



MATT RUDAS MIEAust NER RPEQ CPEng

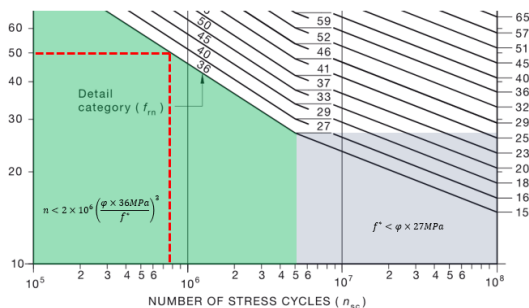
- Chartered mechanical engineer with over 25 years of experience
- Owner principal at Mechsafe Engineering
- Specialist FEA and BEA analyst of stress, fatigue and fatigue crack growth in structures and heavy machinery

Live streamed via



WORKSHOP SUMMARY

This workshop is designed to introduce vibration and fatigue analysis to engineers. The fundamental concepts of vibration will be covered including modal (natural frequency) analysis, response spectrum analysis and vibration analysis of machinery. The second half of the workshop will focus on fatigue. Basic concepts will be introduced followed by practical lessons on the application of the most commonly used fatigue design standards – AS 4100 and BS 7608. The workshop will also introduce more advanced concepts such as variable amplitude loading, cycle counting and non-proportional loading.



PROGRAMME (8.30am AEST Zoom invite will be emailed)

9.00 - 11.00 Session 1

- INTRODUCTION TO VIBRATION

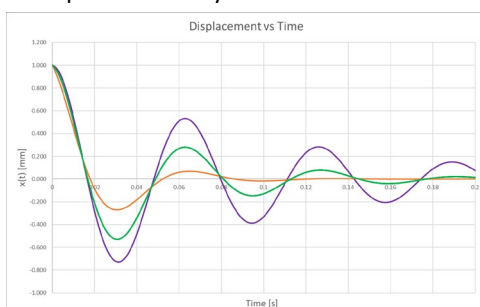
- Mechanisms and Structures
- Rigid Body Motion and Degrees of Freedom
- Discrete and Distributed Systems
- Undamped Free Vibration of Particles
- Damped Free Vibration of Particles
- Modes of Vibration
- Tutorial questions with solutions provided

11.00 - 11.15 Morning Break

11.15 - 1.00 Session 2

- INTRODUCTION TO VIBRATION ANALYSIS

- Frequency vs Time Response Analysis
- Resonance
- Vibration Acceptance Criteria
- Random Vibration
- Response Spectrum Analysis
- Vibration Analysis



1.00 - 1.30 Lunch Break

1.30 - 3.00 Session 3

- INTRODUCTION TO FATIGUE

- Introduction to Fatigue
- Crack Initiation
- Factors Influencing Fatigue
- Fatigue Life Models
- Stress-life approach – Unwelded Material
- Mean Stress Effects – Unwelded Material
- Variable Amplitude Loading
- Fatigue Design to Standards
- Fatigue Design to AS 4100
- Tutorial questions with solutions provided

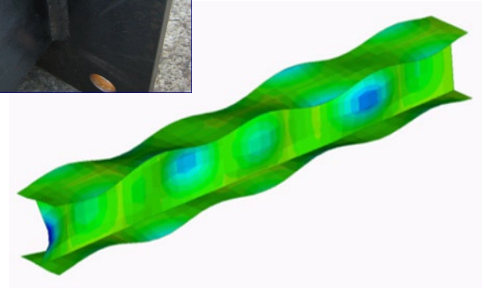
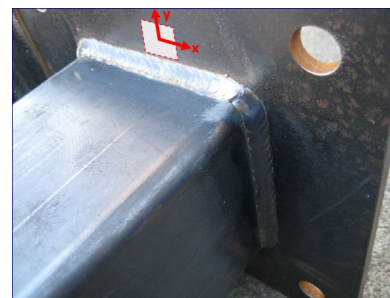
3.00 - 3.15 Afternoon Break

3.15 - 5.00 Session 4

- FATIGUE DESIGN TO STANDARDS

- Fatigue Design to AS 4100 (continued)
- Fatigue Design to BS 7608
- BS 7608 - Fatigue Loading
- BS 7608 – Environmental Considerations
- BS 7608 – Factors on Fatigue Life
- BS 7608 – Classification of Details
- BS 7608 – Stress Calculations
- BS 7608 – Allowable Fatigue Stresses
- Tutorial questions with solutions provided

Certificate of Attendance will be emailed



CALCULATORS REQUIRED

- One day course – **\$805 pp**

FURTHER INFORMATION

- (02) 9899 7447
- +61 413 998 031
- registrations@etia.net.au

- To register, visit our website www.etia.net.au
- OR scan the QR Code.

