SDA—Structural Design and Analysis for Aerospace Engineers

Short Course

Testimonials

"Absolutely every section is useful. I liked so much that there (was) lots of information … based on experience. Thank you so much Tom!"

"While I found all of it interesting and useful, the part I found most useful was how Tom tied everything together. I can look up any of the formulas, but walking through the concepts and formulas with Toms commentary really makes everything clear."

"Fatigue assessment part was the most interesting part for me. I found strength analysis part useful too but most importantly, key ideas of being an engineer that (the) course was trying to impose was the most crucial part."

"I would recommend this course to anyone looking to strengthen their fundamental engineering principles and … gain an engineering perspective."

"This course is beneficial for mechanical analysts and design engineers. I've learned practical concepts that help me design efficiently without wasting time."

"The course challenged a lot of my preconceptions about stress analysis and I liked how Tom broke down his explanations by consistently going back to the basics of using FBDs and the fundamentals. I appreciate how concepts were explained with practical examples and considerations and not just regurgitated from textbooks etc. Basically everything that was covered was helpful and interesting to me."

"This class is a must for anyone who is in the field of analysis and/or design. Tom breaks down each concept in a practical and relatable manner that any engineer can understand.

"I find the industry knowledge, perspective and personal stories to be the most insightful and meaningful. In conjunction with the technical explanations, I think this makes for a unique lesson that provides a lot of important and insightful lessons."

"This course is a phenomenal introduction into the structural design and analysis process. Providing a holistic overview into the processes, considerations and rationale one must maintain in order to generate an effective and intentional design. This course provides you with the tools and confidence to make your own decisions and not fall subject to group think."

"Light bulb moment on mass units, and understanding that there is really no lbm unit was extremely helpful, and helped me realize why all the conversions I was needing to do in FEMAP actually make sense in terms of consistent units."

"This course offers great detail with regards to structural analysis, and challenges traditional ideas relating to stress analysis with a solid basis in engineering logic, rather than sticking with methods or analysis approaches that are simply "the way things have always been done". There is emphasis on portions of

stress analysis such as fatigue that are often neglected or minimized in discussions of structural engineering. Tom's insights and expertise break things down and provide insight into when different methods are appropriate. Class examples are extremely useful."

"Really really enjoyed days 2 and 3 of this course. The material covered these days was the most educational for me as I knew the least about these concepts. Your step-by-step guides were fantastic and easy to follow, and combining them with class problems helped me apply that knowledge instantly. I will say the best part of the course is the anecdotes you provide – theory is helpful of course, but getting to know problems you've come across in your career and how you handled them was very insightful."

"A fantastic course for design engineers and stress analysts alike. This interactive course has a welcoming environment led by a great teacher who is deeply passionate about the material covered."

"I really liked how the recurring theme was to design with stress analysis in mind. All of the class problems helped me understand the material more and take more away from the class."

"As a design engineer, I found this course very helpful. Most of the examples we walk through in class are applicable to what a designer should do before handing off a design to stress. This course serves as a refresher to why initial sizing and giving thought to failure modes are important skills to have for all disciplines of engineer working in aerospace."

"I liked the review of proportional limit (not often discussed at work), inelastic buckling calc, and the truss optimization."

"I really liked that this course opened or re-opened my eyes to further self-study. For example, I don't think I would have known or found out about the Astronautics Manual and I'm hoping I can absorb some of it through self-study."

"Excellent course that provides a good refresher for designers interfacing with analysts and vice versa. 'Stop analyzing bad designs!' "

"This course also really helped me to think about the entire design process that I deal with on a daily basis and thinking about the true requirements and constraints of my design."

"Tom is one of the most knowledgeable individuals I've had the pleasure of meeting, unfortunately only online. The Structural (and) Design Analysis course … truly allowed me to take a step back as a Mechanical Design Engineer and think about what I really would like my design to be able to do."

(what I found most interesting or useful) "Giving examples of statically determinate situations vs not and then touching on the subject later in the course. I knew what statically determinate vs not meant but I never thought about it with respect to design, only beam analysis problems. In addition, I loved the truss problem where we guessed the stiffest and lightest truss structure and then proved which one actually was through a class problem."

"A great course that hits important topics in structural design and offers much needed wisdom in the industry today."

"Fantastic course that give a great overview (of) structures design (and) analysis, especially for engineers in the aerospace industry."

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(what I found most interesting or useful) “failure mode identification ahead of analysis, all of the section on the design side of the analysis, the difference between proportional limit and yield”

“This course was a great refresher for some topics I was already familiar with and was also eye opening on some topics that I had not dealt with in many years and their importance in aerospace. Working at a company that asks for MEs to do both design and analysis, this was a great course to make sure my team and I have the knowledge and skillset required to build great products and meet our objectives with high confidence.”

“Common sense isn’t very common anymore. Tom’s full of it and you can quote me.” (Love this one!)

“We’re all on the same team, don’t want any casualties, hardware or otherwise, and empowering someone to say ‘no’ with good reasons can literally save lives. Yet you, as a good teacher …, proceed to encourage the student to exceed a ‘plain and simple no’ to become instead, a ‘so how about we make it robust like this, where it’s **insensitive to the expected requirements**’. (aka, the definition of Robustness, and IGWS, nobody dies) Thank you for your Service to the Industry Tom!”

(what I found most interesting or useful):

- “Failure mode breakdown <- so useful for an engineer beginning a new design or reviewing a
- completed one
- Honestly, the bolted joint content, one could tell there is so much more there to explore
- The review of statics was humbling and a great reminder (see point 2. below)
- Apples to Apples, this will probably always ring in my head during analysis now
- Mechanics of materials, great comparison and discussion. Really highlighted what properties we are looking for for certain applications”