



STDI—Structural Test Design and Interpretation

24-hour course developed and taught by Tom Sarafin, Instar’s founder, president, and chief engineer

Testimonials

Canadian Space Agency (commenting on an early version of this course called “Effective Structural Verification”)

“Very good handouts, very good link between course and experience.”

“Great course. I wish I had more people from my team with me.”

“Enjoyed the course and will recommend it.”

“Overall, a very good, well-presented course. Thank you!”

“The examples brought by the teacher and the discussion brought by the students were an added value to this course.”

“That was great! Thank you, Tom!”

“Course content and presenter’s anecdotes were really good. Knowledge of spacecraft failures was particularly effective.”

“Excellent, well polished course and highly knowledgeable instructor.”

“The quality of course is excellent.”

Goodrich ISR Systems

“The review of the entire topic is great. Typically don’t get a chance to look at big picture.”

“Provided a good overview of how all the various testing methods may be considered and combined to best address the objectives. Helped to highlight the key nature and pros/cons of various options.”

Most interesting or useful:

- “Test design & applicable tests for a given program.”
- “Static loads testing & testing on shaker.”
- “Pitfalls and problems from improper testing, lack of or poor planning.”

Jet Propulsion Laboratory

“Regardless of if you will be responsible for a structural test in the future, this class will give you invaluable insight into the entire process.”

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“Overall, great class and instructor. Good use of theory and practical application.”

“I think this course should be a “must take” for stress engineers in charge of designing and conducting standard tests.”

“Excellent course for mechanical design engineers that can get a general view of structural testing and applicability of each type of test to different types of hardware.”

“Tom combines varied examples and case studies from his many years of experience in a compact course that gives a global overview of test design practice.”

“This course helped me understand the best testing approach to take depending on the test objective that wasn’t so clear to me before since I didn’t see the ‘big’ picture before.”

“Great course.”

“Great examples, in-class activities, case studies.”

“Great knowledge and ability to relate to non-specialists. Good presentation energy.”

“Tom was very knowledgeable and has a lot of applicable experience.”

“It was a great class and I certainly recommend this for our group (structural analysis and loads).”

“One of the best teachers I’ve experienced in a long time.”

“Tom was knowledgeable and patiently answered all questions.”

“I enjoyed the class and felt it was beneficial overall.”

“Lots of great real-world examples.”

“I would definitely recommend the class to anyone who will be involved with structural testing, whether or not they will be responsible for designing the test.”

“Overall, very knowledgeable instructor and I learned a lot. Good mix of theory and practical application.”

“I expected to find that the virtual webinar would introduce distractions and make asking questions more difficult, but I actually found it helpful. Myself and others were able to ask questions with relative ease, and having the presentation on a screen right in front of me allowed me to study the slides more easily than when looking at a projector.”

“The information within the course is compiled and organized very well. Easy to follow. And Tom’s discussion of the notes flowed very well, mixing direct reference to the material but also many anecdotes outside of it that better illustrated the topic at hand.”

“Tom’s examples based on his experience really helped with understanding the material.”

“Still very effective as a virtual webinar. Different experience but doesn’t take away from content learned.”

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“I think (the class as a virtual webinar) was great and very worthwhile. I also took the (instructor’s) bolted joint course at JPL and I didn’t think the virtual aspect of (this) class took much away at all. Very satisfied.”

NASA Kennedy Space Center

“This course offered a good understanding of the different types of structural testing, reasons to implement each and the proper methods to ensure a successful test.”

“This course should be mandatory for all NASA, or any other industry partners, engineering disciplines.”

“Instructor welcomed questions and classroom discussion and interaction.”

“A terrific insight course for success in structural testing and avoiding pitfalls.”

“The course was well structured and very well presented.”

“Great overview of loads analysis and test.”

“Great instructor experience, lots of real world examples and insights.”

NASA Glenn Research Center

“As a relatively new engineer, this course helped answer many questions that I had in regards to the overall purpose and goal of the many tests involved with my projects.”

“I thought the course dove deep enough into the details without overwhelming the audience. I’ll take away many important key ideas to use when designing tests.”

“Tremendous knowledge in a short time.”

“Excellent course!! Very timely because GRC is supporting upcoming Orion service module structural testing.”

“The course offers a very good overview for the considerations that need to be taken into account prior to, during, and after any structural testing.”

“I thought the case history examples and work shops were exemplary”

“This course offers excellent exposure for me to spacecraft structures.”

(Most interesting or useful) “The real-world anecdotes, experiential examples, and student-solved problems.”

“The course notes/presentation charts were quite good. Should be a useful reference.”

“Thought-provoking questions and exercises to reinforce taught material.”

“I liked the case histories and examples. It is always good to see how theory is applied.”

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NASA Langley Research Center

“A very good course. Having been involved in one vibrate test prior to this, I wish I had the course earlier. Suddenly a lot of what I saw makes much more sense.”

“Very helpful course if you want an understanding of what happens and why during testing.”

“The instructor obviously knew a lot about what he was lecturing on and was very willing to discuss the topics covered with the students aside from the basic lecture.”

“I recommend this course be offered more frequently to other NASA employees.”

NASA Marshall Space Flight Center

“Good course. It’s good to know what the people who are creating the tests I run should know.”

“Very informative.”

“This is an excellent course. I found it very helpful and applicable to my job. I hope to take more courses from you.”

“I think the majority of it was interesting/useful. Very good balance.”

“Instructor knows subject and can convey the subject well.”

“This course goes beyond traditional textbook learning. The real life case studies covered in the course provide valuable insight into possible real testing scenarios not covered in textbooks.”

(Most interesting or useful) “Discussions on large static structural test related to proof & qualification.”

“Well done for 3 day course.”

“It was very practical & useful. Real examples/war stories were most interesting. Great class.”

“Gave me some good things to think about (philosophical differences, e.g.).”

“As a dynamics engineer, even the basic overview of structural testing was extremely useful. Most interesting was section 5 (testing on an electrodynamic shaker), since it is most relevant to the type of testing I might be involved with in the future.”

(Most interesting or useful) “Of course, the subjects related to my discipline. However, I will likely have more take-away from the subjects that I was less familiar. Great reminders and additions as to why I do what I do (not just ‘this is what I’ve always done’).”

Northrop Grumman Aerospace Systems

“Excellent!”

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“The entire course was useful to me. Almost all of the material was new to me. It gave me a good basic understanding of the types of test that we do and why we do them.”

“Good job, Tom. These courses are a big help and give us a lot of great fundamental information.”

“This course gives you a good fundamental foundation to good structural design verification test. This course helped demystify my questions about dynamic testing.”

“This is a good introduction course to the subject of structural test design and interpretation, with a good balance between theory, foundation analysis, and real-world examples.”

“Tom Sarafin’s courses never disappoint. This class offers a well-balanced blend of fundamentals, examples, and lessons learned that any aerospace engineer involved in structural test design and interpretation would benefit from. **Looking forward to more to come from Instar.**”

“This course has practical, structural test topics, useful for designer, responsible engineer and technical manager.”

“This course provided good collection of information to help engineer design and interpret test in future program.”

“This is a great course.”

“Great professor with courses where you can take the information learned and material presented and directly apply it to your everyday work!”

Sandia National Lab

“Instar provided a course with technical content emphasized by real-life problems and case histories. **This was not a conceptual class, but one that left you with a true understanding of the concepts while knowing how to work through problems in real life.** Tom ensured we truly left with knowledge that could be remembered.”

“Interesting and eye opening!”

“It’s a great course and really challenges you to think and engage in the material by making you apply the concepts you learn to practical examples and case histories.”

“Great class for space systems hardware structural test engineers.”

“STDI is an excellent course in that it helps in gaining an understanding of a variety of test techniques, as well as instructs students in how to programmatically plan tests.”

“This course forces you to consider why and how to test your product. It also gives options for more relevant test methods.”

US Army Ft. Eustis

“Good course overall. Emphasis on dynamic testing was unexpected and good.”

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“Fantastic course! Covered all aspects of structural test design that I need for my current position. Instructor demonstrates command of the subject matter and has real industry experience!”

Wallops Flight Facility: NASA and Orbital ATK

“This class clarified a lot for me.”

“The lessons learned from other programs and tests were beneficial and a good learning experience.”

“Good insight on sine burst. We previously (have done it) only when (it was) customer’s requirement. Had little theory understanding until this class. Also good insight to force limiting.”

“Very good course for practical design of structural tests. Tom’s breadth of experience and excellent communication skills only add to the value.”

“STDI gives engineers a commanding grasp of testing philosophies and types of tests and rounds it all out with real world background and context.”

“Incredibly useful course for anyone concerned with product testing, vibe or otherwise.”

“The course covered a wide range of testing space structures, with an in depth explanation of vibration testing methodologies. The real world examples will help a great deal when I encounter a similar problem.”

(Most interesting or useful:) “Vibe testing. I have been confused on this type of testing for a few years. I feel equipped now.”

Other organizations

“Highly relevant to my job, lots of useful information that I can immediately apply at work. Thank you!”

“Very helpful. The in class discussions of ... test program experiences brought up a lot of good issues to think about.”

“A must for any engineer that has the slightest test involvement!”

“This course is indispensable for anyone planning a structural test. It will pay for itself already in the test planning phase.”

“The course successfully tied together the many aspects of structural testing in a form that was easy to understand and did not induce confusion with complicated formulas. The course greatly increased my understanding of structural testing.”

“I found the section on shake tests to be most valuable. The meaning behind the curves and the approaches to testing, but not over-testing were helpful.”

“I felt there was no loss to the value of the course by having it virtual (having not experienced a similar course in person, however).”

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