

DDAM Analysis with Abaqus

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Day 1

- **Lecture 1:** Introduction
- **Lecture 2:** DDAM for Abaqus Product Overview
- **Lecture 3:** Shock Spectrum Definition
- **Workshop 1** Defining Shock Spectrums
- **Lecture 4:** Creating a DDAM Model
 - DDAM Model Data Sources
 - Ship-to-FEM Orientation and Mounting Location
 - DDAM Solution Procedures
 - Normal Mode Selection Procedures
 - DDAM for Abaqus Intermediate Results Generation
- **Workshop 2** Creating a DDAM model and Viewing Intermediate Results

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Day 2

- **Lecture 5: DDAM Response Analysis & Results**
 - DDAM Data Processing Issues
 - DDAM Output Requests
 - DDAM Job Creation & Submittal
 - DDAM Results Processing
- **Workshop 3 Generating and Viewing Shock Response Results**
- **Lecture 6: Closely Spaced Modes**
- **Workshop 4 DDAM-CSM Evaluation of a Stowage Rack System**



DDAM Analysis with Abaqus



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DDAM Analysis with Abaqus



Revision Status

Lecture 1	5/11	Re-released for 6.8-EF1
Lecture 2	5/11	Re-released for 6.8-EF1
Lecture 3	5/11	Re-released for 6.8-EF1
Lecture 4	5/11	Re-released for 6.8-EF1
Lecture 5	5/11	Re-released for 6.8-EF1
Lecture 6	5/11	Re-released for 6.8-EF1
Workshop 1	5/11	Re-released for 6.8-EF1
Workshop 2	5/11	Re-released for 6.8-EF1
Workshop 3	5/11	Re-released for 6.8-EF1
Workshop 4	5/11	Re-released for 6.8-EF1



Introduction

Lecture 1

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L1.2

Overview

- What is DDAM?
- What is DDAM for Abaqus?
- Response Spectrum Concepts

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DDAM for Abaqus Product Overview

Lecture 2

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Overview

- Availability
- Graphical User Interface (GUI)
- Non-Interactive Interface
- Key Features – DDAM Model Definition
- Key Features – Output Generation
- Summary

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Shock Spectrum Definition

Lecture 3

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L3.2

Overview

- Background
- Method of NRL-1396
- Direct Spectrum Input
- Combining Spectrums
- Oblique Attack
- DDAM Spectrum Manager

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Creating a DDAM Model

Lecture 4

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Overview

- **DDAM Model Data Sources**
 - Frequency Extraction Results Data
 - Operational Load Results Data
 - Finite Element Model (FEM) System of Units
- **Ship-to-FEM Orientation and Mounting Location**
- **DDAM Solution Procedures**
 - Standard DDAM or Closely Spaced Modes Procedure
 - Summation Method
 - Shock Spectrum Selection
 - Element Nodal Data Averaging Designation

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DDAM Response Analysis & Results

Lecture 5

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Overview

- **DDAM Data Processing Issues**
 - General Treatment of DDAM Output Data
 - Frequency Extraction ODB Requirements
 - DDAM Shock Response ODB Organization
 - DDAM Stress Output for Shell Elements
 - DDAM Stress Output for Beam Elements
- **DDAM Job Creation & Submittal**
 - Interactive (via GUI)
 - Non-Interactive
- **DDAM Results Processing**
 - Generating Standardized Tables and Graphs
 - Generating DDAM Peak Response Contour Plots
 - Postprocessing Scaled Modes
- **DDAM Output Requests**
 - Peak Response Requests
 - Scaled Mode Requests
- **Workshop 3**

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Closely Spaced Modes

Lecture 6

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Closely Spaced Modes

- **DDAM CSM Solution Method**
- **Out-of-Phase Mode Pairs**
- **Repeated Mode Pairs**
- **Why DDAM CSM?**
- **Example 1: Pump Shaft with Impeller**
 - Case 1: Baseline DDAM Model
 - Case 2: New Alignment DDAM Model
 - Case 3: New Alignment DDAM CSM Model
- **Example 2: Pump System with a Proximity Probe**
 - Case A: DDAM Model
 - Case B: DDAM CSM Model (Out-of-Phase Mode Pairs)
 - Case C: DDAM CSM Model (Repeated Mode Pairs)
- **Recommendations**
- **Workshop 4**

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