

## Roulo Consulting Inc. Background

RCI has provided structural analysis consulting and training services to the aerospace and transportation industries for 14 years.



## Aerospace Analysis Boot Camps for:

### Rocketry



### Satellite



### Military Aircraft and Weaponry



### Railway / Commercial Products / Aviation



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LEARN FROM THE PAST, LOOK TO THE FUTURE

# AEROSPACE ANALYSIS BOOT CAMP

STRUCTURAL DYNAMICS



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## Instructor & RCI President

Roulo Consulting, Inc. (RCI) is an engineering consultancy founded by Eric Roulo specializing in structural mechanics, training, and project management. With a deep background in aerospace and defense contracting, we utilize the Pareto principle to focus on the 20% of the material that contributes to the majority (80%) of success. When consulting, we use these principles to provide fast and accurate early appraisals of designs and concepts. When training, the material is focused on just the need to know, day-to-day, practical execution, and 'what do you do on Monday' aspects of your job. We provide the framework, philosophy, templates, and tools to dramatically increase your teams effectiveness starting the day after our boot camps and training sessions. By combining our consulting and training services, we help our clients build great engineering teams while delivering your project on time and on budget.

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## Agenda: 13 Major Topics

|         | Introduction                                                                               |
|---------|--------------------------------------------------------------------------------------------|
| Sec. 1  | Overview                                                                                   |
| Sec. 2  | Dynamics Review, or what you forgot you knew                                               |
|         | Requirements and Initial Sizing                                                            |
| Sec. 3  | Dynamic Design Requirements                                                                |
| Sec. 4  | Initial Sizing                                                                             |
|         | Nastran Dynamics Models                                                                    |
| Sec. 5  | Building FEMs for dynamics                                                                 |
| Sec. 6  | Processing Normal Modes                                                                    |
| Lunch   | Effective Technical Communication (optional)                                               |
|         | Global Sizing                                                                              |
| Sec. 7  | Frequency Response Analysis                                                                |
| Sec. 8  | Random Analysis                                                                            |
| Sec. 9  | Simple Acoustic Analysis                                                                   |
| Sec. 10 | Shock                                                                                      |
| Sec. 11 | Reducing your models (Guyan and CB models)                                                 |
| Sec. 12 | Conducting Dynamics Testing (Testing overview, Sine Sweep, Random, Sine burst, & Acoustic) |
| Sec. 13 | Special Applications (Enclosures, Pointing errors, & ESS)                                  |

Open and Q&A

Networking event to follow Boot Camp

## BOOT CAMP REGISTRATION

Early Bird Registration: \$895  
Standard Registration: \$1,095

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## Structural Dynamics Overview

This intensive, one-day course is meant to provide the attendee with directly applicable tools to get their jobs done. This course emphasizes the use of Nastran finite element models to provide insight into the dynamic behavior of a structural system and provide the analyst with the necessary tools and insight to recommend changes to meet requirements and optimize the design. The course starts with an overview of everything you forgot you knew about dynamics from college, and then launches into requirements review and initial sizing with hand calcs. The bulk of the course then deals with Dynamics in Nastran and the tactical execution of post processing Nastran data into comprehensible information. Software is supplied to facilitate these task and is included with digital copies of all the references. Advanced topics such as enclosures, ESS testing, and pointing errors are covered, as well as a section on conducting dynamics testing in the real world. A novel approach for mode identification is presented that treats a mode of vibration as a load path, allowing structures engineers to intuitively transition into the field of dynamics analysis. REGISTER NOW!

Future Boot Camps, visit: [www.rouloconsulting.com/accelerate](http://www.rouloconsulting.com/accelerate)