



DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

July 20, 2006

OFFICE OF
INSPECTOR GENERAL

The Honorable John P. Higgins, Jr.
Chairman, PCIE Audit Committee
Department of Education
400 Maryland Avenue, SW
Washington, DC 20024

Dear Chairman Higgins:

I am pleased to inform the PCIE Audit Committee that the IGATI Curriculum Review Board (ICRB) has completed a review of the IGATI course titled *Analytical Techniques and Tools for Improving Processes*. We noted a number of areas needing improvement, including the content of student's manual and the course delivery in the classroom. The Director, IG Institute School of Audit and Inspections (SAI), generally agreed with our recommendations.

Enclosed is a copy of our final report prepared by the Principal Assistant Inspector General for Auditing, Department of Defense OIG.

If you have any questions, please call me on (202) 927-6516.

Sincerely,

/s/

Marla A. Freedman
Chair, ICRB

Enclosure

cc: Helen Lew, Chair
Federal Audit Executive Committee

Danny L. Athanasaw, Director
IG Institute School of Audit and Inspections



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

July 18, 2006

MEMORANDUM FOR DANNY L. ATHANASAW, DIRECTOR, SCHOOL OF
AUDIT AND INSPECTIONS (FORMERLY INSPECTORS
GENERAL AUDITOR TRAINING INSTITUTE)

SUBJECT: Report on Inspectors General Auditor Training Institute (IGATI) Curriculum
Review Board Review of IGATI Course: Analytical Techniques and Tools
for Improving Processes

This memorandum transmits the IGATI Curriculum Review Board's final report
on this subject.

The report contains ten recommendations. IGATI agrees with eight of the
recommendations and on two concurred in principle or with the concept. We have
included IGATI's comments in the report.

We appreciate the courtesies extended to the staff. Questions should be directed
to Mr. Dennis Wokeck at (703) 604-0518 or Ms. Karen A. Ulatowski (703) 604-9039.

Robert K. West

Robert K. West
Principal Assistant Inspector General
for Auditing

**Report on Inspectors General Auditor Training Institute (IGATI) Curriculum
Review Board Review of IGATI Course:
Analytical Techniques and Tools for Improving Processes**

Course Title:

Analytical Techniques and Tools for Improving Processes

IGATI Curriculum Review Board (ICRB) Review Completed:

In July 2006, DoD Office of Inspector General with assistance from Department of Commerce Office of Inspector General completed the review of IGATI's Analytical Techniques and Tools for Improving Processes course.

Background:

The objective of our review was to determine whether the Inspectors General Auditor Training Institute (IGATI) course "Analytical Techniques and Tools for Improving Processes" provides training that is useful to Federal auditors.

The course on Analytical Techniques and Tools for Improving Processes is designed for Federal auditors, evaluators, and inspectors who want to improve analytical techniques and presentation skills. It is an intermediate level course. The prerequisite for the class is to have basic personal computer skills and be familiar with Excel software. According to the FY 2006 IGATI course catalog, the course learning objectives are to:

- Introduce analytical tools and techniques that will assist you in adapting your audit operations to the changing environment and to ensure audit products are viewed as "value added" by the customers.
- Teach when and how to apply tools and techniques for improving the quality of financial, performance, and fraud auditing.
- Expose the participant to a dozen tools and techniques to enhance audit planning and to make work products more persuasive.

Upon completion of this course, the participant will be able to:

- Explain the purpose of various analysis techniques.
- Apply Delphi techniques, Pareto, run tests, frequency distribution, side-by-side bar, contingency charts, histograms, control charts, fish bone charts, flowcharts, brainstorming, benchmarking, and scatter diagrams.
- Identify when to apply each analytical technique.
- Identify required data elements to prepare the analysis.
- Apply each analysis and interpret results.

Each participant earns 24 Continuing Professional Education credits by attending the 3 days of classroom training. The tuition for the class is \$575.00.

From March 2005 to May 2006, IGATI scheduled and conducted 3 Analytical Techniques and Tools for Improving Processes classes and trained 26 students.

ICRB Assessment

To gain an understanding of the course content, we reviewed the course material for the Analytical Techniques and Tools for Improving Processes course presented by IGATI. Our focus was to determine whether the course materials are:

- Current;
- Relevant to the course objective(s);
- Substantive;
- Complete enough to address the course objective(s);
- Useful as a reference resource “back at the office.”

Based on our review, we determined that for the most part the course materials which included the course manual, class exercises, and the class handouts adequately addressed the above stated criteria. However, we noted some areas for improvement which were the organization of the student manual, how to apply the various analytical tools and techniques, and to update the course manual.

The organization of the student manual makes it difficult to navigate. There was no table of contents which made it hard to identify what the course manual contained. Also, there was no easy identification of the three course manual sections which were the course modules, class exercises, and class handouts. The course manual did not have a section stating the course objectives and how the manual, class discussions, and class exercises will make the participant a more effective asset to his or her organization. Also, a section including what process improvement is, why it’s necessary, and the opportunities existing to employ effective analytical techniques and tools to help managers improve processes would be helpful. An instructor biography and course agenda were missing from the course manual and they would be useful to the student.

In our review of the course materials, we thought including general guidelines on selecting the most appropriate analytical tools and techniques under various scenarios or a table that at least compares and contrasts the strengths and weaknesses would be helpful. It would be useful if the manual would include information on how to apply the various analytical tools and techniques with real life examples that are used in audit plans, workpapers, and audit reports. We noted three other areas that would be beneficial to cover in the course materials. The class should incorporate a section on cost benefit analysis which is an important analytical tool and a section on the concept of data mining from a qualitative perspective because data mining can be used as an integral part of audit reports. Also, providing sources for additional work by W. Edwards Deming and Juran whose work is discussed in the control process improvement module would be beneficial.

We noted information in Module 2, Qualitative Tools of the course manual was not current. First, the exercise refers the student to Easy Flow and Flowchart 123 as additional flowchart software. We attempted to find additional information about these software products, but we were unable to locate either product in multiple internet searches. During our searches, we noted that there are a number of other flowchart software products that are not mentioned. Second, Module 2 presents the Arrow Diagramming Method (also known as the Activity on arrow method) in introducing the

students to Program Evaluation and Review Technique. This methodology, developed in the 1950's, is rarely used today; the technique most widely used is the Precedence Diagramming Method.

To gain an understanding of the prior students' reaction to the course right after taking the course, we obtained and analyzed student evaluations for three classes held between March 2005 and May 2006.

We analyzed the student evaluations by:

- Re-computing composite scores for each of the 12 standard ranking questions for each class.
- Determining for each class, the highest-scored module, the lowest-scored module, and average.
- Reading narrative comments on the evaluations and noted any reoccurring themes.
- Identifying significant trends.

Overall, students gave the course average marks. For the classes taught, individual composite scores on the questions taught ranged from 4.71 to 3.33 on a scale of one (strongly disagree) to five (strongly agree). The following table presents our analyses of student evaluations for the three courses held during fiscal years 2005 and 2006.

Class Date	03/05	08/05	05/06
Instructor	Jim Deaguiar	Jim Deaguiar	Jim Deaguiar
No. of Evaluations	9	7	9
Key Questions			
Organized and prepared	4.00	4.43	3.56
Knowledgeable	4.13	4.71	3.78
Effectively communicated	3.67	4.43	3.78
Aroused interest/enthusiasm	4.00	4.43	4.22
Encouraged participation/interaction	4.44	4.57	4.67
Considerate/Responsive	4.44	4.71	4.56
Used class time effectively	4.00	4.29	3.33
Achieved Objectives	3.89	4.29	3.56
Content Organized	3.78	4.14	3.67
Course Material Relevant and Useful	4.00	4.14	3.89
Course will improve current or future job performance	4.00	4.29	4.00
Course was valuable experience	3.89	4.29	3.89
Total Composite Score	4.02	4.39	3.91

Student narrative comments were positive about the class exercises and the overview of management techniques. Additional student comments stated that the course should:

- Relate material to real world auditing experience.
- Go over and explain examples before an assignment or exercise.
- Provide more Excel instruction.
- Teach how to do, not just read how to do.

The student's scores for the May 2006 class were lower than the other classes. We noted some recurring negative narrative comments on the student evaluations. The instructor mainly read from the slides instead of spending time explaining the analytical tools and their application. Of the five class modules only two were fully covered and the students noted that better time management and staying on the subject matter would have helped in completing the class modules. Students stated that more instruction before some of the class exercises would be beneficial. They noted that the instructor didn't have all computer data for some of the class exercises loaded on his computer which caused a delay and disappointment for the entire class.

To gain an understanding of the usefulness of the course at the workplace, we interviewed five former students who took this class between March 2005 and May 2006. We also interviewed three supervisors. To conduct our interviews, we used Appendix A and B and selected the students from the class participants list provided by IGATI.

Two of the five students interviewed liked the course because it was hands-on, interactive, and informative. Two students did not like the course because they felt the instructor's approach to teaching the analytical tools and techniques needed improvement and he didn't explain the class exercises before assigning them. One student liked the course in general but noted that the first day was boring because most of the material was read from the manual but the remainder of the course was more useful because of the exercises and team projects. Two of the students stated that their expectations of the course were met. Two of the five students are applying the skills and knowledge taught in the class. The students considered the analytical tools and techniques covered in the class, visual aids, and the instructor's knowledge of the subject to be the course strong points. The students mentioned the lack of applying each analytical tool to real life work situations and not enough time on exercises as the course weak points. If the students could make changes to the course, three students said that they would provide more examples of how analytical tools and techniques are applied to actual work situations and add more student exercises. One student would like the class to be one week instead of three days.

We interviewed the supervisors of three of the five students. The supervisors sent the students to the course to gain a better understanding of analytical tools and techniques. Two supervisors stated the employee gained considerable knowledge in analytical tools which helped them be more efficient in performing their job. Another supervisor noted the employee learned techniques to answer the what, when, where, why, and how questions, as well as help develop the sampling techniques needed for their projects. All of the supervisors interviewed stated that their employees used the skills and knowledge learned from the course on the job. One student briefed the rest of the staff on what they learned and another student applied their knowledge of flowcharts. All the supervisors stated that their employees gave positive feedback on the class. All of the supervisors stated they would continue to send their employees to this course as needed. One supervisor suggested that IGATI provide a self-addressed postcard to the student's

supervisor for feedback on the usefulness of the course. That same supervisor recommended that the IGATI Curriculum Review Board continue reviewing the IGATI courses but on a more frequent basis.

To gain an understanding of the overall effectiveness of course delivery, we arranged with IGATI to observe the course given from May 23 through 25, 2006. The instructor was knowledgeable of the subject matter and did a great job in generating class participation by asking questions, drawing out students' opinions, comments, and questions, and motivating students to share their experiences. We noted that a number of the computers in the class were not configured properly for students to complete the class exercises. Several class exercises required students to use the Analysis Toolpak Add-in, and this feature was not installed on all workstations. Even though the instructor was knowledgeable on the subject matter he had difficulty passing this valuable information to the students. He would read the briefing slides instead of relating the information to real life situations and how it can be useful in audit work. The instructor was not familiar with some of the class exercises. Therefore, he had difficulty assisting students with their questions. There were five course modules but only part of module three was discussed and none of modules four and five were covered. In our opinion, the instructor's use of class time contributed to the class's failure to complete the course materials. Of the modules covered, some of the information was quickly passed over especially the last day of class. The instructor spent a disproportionate amount of time on certain topics at the expense of others. For example, a lot of time was devoted to flowcharting in Excel but less time was spent on Delphi, benchmarking, and affinity diagrams. Because of the many analytical tools and techniques introduced, it is essential that all allotted course hours thoroughly cover each, including addressing all questions and allowing students to do related exercises and discuss solutions with the instructor.

Our overall observations were similar to the former students. The analytical tools and techniques covered in the class, the visual aids, and the instructor's knowledge of the subject were the strong points of the course. The lack of applying each analytical tool to real life work situations and not enough time on exercises were the weak points of the course.

ICRB Recommendations

We recommend that the Director, School of Audit and Inspections (formerly Inspector General Auditor Training Institute):

- 1. Organize the student manual to make it easier to locate information by including a table of contents page and identifying the three course manual sections which are the course modules, class exercises, and class handouts.**

SAI Response. SAI agrees that the student manual be revised to better locate information.

- 2. Add a section that states the course objectives, how the course materials will make the participant a more effective asset to their organization, and what process improvement is and why it's necessary.**

SAI Response. SAI agrees that the student manual should include a section on the course objectives.

3. Add an instructor biography and a course agenda to the course manual.

SAI Response. SAI agrees that an instructor biography will be included in all SAI courses.

4. Add general guidelines on selecting the most appropriate tools and techniques under various scenarios that compares the strengths and weaknesses of each.

SAI Response. SAI agrees that general guidelines will be incorporated into the course material identifying when to use the appropriate tools and techniques and comparing their strengths and weaknesses.

5. Add a section in the course manual on cost benefit analysis and data mining.

SAI Response. SAI agrees that a section on cost benefit analysis and data mining will be added in the course manual.

6. Add real-life examples of how various techniques taught in Modules 2 – 5 are used in audit plans, working papers, and audit reports to the course materials.

SAI Response. SAI will attempt to obtain instructors with extensive experience using these various tools and techniques but they did not guarantee these types of instructors in every case. SAI will work with George Mason University to obtain the best instructors as possible.

7. Inspect all classroom workstations prior to class to ensure that the workstations are set up properly for the class.

SAI Response. SAI agrees to ensure that workstations are ready for student use.

8. Assure that the class addresses all the analytical tools and techniques that are introduced in the course manual and the students have sufficient class exercises and time for questions to understand these techniques.

SAI Response. SAI agrees that the class will address all the analytical tools and techniques in the course manual and the students will have a basic understanding of the concepts presented.

9. Update Module 2 to provide an updated list of flowcharting software in lecture slides and consider teaching the Precedence Diagramming method instead of the Arrow Diagramming Method.

SAI Response. SAI will work with George Mason University to identify the most prevalent diagramming tools currently being used in business and government. Special attention will be given to including the Precedence Diagramming method.

10. Include resources for additional work by W. Edwards Deming and Juran.

SAI Response. SAI agrees to include resources for additional work by W. Edwards Deming, Juran, and others as they apply to the concepts of work processes.

Appendix A. Student Interview Questions

Course Title:

Former Student Focus Group Participants:

<u>Name</u>	<u>Agency</u>	<u>Location</u>	<u>Class Attended (Month/Year)</u>
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ICRB Subgroup Participants:

Date of Focus Group Meeting:

Explain the purpose of the ICRB and this focus group discussion. Thank the former students for their participation.

1. Did you like the course? Why or why not?
2. What did you expect to get out of the course?
3. Were your expectations met?
4. What do you consider to be the course's strong points?
5. What do you consider to be the course's weak points?
6. How have you applied the skills and knowledge gained from the course on the job?
7. If you could change two or three things with the course, what would they be?

Appendix B. Supervisor Interview Questions

Course Title:

Supervisory Focus Group Participants:

Name	Agency	Student Name and Class Attended (Month/Year)
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Date of Focus Group Meeting:

Explain the purpose of the ICRB and this focus group discussion. Thank the former students for their participation.

1. What was your objective for sending your staff member to the course?
2. What new skills and knowledge did you expect the staff member to acquire from the training?
3. Did staff member acquire expected skills and knowledge or meet your other objectives?
4. How has your staff member applied the new skills and knowledge on the job?
5. What feedback did the staff member provide you on the strengths and weaknesses of the course?
6. Overall, do you feel that the course was of benefit to your staff member's professional development and the needs of your agency? Why?
7. Do you plan to send other staff to this course? If not, why?
8. Do you have any suggestions on ways IGATI could improve the course content and delivery?



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July 12, 2006

MEMORANDUM FOR: Robert K. West
Principal Assistant Inspector General for Auditing
Office of Inspector General, Department of Defense

FROM: Danny L. Athanasaw *Danny L. Athanasaw*
Director,
School of Audit and Inspections (SAI)

SUBJECT: SAI Response to Draft Report of ICRB Review of Course:
Analytical Techniques and Tools for Improving Processes

Thank you for the opportunity to review and respond to the draft report of SAI's
Course: **Analytical Techniques and Tools for Improving Processes.**

SAI is presently in a transition year and will formally consolidate in Fiscal Year (FY) 2007 with the Criminal Investigative Academy and the Management Institute. Additionally, there is a new Board of Governors that will provide policy direction to the new consolidated Inspector General Institute. The Board of Governors will have final say on the FY 2007 course offerings. It is also anticipated that all courses starting in FY 2007 will be contracted out. As a result, there is an opportunity to re-evaluate all course materials and make any necessary changes for this course. The SAI will work with George Mason University to ensure that the course materials are updated to incorporate new concepts, processes and descriptive tools as recommended in this report.

SAI's response to each recommendation follows:

Recommendation 1: Agree

SAI agrees that the Analytical Techniques and Tools for Improving Processes course material needs to be revised to better locate information including the table of contents, course modules, exercises, and handouts. SAI will take necessary action to ensure that changes are implemented to the course.

Recommendation 2: Agree

SAI will ensure that a section is added that states the course objectives and how the course materials will help the participant become more knowledgeable in process improvements by using tools and techniques discussed in this course.

Recommendation 3: Agree

The instructors' biographical sketch will be included in all SAI courses. Additionally, the course material will ensure that instructor contact information is provided to students.

Recommendation 4: Agree

A section on general guidelines will be incorporated into the course identifying the appropriate tools and techniques under various scenarios and comparing strengths and weaknesses of each type of tool and technique.

Recommendation 5: Agree

A section on cost benefit analysis and data mining will included.

Recommendation 6: Agree in Principle

While SAI will attempt to obtain instructors with extensive experience in using these various tools and techniques in audits and evaluation there is no guarantee that we will be able to obtain these types of instructors in every case. SAI will work with George Mason University to obtain the best instructors as possible.

Recommendation 7: Agree

SAI will continue to ensure that workstations are ready for student use.

Recommendation 8: Agree

SAI will continue to ensure that all tools and techniques introduced in the class are followed up with exercises to ensure that students have a basic understanding of the concepts presented.

Recommendation 9: Agree with Concept

SAI will work with George Mason University to identify the most prevalent diagramming tools currently being used in business and government. Special attention will be given to including the Precedence diagramming method.

Recommendation 10: Agree

SAI will include the works of W. Edwards Deming and Juran among others, as they apply to the concepts of work processes.

Again thank you and your team members for the opportunity to comment on this report. I appreciate your time and energy involved in this review. I also believe your review will improve the delivery of this course.

If you have any questions, please contact me at (703) 248-4589.