

# FITS



## What Users Think

by Tom Glista

**T**he articles I have been writing about FAA/Industry Training Standards (FITS) contained information, FITS philosophy, background, studies, partners, subgroups, etc. But we now have some results of FITS training. So instead of quoting bland statistics, I am writing about what the people who are using FITS think about it. Middle Tennessee State University (MTSU) received FITS acceptance for their FITS Scenario Based Private/Instrument Pilot Certification Course-ASEL on May 25, 2004. The first cadre of students has completed this course. I went out and talked directly to an aerospace department chair, a designated pilot examiner, a flight instructor, and a student involved in the FITS program.

Keep in mind as you read this that these are opinions and preliminary information. Since MTSU jumped into this program doing FITS training in a full-glass cockpit airplane, we do not know if these results are because of

the airplane's instrumentation, the training, or a combination of both. To make scientific determinations, comparative data is required. We would need to conduct controlled studies of FITS training in traditional cockpit Diamond *Star DA-40s*, traditional training in glass cockpit DA-40s, and traditional training in traditional cockpit DA-40s. Finally, all the students in these studies would need to meet the same experience requirements as the original study.

The MTSU Aerospace Department has 825 students of which 400 are flight students. Its fleet consists of nine Diamond *Eclipse* (DA20s), 11 Diamond *Star DA40s* (five of which have Garmin G1000 glass systems installed), three Piper *Arrows*, two Piper *Seminoles*, three Cessna 152 (used by the Flying Raiders flight team), a J-3 *Cub*, and a T-41. MTSU, with the help of a cooperative agreement with NASA, is conducting research on initial training in glass cockpit aircraft using a FITS-accepted private/instrument

combined curriculum. They have had their first set of students go through this course in a glass cockpit (G1000) Diamond DA40. Because this is a research project they only chose students who had less than five hours of flight training.

### Dr. Paul A. Craig

Dr. Paul A. Craig is the Aerospace Department Chair /Associate Professor for Middle Tennessee State University (MTSU). He holds an ATP certificate, flight instructor certificate (single engine, multi engine, instrument, and seaplane), and an Advanced and Instrument Ground Instructor Certificate. He has logged over 5,000 hours. MTSU has a total undergraduate student population of 23,000, which is greater than the University of Tennessee at Knoxville.

**FITS Program Manager (FPM):** Dr. Craig, why did you go to a FITS program?



**Dr. Craig:** We have been sold on scenario-based training for years. MTSU had completed a research project using 'real world' training strategies in the 1990s. The book *Pilot in Command* by McGraw-Hill was based on that project's research, so we were on board the first time we learned of FITS.

**FPM:** How difficult was it to develop a FITS accepted curriculum?

**Dr. Craig:** It was not difficult. We used the generic private/instrument syllabus that the FITS team had produced and then adapted it for our own use. The accepted FITS syllabus was later approved under MTSU's existing Part 141 certificate.

**FPM:** Your instructors were trained in applying FITS. How did they accept this change?

**Dr. Craig:** The instructors attended two days of FITS training that was conducted by members of the FITS Technical Team. The instructors were eager to use the new approach. It was not long ago that our instructors were students themselves and they immediately wished that their training had used the "real-world" FITS approach.

**FPM:** What did you see in the way students picked things up in FITS training verses traditional training?

**Dr. Craig:** The FITS accepted scenario-based syllabus that we have adopted is very "front-end loaded." By that I mean that students are exposed to more topics and they come at them much faster than topics of traditional training. To give you an idea, the very first flight in our syllabus is a flight to another airport. The sixth flight ends with a GPS approach. Long before our students fly solo for the first time, they are planning cross-country navigation, learning airspace, and making weather decisions. This means that students must really start fast, but past about 20 to 25 flight



hours, they start getting the payback. Students past 25 hours have far fewer setbacks (the need to repeat a lesson) in their training at the private and instrument levels than the traditional students have.

**FPM:** Did you encounter any problems with FITS training and the required traditional practical testing?

**Dr. Craig:** The FITS students learn with a new approach, but test using the old method, and this has been the biggest disconnect with the program. MTSU was granted an exemption to conduct a single private and instrument practical test, but this still has not erased the difference in philosophy that exists. (FPM's note: Title 14 Code of Federal Regulations section 65(a)(2) requires that a person applying for an instrument rating must already hold at least a current private pilot certificate.) Students in our FITS accepted syllabus do learn and perform maneuvers, but they do this within the context of a scenario. The flight test is not scenario-based (despite attempts to shift it that way). So prior to a student's syllabus completion, the student and instructor must step out of their roles in the "real world" training and are forced to spend several hours with drill and

practice to "teach to the test." The goal of FITS is to teach pilots to function within the aviation system safely and efficiently. The current test is a series of procedures and maneuvers, some of which have no real-world application. Consequently the test can be out of step with what we believe is a better approach to teaching future pilots in today's complicated system.

**FPM:** What advise can you give to others who are considering a FITS program to avoid problems?

**Dr. Craig:** In flight education it seems that a "new big idea" comes out every other year, and many might think that FITS is just another program that will have its time and then be replaced year after next by something else. But FITS is different. FITS is just a different way of viewing the world and the world of flight training. My advise to others is that you must first understand that FITS is not just another FAA program—it's a whole new ball game.

**FPM:** Let me ask you about the bottom line. What is the cost-benefit analysis for your students?

**Dr. Craig:** Our FITS-accepted syllabus does save students money over the course of the private and instru-



ment training. Most students get to that point at the 90 hour point, whereas our traditional students normally reach that level with about 130 hours. The next step with FITS now needs to be commercial/instrument because the savings that students gain with FITS through the instrument rating is quickly given back when they must go back into traditional training for the commercial certificate. The next frontier is not a private/instrument, but a FITS commercial/instrument—that would be the greatest cost-benefit.

**FPM:** Would you do it again?

**Dr. Craig:** Absolutely!

### Mr. Donald Crowder

Mr. Donald Crowder is the Designated Pilot Examiner who conducted the practical tests. He has been flying for more than 40 years, has logged over 12,000 hours, and has been a Designated Pilot Examiner for 12 years. He gives about 160 practical tests a year. He holds an ATP with type ratings in the Boeing 707 and Boeing 720, CFI single engine, multi-engine, and instrument. Besides being a pilot examiner, Mr. Crowder is a full time professor for MTSU. He teaches the University's instrument course and a simulation class for transition into regional jets.

**FPM:** How did the students do?

**Mr. Crowder:** They did very well, far better than expected. I conducted nine practical tests and three failed on the first try. This is my average pass rate.

**FPM:** What were the reasons for the students that failed?

**Mr. Crowder:** I believe that two of the three failures were because of fatigue. Although the combined PTS does eliminate the same task that would be required to be done twice in separate practical tests, the oral portion is still about three hours and the flight lasts about two and a half hours. I believe that the third failed because the student did not put in the effort re-

quired for this program.

**FPM:** Did you see a difference, good or bad, between FITS and traditionally trained applicants?

**Mr. Crowder:** It was remarkable. I was expecting it to be a complete flop. A couple of students had only about 75 hours. Most students had far less than 100 hours. When I saw the [application] form I thought "this kid couldn't possibly be ready." Both students with 75 hours passed. Generally I could not separate the ability of the applicants between being FITS-trained in the glass systems who had between 75-110 hours and those trained in a traditional training program in steam gauge aircraft with the normal average of 130 hours. I believe that one of the reasons for these results is because with the glass instrument it's hard to get lost.

### Mr. Greg Slagle

Mr. Greg Slagle was one of the flight instructors who gave the FITS training. He holds a Commercial Pilot Certificate Airplane Single and Multi Engine Land; Gold Seal Flight Instructor Certificate Single Engine, Multi-engine and Instrument; and Advanced and Instrument Ground Instructor Certificate. He has been with MTSU for a year and a half with a total time of 1,200 hours and 1,000 hours of dual given. He is leaving MTSU for a new position at Chautauqua Airlines. His first assignment is the ERJ-145 (an Embraer 50 passenger regional jet).

**FPM:** At first, what did you think about the FITS training?

**Mr. Slagle:** Scenario-based training is intriguing to all of us. It enforces what the student thinks about real world instead of doing maneuvers. FITS training helps students relate to the real world better when things go wrong. They have a better ability to diagnose problems.

**FPM:** What did you need to do differently in FITS training?

**Mr. Slagle:** There was a lot more

pre-flight discussion, especially in the beginning. The training is very front-loaded. In the beginning [students] did not always see the relationships between the learning outcomes and what they were doing in the lesson. This is because they came to the training with almost no background aeronautical knowledge and since it is so front end loaded, they did not have simple to complex training learning build-up. But, towards the end the student was taking responsibility for the training lesson and the learning outcomes.

**FPM:** Is FITS training difficult to do?

**Mr. Slagle:** It was not difficult—it was just different. Instead of doing small lessons (one or two learning outcomes) it comes all at once. The fourth lesson was a short cross-country. A 20 mile/12 minute flight for the student with three lessons was difficult because there was so much information for the student to know at that time (fuel, weight & balance, weather, flight planning, wind correction angles, aeronautical charts, etc.). In the beginning of the course there is so much information the student had to absorb, the students were overwhelmed, but that problem quickly tapered off.

**FPM:** How did the students take to it?

**Mr. Slagle:** The students had to be very driven. Other students who are not so driven may not be able to handle it.

**FPM:** What progress do you see in students verses traditional training?

**Mr. Slagle:** Students progressed faster. I believe that it is due to the recurrency. Students flew six to seven hours a week as opposed to maybe twice a week in traditional training. They also learn a lot more with scenarios. They can relate things better with the private/instrument combined. They see the bigger picture as opposed to saying, "Okay today we are going to do stalls."

**FPM:** What do you think should





be done different?

**Mr. Slagle:** There were areas in the syllabus that seemed out of place. Some things could have been a little more logical, and parts were a bit vague. We [instructors] have talked with Dr. Craig about this. It would be helpful if the students came to the flight training with more basic aerodynamic and aviation knowledge. They started flight training without any ground school in basic aviation subjects.

### Mr. Kurt Jendrek

Mr. Kurt Jendrek was one of the students. He had 102 hours when he took the practical tests.

**FPM:** What do you think of the flight training you received?

**Mr. Jendrek:** Overall it was easy. In the beginning, it was almost too much to learn. The first two to three weeks took me by surprise. But I knew I was getting into something that I would have to work hard for. I think it was a little too much to expect students to land after the fourth lesson. We were doing so much other stuff—shooting approaches, learning to get into holding, and hood work. After two or three weeks the pace became less overwhelming, or at least I got used to it.

**FPM:** Have you flown in a tradi-

tional cockpit aircraft since you took your practical test and if so, how was the transition?

**Mr. Jendick:** I have flown 30 or so hours in steam gauge aircraft. In the beginning it was difficult, but I attributed it to an old aircraft with tired gauges. The transition to the new steam gauge aircraft was easy. In some instances it was easier than flying the G1000.

**FPM:** How was a steam gauge airplane easier?

**Mr. Jendrek:** The location of the indicators. For example the airspeed gauge is higher [on the steam gauge aircraft] than the G1000, which makes landing a lot easier. But flight planning is easier with the G1000. It is a trade off. Depending on the mission, it drives what aircraft you would rather use. If you want to practice maneuvers and landings use the steam gauge airplane, if you are going cross-country use the G1000 airplane.

**FPM:** There is a lot of discussion that the younger video game generation will take to a glass cockpit easier than older pilots. Do you believe that video game experience has helped you?

**Mr. Jendrek:** I really did not play a lot of video games as a child. My mother would make me go outside and play. In my opinion, it is a lot like

video games, but there is a lot outside the G1000 you need to include in your assessment of what you are doing, what you need to do next, and what your options are.

**FPM:** Was there anything you believe you missed being in this program or something you don't feel confident in?

**Mr. Jendrek:** I am still concerned about shooting approaches in a traditional cockpit. But there is nothing I missed out on by learning on the G1000. It is a very well thought out program. But being able to land after the fourth lesson...the expectations in the beginning might be too high.

### Conclusion

These interviews (only anecdotal evidence) show me a few things. First, that it appears a FITS scenario-based training program does work. This specific program is in a college environment with driven students who can take the pressure of a front-loaded training program. The FITS team reviews a curriculum to ensure that it contains the tenets of FITS. If it meets the FITS tenets, it can be accepted. There is no requirement for a FITS-accepted syllabus to be so front-loaded. Next, we are looking at the testing standards. To have a student trained and competent under FITS and then to pass the test that student must go and spend extra hours on maneuvers is not efficient. One of the funded research tasks which the FITS team is conducting is the "development of a methodology to justify the inclusion or removal of maneuvers from flight training curriculums." Finally, changing from traditional maneuvers-based training to FITS (scenario-based training) was not difficult for anyone involved. As with any developing program, there is always better ways we can do things. So the FITS team will be looking at lots of data and making improvements as we learn more. To err is human, to recover is good training.



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