25 U.S. Guest Lecturers

- Barry Westreich, NRC: Director Cyber Security

- Scott Grommes, DOE Office of Defense National Security

ITC-25 International Guest Lecturers

- Arvydas Stadalnikas, International Atomic Energy Association
- Julius Sabo, Czech Republic, NPP Security Manager
- Joselio S. Monteiro Filho, Brazil, Nuclear Energy Commission
- Jacques Aurelle, France, Deputy Director of Nuclear Defense Expertise Division

1.5 Training Methodology

The ITC-25 training course used the following primary activities and resources to teach the students the DEPO approach to PPS design and evaluation.

Lectures—SNL subject matter experts delivered the course lectures. Students attended the lectures in a large room seated at long tables, two to three per table. The DEPO flowchart was displayed in two corners of the room. PowerPoint Slides were projected onto three large screens in the front of the room. Lectures were one-to-two hours in duration and were conducted in English. There were a total of 29 DEPO lectures and 9 guest lectures.

Subgroup Exercises—The ITC-25 included 20 subgroup exercises corresponding with the DEPO module lectures. Students were divided into six subgroups, with one instructor facilitating each group. Groups were pre-selected based on technical background and areas of expertise, years of experience, regional diversity, political compatibility, and gender balance. The length of time allotted to subgroup exercises ranged from one-to-four hours, with the final subgroup lasting eighteen hours. Subgroup exercises were held in conference rooms. Posters were displayed on the walls for some of the exercises. Throughout each exercise, the lecturer moved among the subgroup rooms to enable students and subgroup instructors to ask additional questions that would clarify the lecture and/or the subgroup exercise. ITC staff also moved among the subgroup rooms to observe and assist when necessary.

The subgroup structure provided a collaborative learning environment for the students. Students were able to ask questions of the subgroup leaders and engage in conversation with their fellow subgroup members to learn about PPS techniques around the world and to develop common solutions. The final exercise involved completing a full evaluation and identifying upgrades for the PPS using the DEPO process for the Hypothetical Neutron Burst Reactor facility. Students were given two days to complete this exercise. Each subgroup presented its solutions to a panel of experts and classmates on May 8, 2015, which was the last day of the course.

In the course feedback, many students commented on the importance of interacting in a small group with their peers, which gave them an opportunity to learn about other states' approaches to PPS. Additionally, the informal and more personal environment enabled students and subgroup leaders to make professional contacts, form a team, and learn about countries and cultures different from their own.

Student Participation—Students were expected and encouraged to actively participate in the course. Students asked questions during and after each lecture in the large group setting and actively participated in completing the subgroup exercises. The final subgroup exercise

required the subgroup to evaluate a current hypothetical facility PPS and design PPS upgrades for the facility. At the end of the exercise, the students presented their analysis and recommended upgrades to a panel of PPS experts. Each student was required to present a piece of the team's final presentation.

ITC VIP Speakers – Denis Flory, Deputy Director General and Head of the Department of Nuclear Safety and Security at the IAEA delivered the key note speech for commemorating the twenty fifth anniversary of ITC that focused on the importance of the course within nuclear security and the overall mission of the IAEA.

Anne Harrington, Deputy Administrator for Defense Nuclear Nonproliferation at NNSA, welcomed students and staff with congratulatory remarks related to the strong and longtime partnership with the IAEA and their dedication to providing competent and proficient security experts across the world since 1978.

Jill Hruby, Vice President, International, Homeland and Nuclear Security from Sandia National Laboratories spoke about the work that Sandia conducts to support the IAEA's mission of global nuclear security.

Domestic Guest Speakers—The guest speaker from NRC focused on cyber security, while the Department of Energy speaker shared his experience creating a stronger training program within his organization.

International Guest Speakers—IAEA, Czech Republic, Brazil, and France presented on their individual experiences with implementing INFCIRC 225 Revision 5 in their countries.

Course Instructional Materials—ITC-25 organizers provided students IPAD's containing course materials such as reference text, PowerPoint presentations from the lectures, subgroup exercises, supporting information, and the Hypothetical Facility Exercise Data Book. Students were also provided with a hard copy exercise book and handout of the Hypothetical Facility.

Course Evaluation Process—Students completed Daily Module Evaluation forms and took short daily quizzes using Survey Monkey and Class Marker software which tested their knowledge of course content. They also completed a Final Course Evaluation. The purpose of gathering and analyzing these various sources of data is to assist the ITC team in making decisions on ITC improvements. Students provided their evaluation data anonymously.

This evaluation report presents and analyzes data that was collected during the ITC-25.

The primary instruments used for data collection were the following:

- Student Quizzes—Each day, students were asked to complete quizzes that consisted of brief six-to-twelve true-or-false and multiple-choice questions. These short quizzes on course content were given to students at the end of each day in an attempt to determine how effective the lectures and subgroups were and to confirm that the students understood the instructional objectives. Each participant used their IPAD to complete the quiz. Quiz results were reviewed at the end of each quiz with the class. This increased student participation and enthusiasm.
- Daily Module Evaluations—Students were directed to a link on their IPAD and asked to provide their feedback on lectures and subgroup activities that occurred each day. The Daily Module Evaluation survey included questions about student confidence in

performing the stated objectives as well as general questions for each presentation and subgroup (see Appendix A). Students were given specific time to complete the evaluations each day and this lead to an increase in the number of responses that were received.

- Final Course Evaluation—The final course evaluation consisted of 19 questions (rate or fill-in-the-blank) requesting assessments of the course in general.

The various evaluation instruments gave students an opportunity to provide feedback to instructors and staff during the ITC. The feedback was used to make improvements and adjustments during ITC-25 and will be used to improve and enhance ITC-26.

Although the evaluation instruments provided useful data, some challenges and issues arose:

- Students often gave patterned responses to questions in the Daily Module Evaluation Forms. Their answers showed a pattern from one subgroup to another, such as Strongly Agree, Neither Agree nor Disagree, or Agree on all lectures and subgroups.

Morning Review— Each day began with a review of the previous day's lectures. These reviews were presented according to the DEPO chart by Stephen Ortiz.

Field Trips—During ITC-25, students participated in two field trips. Field trips are helpful because they provide an effective means of demonstrating performance criteria and testing methods. The field trips also allowed the students greater access to subject matter experts, equipment, and facilities, and allow for interactions in a less formal, non-classroom-like environment. Students were able to learn about performance criteria and testing methods at SNL's Area III Sensor Test Site, and view demonstrations at the DOE National Training Center. A third field trip to SNL's Integrated Security Facility, was scheduled but had to be cancelled due to inclement weather. Overall, these field trips increase student comprehension and allow them to see examples of the theories and concepts taught during the course applied in a real world situation.

- **SNL's Area III Sensor Test Site**—This field trip was to SNL's Technical Area III Intrusion Sensor Test Site. Here, the students were able to view demonstrations of interior and exterior intrusion detection equipment, video systems, and performance data collection systems. In addition, a subgroup exercise on Gathering Performance Data (17S) was conducted. In this exercise, the students worked in subgroups with an assigned subject matter expert to characterize the performance of a preselected PPS component using actual tools, equipment, and methodology. The field trip allowed the students to gain hands-on experience with several key PPS technologies and gave them an opportunity to work as a team in solving and presenting the results of a practical exercise.
- **Response Force Demonstration at the DOE National Training Center**—The DOE National Training Center (NTC), located on Kirkland Air Force Base, provides training programs and services that are focused primarily on physical protection and material control and accountancy. Their facilities for response force training include classrooms, live-fire ranges, and a shoot house. This field trip reinforces concepts taught in the classroom regarding training and performance requirements for response force personnel. For many students attending the ITC, this field trip is their first

experience witnessing real response force demonstrations and training exercises. The demonstrations—which include primary and secondary weapon marksmanship, forced entry techniques, and force-on-force multiple integrated laser engagement systems—help elucidate the need for a professional, well-trained, and well-equipped response force. Following the demonstrations, the students were able to view the equipment display area that includes firearms and equipment. The students also had the opportunity to speak with Sandia National Laboratories (SNL) and NTC firearms instructors.

Team Building Activities— Students enjoyed a number of team building activities, including the opening banquet, a celebration banquet to mark the 25th ITC, three team building dinners, a social event, and a graduation banquet. A team building picnic was held on the first weekend for staff, subgroup leaders, and students.

2.0 Participant Demographics

1.1 Description

The ITC-25 involved 43 students from around the world, plus two observers from Taiwan.

1.2 Participants by International Location

The IAEA Office of Nuclear Security staff selected the students based on member state nominations. The agency required that each student be formally nominated for the training course. The nomination form described the individual, their field of expertise, physical protection experience, and the number of years of physical protection experience they possessed. English proficiency is required because the ITC is conducted entirely in English.

The ITC-25 had a worldwide representation; there were attendees from nearly every continent on the globe. Table 1 lists countries that were represented as well as the number of attendees.

Table 1. Participants by International Location

Number of Participants	Country
1	US/Armenia
2	Australia
2	Brazil
1	Bulgaria
2	Canada
1	Czech Republic
1	Egypt
1	Finland
1	France
1	Hungary
1	India
2	Indonesia
1	Jamaica
2	Japan
1	Republic of Korea
1	Lithuania
1	Malaysia
1	Mexico
1	Morocco
1	Netherlands

Number of Participants	Country
1	Nigeria
1	Pakistan
1	Peru
1	Poland
2	Romania
1	Russian Federation
1	Serbia
1	Slovakia
1	Slovenia
2	South Africa
1	Sweden
1	Switzerland
1	Thailand
1	Turkey
1	United Arab Emirates
1	Uzbekistan
1	Vietnam
1	Observers

2.0 Course Evaluation Results

2.1 Data Results

These data results reveal correlations, recurring responses, and themes that are common to the various sources of course evaluation information gathered from Student Quizzes, Daily Module Evaluations, and the Final Course Evaluation. Below are the highlights of the results.

Topics Most Helpful in My Job [Students]: 1. All modules (13 responses) 2. Adversary Sequence Diagram (3 responses) 3. All Evaluation modules (5 responses) 4. Alarm Assessment (3 responses)	
Student Quizzes—Highest Average Scores 1. Introduction to ITC (95%) 2. Defined Basis Threat (93%) 3. Contraband Detection (92%) 4. Neutralization (88%) 5. Performance Testing – Delay and Response (92%)	**Student Quizzes—Lowest Average Scores** 1. Scenario Analysis (79%) 2. Insider Analysis (80%) 3. Transportation (86%) 4. Alarm Assessment (88%)

2.2 Daily Module/Subgroup Evaluations

The Daily Evaluations focused on determining how the students felt about stated objectives. The idea behind this is to determine how confident students feel in their ability to perform the stated objectives after listening to the lectures and participating in the subgroups. (Please see Appendix A for complete evaluation questions and results.) The students were also asked which modules would be most useful for their work, whether the instructor was clear and understandable, and whether the subgroup helped them understand the concepts. Students had access to the evaluation form throughout the entire course since they were on their IPad's.

Figure 2 illustrates the ITC-25 participant confidence levels in performing the learning objectives from each lecture. Overall, the results are consistent with past ITC's; all results are over 4.3 on a scale of 1 to 5 (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Disagree).

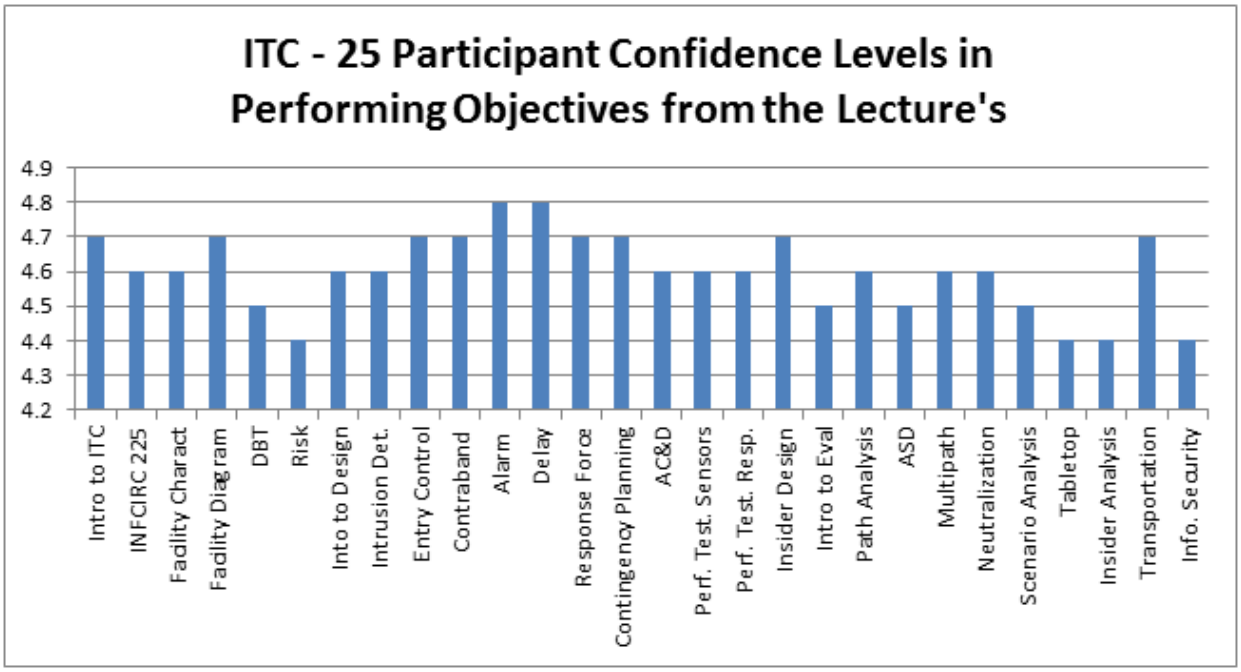


Figure 2. ITC-25 Student Confidence Levels

This is the sixth year that ITC staff has used this technique to evaluate the ITC. The consecutive data collection gives us the opportunity to compare ITC-25 to previous ITC's. Some of these comparisons are illustrated in this section.

Figure 3 charts the level of confidence that students had in performing the stated learning objectives after they sat through a lecture. The responses were on a scale of 1 to 5 (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Disagree). Overall the confidence levels of students rose in eighteen of the modules; those modules were Introduction to ITC, Facility Characterization, Design Basis Threat, Entry Control, Contraband Detection, Alarm Assessment, Access Delay, Alarm Communication and Display, Performance Testing: Detection and Delay, Performance Testing: Response, Evaluation of PPS, Path Analysis, ASD, Multipath Neutralization, Scenario Analysis, Tabletop, Transportation, and Information Security. The confidence of students stayed the same as in ITC 24 for two of the modules; those modules were Intrusion Detection and Guard and Response Force. The areas that did not improve or stay the same were Introduction to PPS Design and Insider Analysis. The lower confidence levels range from a .1 to .2 difference from the previous levels and are statistically insignificant changes. There is no explanation for these minor reductions in confidence levels. There were no additional comments on the student evaluations for these modules. Students were asked to share comments on all modules; these results can be found in Appendix A.

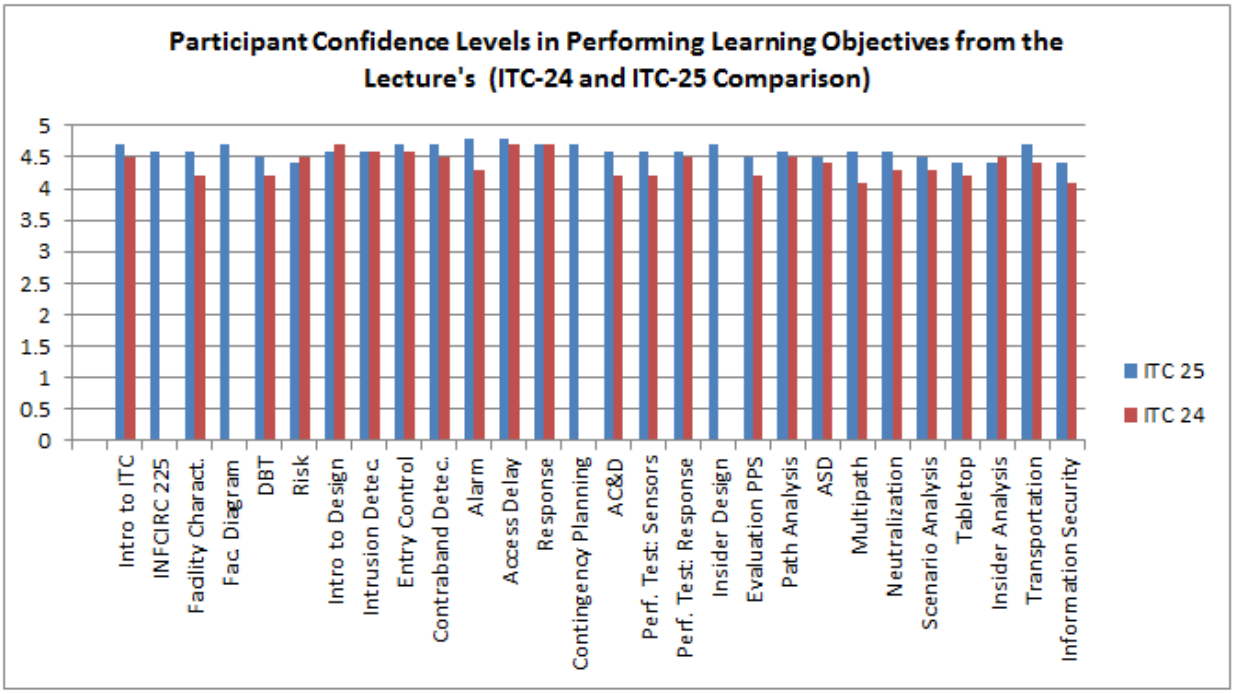


Figure 3. Student Confidence Levels

The Daily Evaluations also asked students if the subgroup helped them understand the concepts that were taught in the section. Figure 4 illustrates responses to this question for ITC-24 and ITC-25.

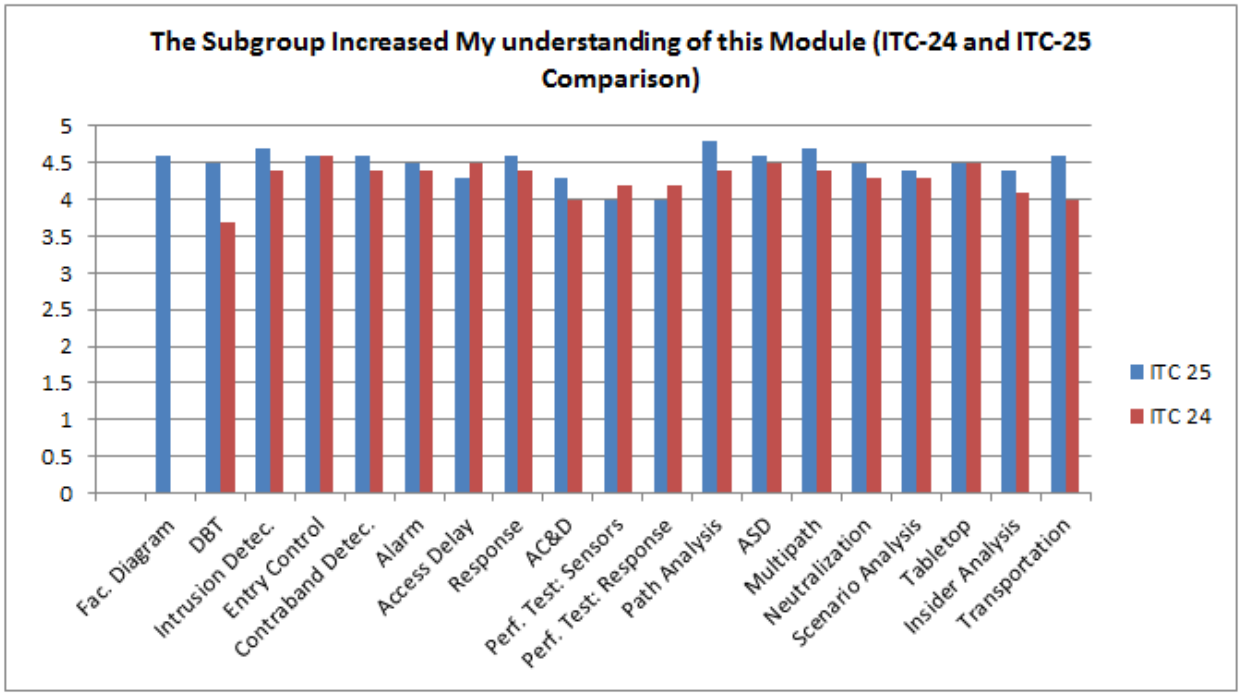


Figure 4. ITC-24 and ITC-25 Responses to: Subgroup helped me understand concepts taught in this section

The Daily Evaluations also asked students whether the instructor for each module was clear and understandable. The results, shown in Figure 5, illustrate that three of the modules were tied for the highest rating by the students. Seven of these eight modules were taught by instructors that had previous ITC experience.

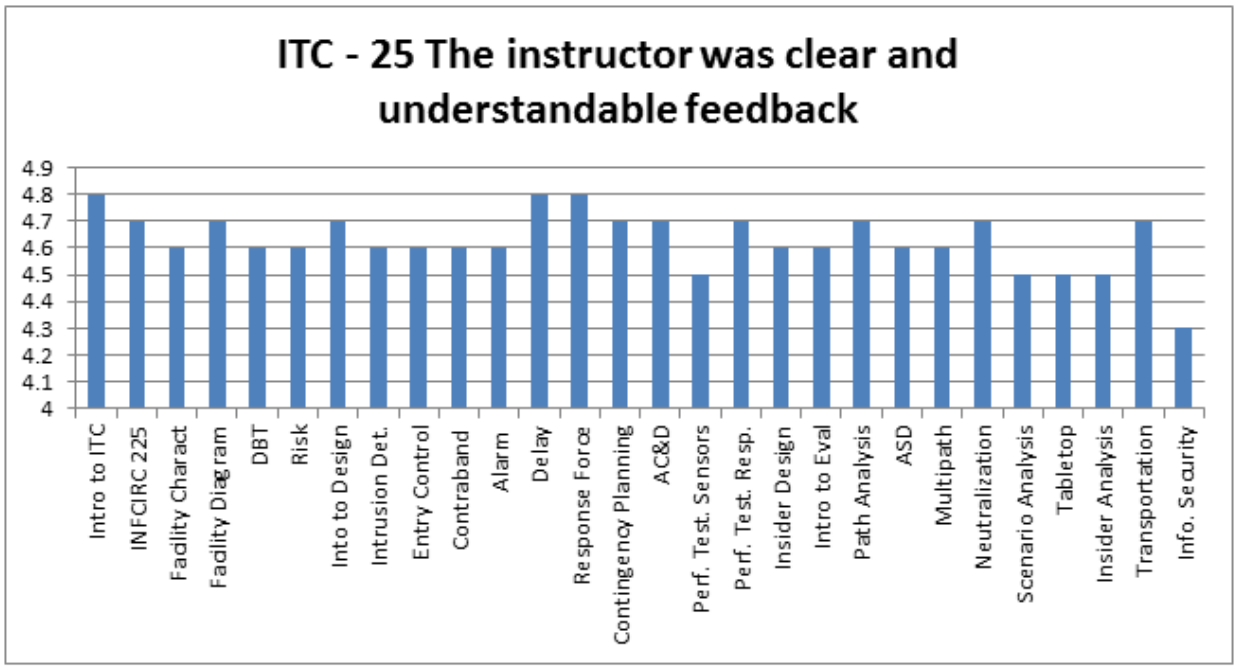


Figure 5. Instructors Were Clear and Understandable

The Daily Evaluations also asked students to rate each subject's value to their work (see Figure 6 below). Module 19, Insider Design was rated as the most valuable. There were four modules tied for second place, these modules were Module 2, INFCIRC 225 Revision 5, Module 3, Facility Characterization, Module 15, Contingency Planning, and Module 20, Introduction to PPS Evaluation.

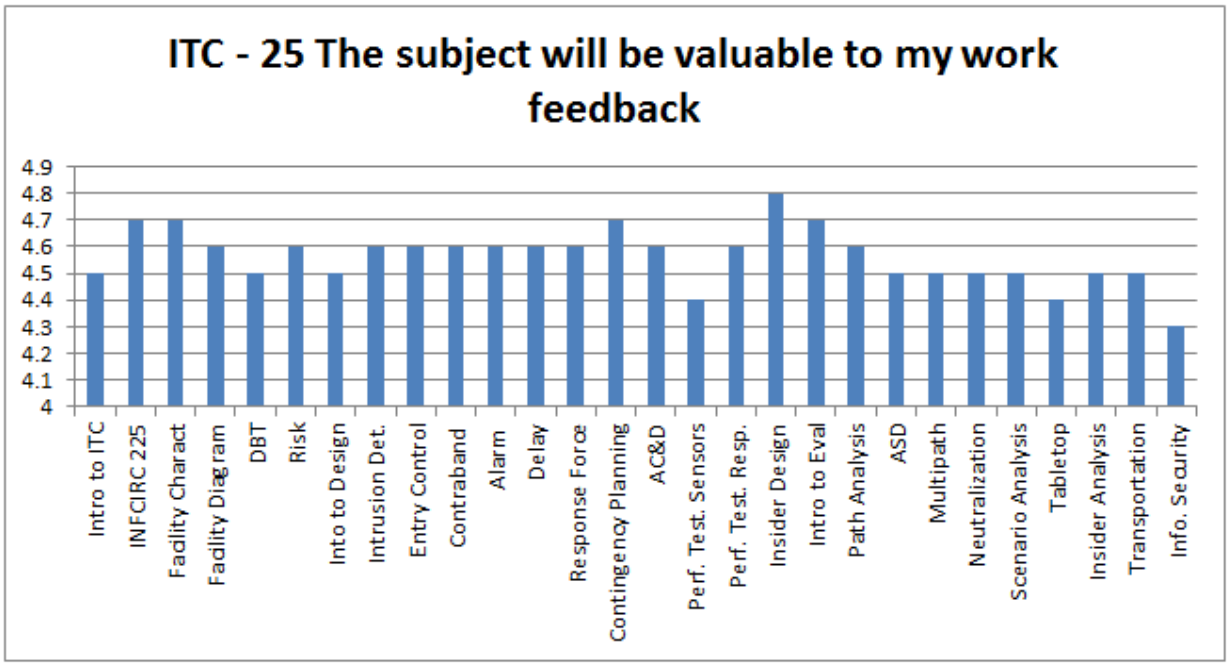


Figure 6. Subject will be valuable to my Work

*No data was collected for the Introduction to Hypothetical Facility.

2.3 Daily Quiz Results

Students were given short daily quizzes that contained questions based on the learning objectives for each module. The goal of the quizzes was to determine the extent to which students understood the material. The overall average quiz score was 84%, down from 85% during ITC-24. The quizzes contained a combination of multiple choice and true-or-false questions.

Figure 7 below illustrates the quiz results by module percentage. The highest scoring modules were Entry Control (99%), INFCIRC 225 Revision 5 (98%), Adversary Sequence Diagram (98%), Intrusion Detection (95%), Risk Assessment (95%). The low scoring modules were Information Security (79%), Contingency Planning (80%), Alarm Assessment (80%), Transportation Security (83%). The rest of the scores fell between 83% and 99%. The lower scoring modules stayed the same from ITC-24 to ITC-25; however the scores improved in each module. Overall, 28 out of 29 quizzes had an average above 80%; this suggests that most students were able to comprehend the concepts. The average is also a significant increase from ITC-24. During ITC-25 only one module had an average less than 80% while ITC-24 had three modules less than 70%.

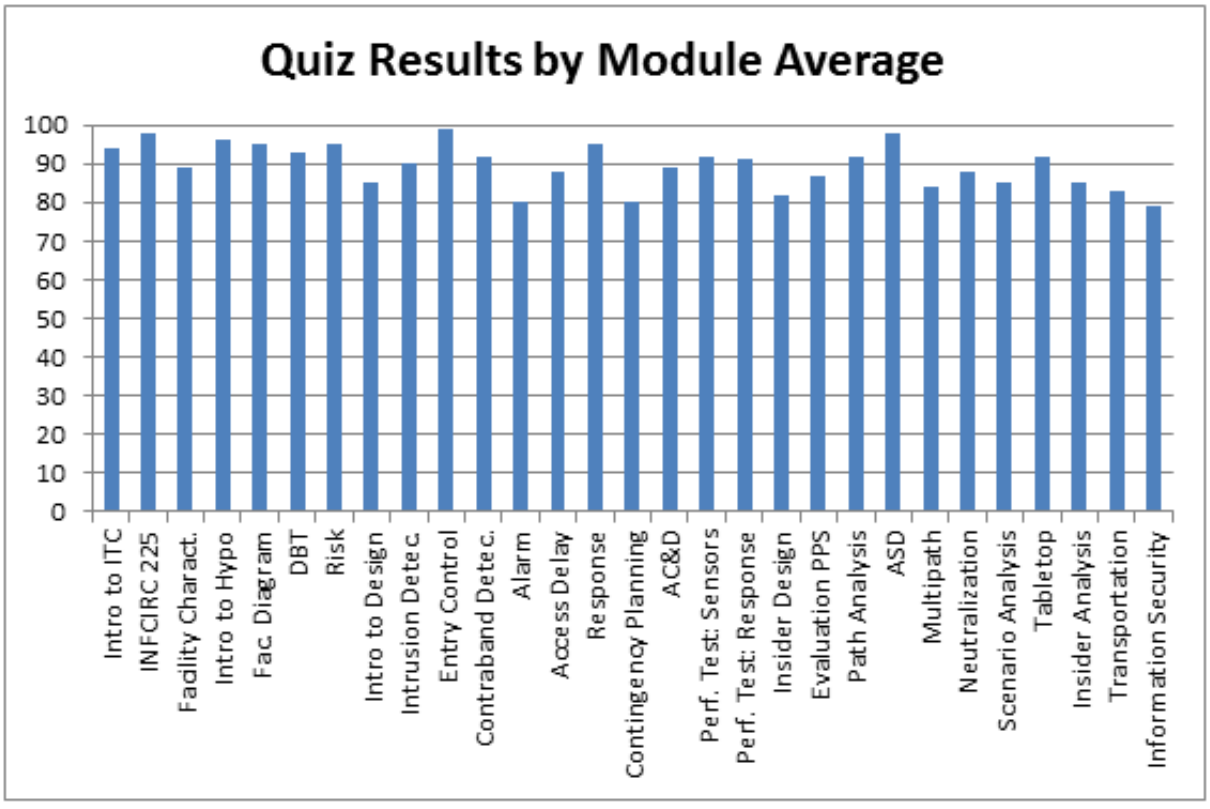


Figure 7. Quiz Results by module Percentage

2.4 Final Course Evaluation

The information gathered from the final course evaluation was consistent with previously gathered evaluation data. Students were asked general questions about the course and more specific questions about using the new information in their job. Table 2 below shows the results of some of the questions that were asked in the final course evaluation. Following the table are summaries of responses to additional questions. Complete final evaluation data (specific student comments) can be found in Appendix C.

Table 2. Some Results from the Final Course Evaluation

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1. The ITC-25 met my expectations.	1	1		8	26
2. I will be able to apply the information I have learned to my work.	1		1	12	22
3. The subgroup sessions helped me understand and apply the information.	1	1		9	25
4. The lectures were clear and easy to understand.	1			12	23
5. The agenda was easy to follow.	1		1	14	20
6. The final exercise was useful.	1	1	6	10	23
7. Much of the course material was new to me.	1	1		19	8
8. I understood most of the concepts taught during the course.	1		1	10	24
9. The iPad was easy to use throughout the course.	1		1	9	24
10. Some of the material was hard to understand because it was unclear or poorly presented.	8	16	5	3	3
11. I did not understand some of the material because of language difficulties.	16	9	4	4	2
12. The guest lectures added value to the course.	1	1	5	11	18

Some statements clearly have a range of responses. This indicates that some students had difficulty with the language while other students were familiar with the material before attending the course. This range of responses is consistent with the daily evaluations.

- **How could the ITC have been better for you? (responses are paraphrased)**

Responses
Starting a bit later. Lunch could be shortened to 45 to compensate. Better allocation of the time for the exercises would be good.
Better understanding of English by some. The sub group meeting room was below standards. The ICT support for printing was troublesome, although I realize that few used it.
Npp VIsiting
I recognize and appreciate the diversity of the group however found the sub group exercises to be challenged by some participants not speaking fluent English.
Nothing identified.
The course was nicely designed and to me it is ok.
ITC enhanced my knowledge. What I obtained during the ITC would be useful for my job.
Some of the exercises may be developed into iPad exercises.
Increase the subgroup times.
In the methodology, in work in group, in the news knowledge
This is the best course on Physical Protection Systems, I have ever attended yet!
More practice.
More practical exercises on the field.
If it was in Australia
I learned more about the deferent topics in physical security.
Could not be better

- **Which modules will help you most in your job?**

Module	# of Responses
All of the modules	14
Alarm Assessment	2
Transportation	1
ASD	2
Multipath	1
DBT	1
Intrusion Detection	1
Access Delay	1
Evaluation	3

2.5 Field Trip Comments

In general, students felt that the field trips increased their understanding of the topics involved. Students verbally expressed their appreciation for the four field trips. The following data was collected for the National Training Center, and the Sensor Test Bed Tour and Exercise. All field trips received high responses; the responses are on a scale of 1 to 5.

	NTC	Sensor Test Bed
The field trip increased my knowledge about response force training and education	4.2% Average	4.7% Average

3.0 Recommendations

Much of the course was highly successful; however there are always recommendations for course improvements. These recommendations came from daily module and final course evaluations; informal comments from students; and suggestions from the course instructors, subgroup instructors, instructional designer, and the logistics staff. Below are bulleted suggestions that should be implemented during ITC-26 to continue or maintain the quality of ITC.

3.1 General Course Comments

Course Materials

- Upgrades to the ITC App should be made to better allow students to take notes and document things throughout the course on the course materials themselves.
- Additional exercise simulations should be implemented in the future. The students had positive things to say about them and they contributed to an increase in knowledge transfer while decreasing subgroup time.
- In the past there has always been a dry run conducted and this year the dry run was not held. A formal dry run would have allowed SNL staff to catch problems with software and course materials ahead of time. It is recommended that a dry run be held for future ITC's especially when new materials and exercises are being implemented.
- Representatives from the IAEA commented that they would like for Lecturer's and Subgroup Instructors to be different in order to increase the technical perspectives that students are provided. It is recommended that this possibility be explored for future ITC's.

Course Scheduling and Timing

- Additional materials should not be added to the course, as it will overwhelm students.
- There should not be subgroup blocks that are less than 45 minutes long.
- Subgroups should be reduced in size and not be larger than 6 students.

Student Activities (Field Trips, Demonstrations, etc.)

- The Sensor test site exercises were successful and beneficial for students. It is recommended that ITC continue this trip.
- The NPP tour was not held this year. Several students commented on the fact that they were disappointed in not being able to visit a NPP as they had never been to one before. It is recommended that ITC continue this trip.
- The DOE National Training Center Tour was successful this year. It is recommended that ITC continue this trip.

Course Registration Process

- Making copies of passports when receiving students at the airport has been most effective, and should be a continued practice.
- Several students arrived a day earlier this year. These students adjusted far better to the time change and New Mexico environment. This would not impact cost for NNSA so it is suggested that this possibility be further explored for future ITC's.
- Processes were continued this year to collect student payments ahead of time and throughout registration. These improvements made registration much quicker. It is recommended that these processes continue for future ITC's.

Hotel Coordination

- The hotel staff interacted with Sandia staff daily to ensure that there were no problems and to fix problems that did arise. The hotel staff was very attentive and responsive. It is recommended that this type of interaction continue in the future.

3.2 Modules that could be Improved by the Listed Recommendations

Some of the recommendations listed below were also obtained from the ITC-24 report. Due to budget and time constraints, not all of the modifications were completed from ITC-24 to ITC-25.

(Modules 1, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 22, 24, 25, 26, 27, and 28 are not listed below because they do not have significant recommendations.)

Module 2. INFCIRC 225 Revision 5

- Add more time to the lecture

Module 5. Facility Diagram

- Shorten lecture time.

Module 6. Threat Definition

- Give more DBT examples.

Module 18. Performance Testing: Response

- Add additional time to the subgroup.

Module 21. Path Analysis

- Add additional time to the subgroup.

Module 23. Multipath Analysis

- Add additional time to the subgroup.

Module 29. Information Security

- Review the purpose and goal of this module. Students commented that they would like more examples. This topic is popular one and should be re-examined.

3.3 Evaluation Instruments

- Using the IPad's, we should be able to allow subgroups to compete with each other during the quizzes. This may add some zest to the quiz process.
- The IPad's can also be used to develop games to test knowledge. This is another recommended way to test participant's knowledge, as well as engage them.

General

- Improve the note functionality on the IPad to allow students to take notes directly on the course content and then access it at a later point.

4.0 Summary

ITC-25 on the Physical Protection of Nuclear Materials and Facilities was very successful. This was proven by the following student feedback:

- High and improved quiz scores and final presentations.
- Indicated usefulness of DEPO concepts in students work assignments.
- Public and written expression of appreciation for the technical experience from students, NNSA, and the IAEA.

4.1 Purpose of Evaluation Report

The goal of this evaluation report is to provide the information necessary to improve the effectiveness of the ITC program provided to the IAEA Member States.

4.2 Objectives

The objectives of this report are to:

- Report the results of the course evaluation.
- Identify improvements needed in course lesson content—the relevance and level of material to provide the knowledge and skills necessary to meet students' needs in the protection of nuclear material and facilities.
- Identify improvements needed to ensure a clear systematic approach is presented.
- Identify changes to overall course organization to ensure optimum use of time, instructor lectures, and associated subgroup content.

4.3 Results

This report summarizes the efforts made by course organizers to meet the ITC-25 course and module objectives. Organizers reviewed ITC-24 students' feedback and implemented many course delivery suggestions in ITC-25. During ITC-25, feedback was successfully captured and the information verifies the success of ITC-25 and will be used to further improve this excellent training course.

The course flowed well and most lecturers did an impressive job of conveying the information that was linked to the instructional objectives. The subgroup exercises supported the information covered in the lectures and enabled the students to utilize and increase their knowledge of the subject matter. The students generally feel confident in their ability to make improvements at their facilities or in doing their job assignments. Students felt the information they received will be useful to them in the future. They appreciated the technical expertise from SNL's subject matter experts as well as their hospitality and camaraderie. The students also felt a great benefit in learning how other countries implement physical protection.

Appendix A: Daily Evaluation Questions and Results

1. Introduction to ITC and DEPO

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Recognize the basic goal and structure of ITC	23	6			
List the objectives of a Physical Protection System (PPS)	21	8			
Identify the fundamental approach used in ITC to design and evaluate PPS	20	9			
List the three basic steps in the Design and Evaluation Process Outline (DEPO)	19	10			
Identify the three primary parts of establishing PPS requirements	18	11			

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	22	7			
The subject will be valuable to my work	18	10	1		

Comments:

- Lecture could be a bit longer and not rushed.
- Nothing

2. INFCIRC 225 Revision 5

Please answer the following question by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Explain the purpose of INFCIRC/225/Rev 5	23	8	1		
Identify the four objectives of a State's Physical Protection Regime	21	11			
State the recommendations for physical protection against theft and sabotage	17	14	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	23	9			
The subject will be valuable to my work	23	9			

Comments:

- None
- Would be great to be given official hard copy of infcirc225 that we can use and keep.
- The subject clearly understood

3. Facility Characterization and Target ID

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
List several important types and sources of supporting information used in PPS design and evaluation	18	16			
Identify the types of targets considered in this course	20	13	1		
Demonstrate the use of selected theft categorization tables	18	13	3		
Recognize the process for vital area identification	16	16		1	

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	24	8	2		
The subject will be valuable to my work	25	9			

Comments:

4. Introduction to Hypothetical Facility

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Locate information about the Lagassi Institute of Medicine and Physics (LIMP) in the data book	23	8			
Discuss the LIMP hypothetical facility	22	8	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	22	9			
The subgroup increased my understanding of this module	20	7	3		1

Comments:

There was confused guidance in the sub group and the facilitators manual was apparently out of date. It would be great if the facilitators could rotate during the course so that we can all have an opportunity to learn from their differing skills and expertise.

Please answer the following question by checking the appropriate box.

5. Facility Diagram

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define a Facility Diagram	24	16			
Identify the components of a basic diagram	24	16			
Develop a Facility Diagram	24	14	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	27	13			
The subject will be valuable to my work	26	13	1		
The subgroup increased my understanding of this module	23	16	1		

Comments:

- Exercise time is a little not enough.
- None
- Subgroup time is not long enough to finish properly all the tasks.
- The group worked better than yesterday's session. The additional subject matter experts that rotated through the groups worked well in getting the group on track and providing useful guidance.

6. Threat Definition

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define the term 'Design Basis Threat' (DBT)	20	16	2		
Distinguish between a Threat Assessment and a DBT	21	14	3		
Describe the steps in developing a DBT from a Threat Assessment and other Policy Considerations	17	18	3		
List the types of adversary capabilities that should be addressed in the DBT development process	22	14	2		
Explain the use of a DBT in the threat-based approach to physical protection	21	16	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	24	11	3		
The subject will be valuable to my work	20	17	1		
The subgroup increased my understanding of this module	22	14	2		

Comments:
None

7. Risk Management and Regulatory Requirements

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define risk and risk management	16	18	1		
Recognize the security risk equation	17	17	2		
Identify two approaches competent authorities can use to establish requirements for physical protection systems	19	16	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	21	15			
The subject will be valuable to my work	21	14	1		

Comments:

8. Introduction to Design of Physical Protection Systems

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
State two PPS design strategies	21	10	1		
Identify the three functions of a PPS	22	10			
Discuss the performance measures	17	15			
Describe the principle of timely detection	16	15	1		
List three system engineering design principles	18	13	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	21	11			
The subject will be valuable to my work	20	12	7		

Comments:

9. Intrusion Detection

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Identify the role of intrusion detection sensors	28	11			
Identify sensor classifications	25	13	1		
Recognize the definition of "protection-in-depth"	24	14	1		
Recognize sensor technologies	21	16	2		
Recognize the concept of extended detection systems	21	14	4		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	27	10	2		
The subject will be valuable to my work	27	10	2		
The subgroup increased my understanding of this module	25	13			

Comments:

- Is very technical
- It was a really complete presentation!
- None
- The group finished early so we went through the application considerations which was very useful.

10.Entry Control

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can...

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Recognize the purposes of entry control	29	9			
Identify the fundamental criteria of entry control	28	9	1		
List some of the advantages and disadvantages of coded credentials	19	18	1		
Discuss the most common types and use of biometrics	26	12			
Recognize the features of a good entry control system	22	16			

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	24	14			
The subject will be valuable to my work	25	10	2		
The subgroup increased my understanding of this module	25	11	2		

Comments:

- It is not clear the concept of the graphic false reject and false accept

11. Contraband Detection

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define contraband	27	11			
Identify the basis and techniques of contraband detection systems	24	14			
Recognize the different kinds of radioactive material detectors and their strengths	18	20			
List the features of a good contraband detection system	20	15	3		
Discuss how the DBT affects contraband detection effectiveness, selection, and design	19	16	3		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	24	13	1		
The subject will be valuable to my work	24	12	2		
The subgroup increased my understanding of this module	24	13	1		

Comments:

- It is ok
- The instructor should be explaining more case from some country or use a film for more clear....

12. Alarm Assessment

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Discuss the purpose of alarm assessment	24	15			
List alarm assessment methods	21	17	1		
Identify response force assessment components	20	18	1		
Identify video assessment system components & requirements	23	15	2		
Discuss design considerations for video assessment	22	16	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	25	14			
The subject will be valuable to my work	25	14			
The subgroup increased my understanding of this module	24	12	3		

Comments:

- The last part on the formula and lens selection was too fast, giving examples during the presentation would be great for better understanding.
- More time to learn
- The presentation was too long with too much information to be digested
- Given the amount of information, this module could be spread over two sessions.

-

13. Access Delay

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can...

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Identify the purpose of delay systems	30	9			
List three characteristics of a good barrier system design	26	13			
Explain why detection must occur before delay	27	12			
Recognize the definition of penetration	27	10	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	30	9			
The subject will be valuable to my work	24	15			
The subgroup increased my understanding of this module	18	8	7		

Comments:

- Very interesting. Would like more material on delay.

14. Response

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
State the differences between guard forces and response forces	28	9			
Discuss the two types of response to mitigate an adversary threat	26	11			
Discuss the components of Protection Planning	19	17	1		
Be aware of some Response Force Equipment, Command, Control, and Communications	22	15			
Discuss the two categories of Performance Measures	19	17	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	28	9			
The subject will be valuable to my work	25	10	2		
The subgroup increased my understanding of this module	24	13			

Comments:
None

15. Contingency Planning

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define contingency plans and the relationship between preparedness and activities and contingency planning	27	10			
Explain why a contingency plan is an important component of a PPS	26	11			
Identify how exercises and evaluations improve a contingency plan	21	15	1		
Discuss concepts used to develop a good contingency plan	25	10	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	27	10			
The subject will be valuable to my work	25	12			

Comments:

- The examples were good and videos interesting. I liked that the presentation was broken up with the videos which demonstrated the importance.

16. Alarm Communication and Display

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Explain the role of alarm communications and display (AC&D) in the security system	24	12			
Recognize the basics of communication systems	22	14			
Identify the basics of alarm display	24	11	1		
Recognize that site-specific choices can be made	20	13	3		
Infer that this technology is changing rapidly	19	15	2		2

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	24	12			
The subject will be valuable to my work	23	12	1		
The subgroup increased my understanding of this module	16	9	6		

Comments:

- To slow

17. Performance Testing: Detection and Delay

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Identify what a performance test is	21	12			
Identify the purpose and importance of testing	21	12			
Differentiate between different kinds of testing	20	12	1		
Outline testing process	16	16	1		
Identify key elements for the test plan and test report	17	16			
Define probability of detection and confidence levels	16	14	3		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	20	9	4		
The subject will be valuable to my work	16	15	2		

Comments:

- OK

18. Performance Testing: Response

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Identify the purposes and importance of a guard/response testing program	26	9			
Provide an overview of what a guard/response performance testing program must accomplish	21	14			
Recognize the performance measures for a guard/response force	18	17			
Recognize the three levels and associated tests of guard/response performance testing	21	13	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	26	8	1		
The subject will be valuable to my work	21	13	1		

Comments:

- Presenter displayed significant enthusiasm and made excellent use of props.

19. Insider Design

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can...

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Recognize an accepted description of an insider	21	8	2		
Identify insider unique issues and concerns	20	9	2		
Identify potential insiders at a facility	21	8	2		
Utilize the system approach to apply techniques that prevent and protect against insiders	20	9	4		
Discuss the insider analysis methodology	19	10			

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	17	11		1	
The subject will be valuable to my work	15	14			

Comments:

- It would be more interesting to have implementation examples and to avoid reading the slides.

20. Introduction to Evaluation

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define the three PPS performance metrics used in ITC	23	12	2		
Identify the two basic PPS performance evaluation methodologies	21	14	2		
Recognize several PPS evaluation tools used in ITC	18	18	1		
State two major factors affecting evaluation quality	20	15	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	23	13	1		
The subject will be valuable to my work	22	15			

Comments:
None

21. Path Interruption Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define adversary path	25	10	1		
State the purpose of Path Interruption Analysis	22	13	1		
Explain concept of critical detection point (CDP) and relate it to the principle of timely detection	24	11	1		
Define Probability of Interruption, PI	22	13	1	1	
For a single adversary path - Explain how to create an adversary path timeline based on minimum delay times and probabilities of detection for the areas and elements in an adversary path - Identify the CDP and calculate PI based on an adversary path timeline and the PPS Response Time	21	13	1	1	

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	25	10	1		
The subject will be valuable to my work	22	13	1		
The subgroup increased my understanding of this module	28	8			

Comments:

- Good.

22. Adversary Sequence Diagram

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Identify an Adversary Sequence Diagram (ASD) and describe what it represents	22	13			
Describe why an ASD is useful in the analysis of a PPS	19	15			
Identify the three steps to use when developing an ASD	15	17	2		
Develop an ASD for an example facility	17	16			

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	20	14			
The subject will be valuable to my work	19	13	2		
The subgroup increased my understanding of this module	21	12	1		

Comments:

- More time is needed for subgroup exercise
- Challenges within the group slowed progress in achieving the assigned tasks.
- Subgroup time was too short

23. Multipath Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Recognize the motivation for multipath analyses	24	12			
Perform a multipath analysis by hand, including identifying the most vulnerable path through the ASD	23	13			
Describe what MultiPath VEASI (MP VEASI) Software is and its uses	22	13	1		
List and describe the 4 MP VEASI evaluation steps	20	15	1		
Determine input for VEASI for complex protection elements	20	12	3		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	22	14			
The subject will be valuable to my work	20	14	2		
The subgroup increased my understanding of this module	24	11			

Comments:
None

24. Neutralization Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define PN and describe how it is used in system effectiveness evaluation	22	15			
Recognize neutralization analysis methods	20	17			
Discuss the data required to estimate PN - threat characteristics, response force characteristics, Rules of Engagement, Order of Battle (both general and site-specific)	17	19	1		
Describe the process used to estimate PN	20	17			
Use the ITC Neutralization tool to estimate PN	20	14	3		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	25	12			
The subject will be valuable to my work	21	13	2	1	
The subgroup increased my understanding of this module	22	13	1	1	

Comments:

- Subgroup instructions were unclear
- Some confusion on the data sources.

25. Scenario Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Describe the purpose of scenario analysis in the context of evaluating PPS performance	19	15	1		
Discuss the four phases of the Scenario Analysis Process	20	15			
Create adversary attack scenarios	18	16	1		
Describe a process for selecting final attack scenarios	18	15	2		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	22	11	1		
The subject will be valuable to my work	19	14	2		
The subgroup increased my understanding of this module	17	10	4		

Comments:

- The play a waste of time. Talks without a microphone.
-

26. Tabletop Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Describe a Tabletop exercise	24	14			1
Describe a critical event and engagement	18	19	1		1
Describe how to document and track the critical events and engagements properly	19	17	2		1
Recognize how to determine results of critical events and engagements	18	17	3		1

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	25	11	2		1
The subject will be valuable to my work	23	11	3		1
The subgroup increased my understanding of this module	23	14	0		1

Comments:

- The instructor talks very fast.

27. Insider Analysis

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Define a potential insider at a facility	23	17	1		1
Discuss a general insider analysis process for preventive measures	20	19	2		1
Discuss a general insider analysis process for protective measures	19	20	2		1

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	26	14	1		1
The subject will be valuable to my work	25	16			1
The subgroup increased my understanding of this module	20	12	0		

Comments:
None

28. Transportation Security

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Compare similarities and differences between fixed site and transportation security	21	9			
Identify specific issues associated with transportation security	20	10			
Identify methods for analyzing transportation security	19	11			
Identify mitigating actions that can be taken	20	9	1		

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	22	8			
The subject will be valuable to my work	18	10	2		
The subgroup increased my understanding of this module	19	7	3		

Comments:
None

29. Information Security

Please answer the following question by checking the appropriate box.

After sitting through the presentation, I can…

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Recognize some of the information systems associated with a nuclear facility and its physical protection system	21	8	3		
Recognize cyber threats	18	10	4		
Provide examples of protection techniques	16	10	5	1	
Determine information system assessment methods	12	10	6	1	

Please answer the following questions by checking the appropriate box.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The instructor was clear and understandable	15	12	4	1	
The subject will be valuable to my work	16	10	5	1	

Comments:

- Nice presenting style
- Very interesting topics and ideas.
  Information on Stuxnet attacks was very relevant, please consider additional information on corporate espionage.
- I recommend that more material be presented with a sub group exercise.this topic is very important , talk about cyber in DBT, cyber attacks on nuclear, good practices,etc
- Interesting how a presentation on such a potentially interesting topic could end up being so boring. There are plenty of unclass examples where details could be given to explain what actually happens in th attacks. Of course being the last lecture might have decreased my interest

Appendix B: Final Evaluation Questionnaire Results

25th International Training Course on the Physical Protection of Nuclear Facilities

These questions will help us identify the strengths and weaknesses of the course you have just completed. Your answers will be useful to us as we try to improve the course for future participants.

A. Circle the number that indicates how strongly you agree or disagree with each of the following statements.

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1. The ITC-25 met my expectations.	1	1		8	26
2. I will be able to apply the information I have learned to my work.	1		1	12	22
3. The subgroup sessions helped me understand and apply the information.	1	1		9	25
4. The lectures were clear and easy to understand.	1			12	23
5. The agenda was easy to follow.	1		1	14	20
6. The final exercise was useful.	1	1	6	10	23
7. Much of the course material was new to me.	1	1		19	8
8. I understood most of the concepts taught during the course.	1		1	10	24
9. The IPad was easy to use throughout the course.	1		1	9	24
10. Some of the material was hard to understand because it was unclear or poorly presented.	8	16	5	3	3
11. I did not understand some of the material because of language difficulties.	16	9	4	4	2
12. The guest lectures added value to the course.	1	1	5	11	18

B. Please answer the questions below.

12. How could the ITC have been better for you?

- Starting a bit later. Lunch could be shortened to 45 to compensate. Better allocation of the time for the exercises would be good.
- Better understanding of English by some. The sub group meeting room was below standards. The ICT support for printing was troublesome, although I realize that few used it.
- Npp VIsiting
- I recognize and appreciate the diversity of the group however found the sub group exercises to be challenged by some participants not speaking fluent English.
- Nothing identified.
- The course was nicely designed and the to me it is ok.
- ITC enhanced my knowledge. What I obtained during the ITC would be useful for my job.
- Some of the exercises may be developed into iPad exercises.
- Increase the subgroup times.
- In the methodology, in work in group, in the news knowledge
- This is the best course on Physical Protection Systems, I have ever attended yet!
- More practice.
- More practical exercises on the field.
- If it was in Australia
- I learned more about the deferent topics in physical security.
- Could not be better

13. Do you have any other comments that you would like to share about ITC?

- The food provided for breakfast and lunch was disappointing considering our organizations were basically charged $50 a day for it. Greater effort also should be made to accommodate dietary restrictions such as gluten free.
- Next to the lectures, I found the field trips very instructive. If there are ways to have more of these, I think it would be greatly appreciated by future ITC-groups. As a conclusion: I would like to thank you all for a professionally set up and executed programme.
- None
- I would like to have general information about the explosive: use, effect...
- No comment
- Yes, this course needs more time
- The final exercise should be done in 4-5 days. it is very useful.
- Thank you all for a great ITC!!!!
- The was very educative and informative and organizers were wonderful
- It is a great course and I would recommend to others from my country
- I only want to say, that the dynamic is very important to achieve the objectives.

- Overall a good organized course.
- I really enjoyed the whole course, thank you for organizing it!
- Thank you for all !
- Great course and great instructors
- Thank you for your hospitality and your sharing knowledge. I'm very thankful
- A module for Nuclear Security Culture should be included in the course.
- Thank you to all of the facilitators who were very helpful and supportive. The course was managed well and enjoyable.
- Thank you !

Appendix D: Changes from ITC-24 to ITC-25

ITC-24 Recommendations Implemented in ITC-25

- Increased the focus of the course to support INFCIRC 225 Revision 5.
- Addition of two new modules to support the INFCIRC 225 Revision 5 focus.
- Continued reduction of paper printing by converting some exercises to iPad simulations.
- Course materials were given to participants on a CD in PDF format again this year to meet student request.
- Logistically, processes were further reduced and modified to reduce operational costs.

Appendix E: Logistics for ITC-25

Robert Otero, a member of SNL's International Protocol Office, coordinated the complex and involved logistics for the course.

Logistics and Hotel

Stephen Ortiz acted as host for the training course. Subgroup instructors, Michelle Overholt, and Robert Otero acted as escorts. The Sheraton Uptown did a good job. The facilities were satisfactory and the staff was accommodating to participants' needs and course adjustments. The hotel requirements were laid out in a contract prior to the event, which worked very well for budgeting purposes. Students were transported every day from the hotel to SNL's Center for Global Security and Cooperation Building (CGSC). There were no problems with getting such a large number of students on the bus every day and to the CGSC on time. Student badges were collected at the end of each day by the subgroup instructors and passed out at the hotel each morning prior to loading the bus as a way to account for everyone in such a large group.

Dinners away from Hotel

The team-building business dinners away from the hotel were a success this year. Students went to Monica's El Portal in Old Town for Mexican food, Kelly's Brew Pub and the final dinner, at the National Museum of Nuclear Science and History, was catered by the Cooperage. All restaurants provided good food and service.

Other Issues and Comments

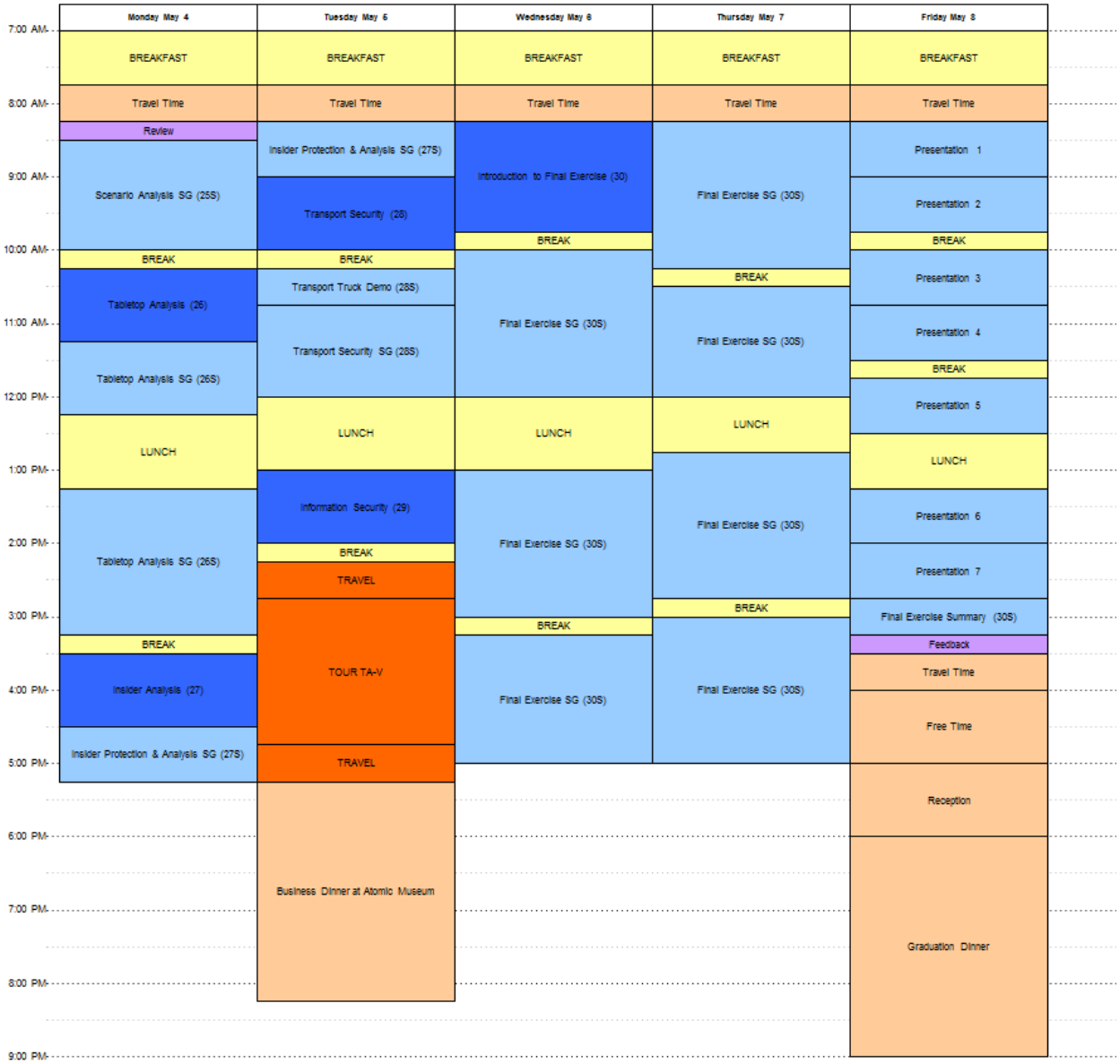
- The guest speakers provided their presentations by the specified date. This aided SNL with having all presentations prepared for the students in advance and ensured a smooth running VIP visit.
- The course team building was held at Steve Ortiz's home, which was a success.

Appendix F: ITC-25 Schedule

ITC-25, April 20 - May 8, 2015
Week One

ITC-25, April 20 - May 8, 2015
Week Two

ITC-25, April 20 - May 8, 2015
Week Three



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