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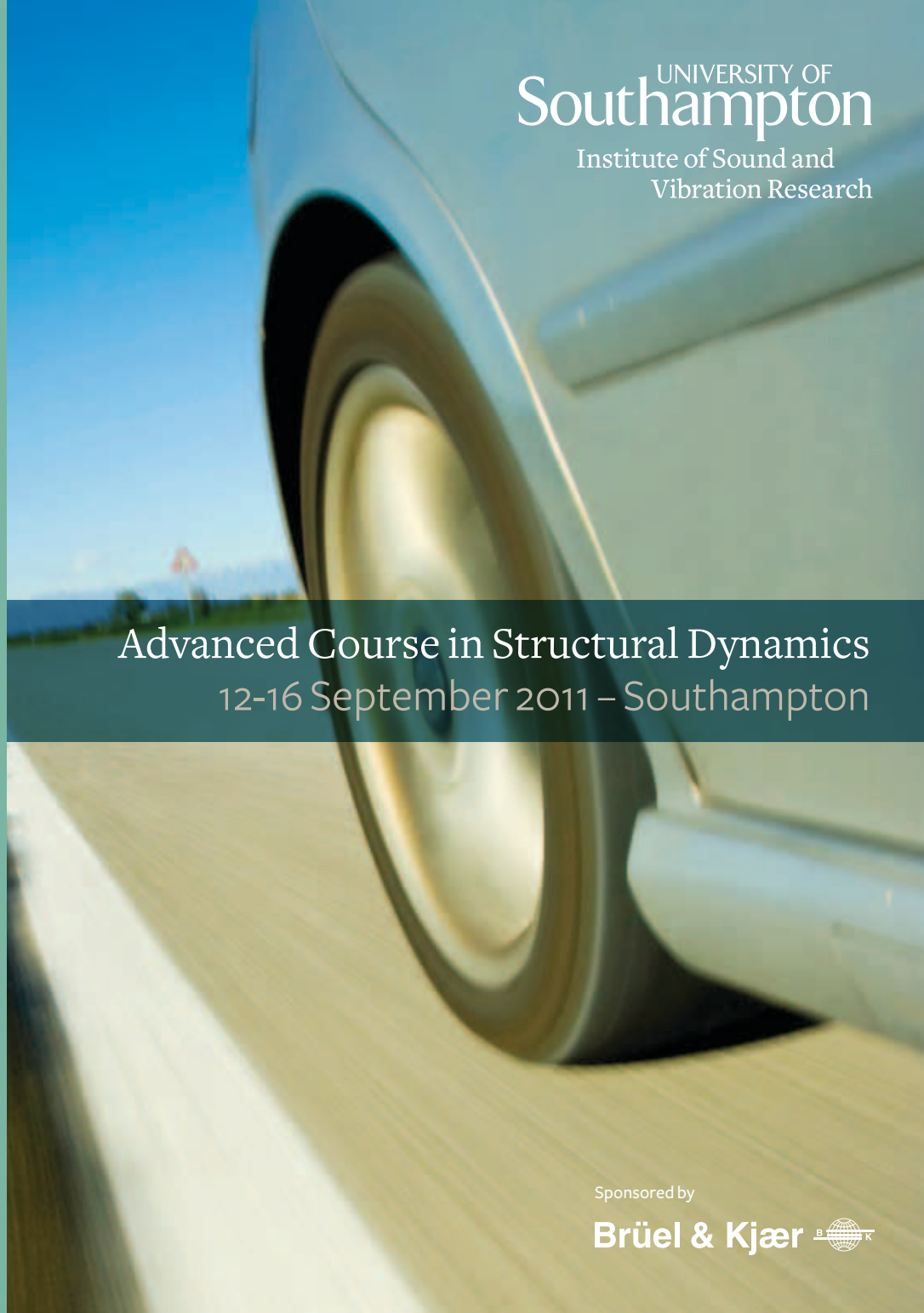

UNIVERSITY OF
Southampton
Institute of Sound and
Vibration Research

# Advanced Course in Structural Dynamics

## 12-16 September 2011 – Southampton

Sponsored by

Brüel & Kjær

# Advanced Course in Structural Dynamics

## The course

Vibration can be a limiting factor on the performance, precision, durability, comfort and environmental impact of engineering structures. The potential to design structures to meet ever more demanding targets is greatly enhanced by contemporary measurement and numerical prediction tools. However, it is the engineer's understanding of the problem and judgement in selecting and exploiting these tools to greatest advantage that helps to realise their benefits.

This *Advanced Course in Structural Dynamics* helps delegates to fully appreciate the nature of structural dynamics and provides an overview of the potential and applicability of some measurement and analysis techniques.

There is a three-day core element of the course. This is preceded by an optional two-day refresher course in the principles of vibration and acoustics.

The course includes a series of presentations, and a half-day practical laboratory session.

## Course fees

The course fees are shown on the attached enrolment form. The non-residential fee includes course literature, lunches and refreshments at the University, and a course meal on one evening. However, it does not include accommodation. The residential fee includes accommodation in a University hall of residence with breakfast and evening meals from Sunday to Thursday inclusive (refresher course plus advanced course) or from Tuesday to Thursday inclusive (advanced course only).

Attendance at the two-day refresher part only is usually possible on request, although it is not intended as a 'stand alone' course.

## Location

The course is held in building 2 on the University of Southampton's main Highfield Campus, just 10 minutes' walk from University accommodation.

## Other courses

For information on other short courses in acoustics, vibration and signal processing, please take a look at our website: **www.isvr.soton.ac.uk**

**Monday 12 September** (Refresher Day 1)

- 08.30–09.00 | Registration
- 09.00–09.15 | Introduction
- 09.15–10.15 | Fundamentals of sound propagation | V.Humphrey
- 10.30–11.30 | Basic concepts in vibration | N S Ferguson
- 11.45–12.45 | Introduction to frequency analysis | J K Hammond
- 12.45–13.45 | Lunch
- 13.45–14.45 | Three-dimensional sound fields | P F Joseph
- 15.00–16.00 | Free and forced vibration | E Rustighi
- 16.15–17.15 | Analysis of random signals | J K Hammond
- 17.30 | Drinks reception

**Tuesday 13 September** (Refresher Day 2)

- 09.00–10.00 | Human response to Vibration | M J Griffin
- 10.15–11.15 | Human response to sound | I H Flindell
- 11.30–12.30 | Analysis of sampled data | J K Hammond
- 12.30–13.30 | Lunch
- 13.30–14.30 | Acoustic source models | P F Joseph
- 14.45–15.45 | Classical vibration control | D J Thompson
- 16.00–17.00 | Structural wave motion | N S Ferguson

**Wednesday 14 September** (Advanced Day 1)

- 09.00–10.00 | Sources of vibration | N S Ferguson
- 10.15–11.15 | Multi-degree of freedom systems | E Rustighi
- 11.30–12.30 | Modal behaviour of structures | N S Ferguson
- 12.30–13.30 | Lunch
- 13.30–14.30 | Finite element modelling | C Jones
- 14.45–15.45 | Finite element model validation | T P Waters
- 16.00–17.00 | Vibroacoustics | D J Thompson
- 17.15–18.15 | Tour of ISVR

**Thursday 15 September** (Advanced Day 2)

- 09.00–10.00 | Vibration transducers | T P Waters
- 10.15–11.15 | Vibration testing | T P Waters
- 11.30–12.30 | Laser vibrometry | S Rothberg
- 12.30–13.30 | Lunch
- 13.30–14.30 | Experimental modal analysis | T P Waters
- 14.30–17.30 | FRF measurement and modal analysis | K T Brown (practical workshop)
- 19.30 | Course dinner

**Friday 16 September** (Advanced Day 3)

- 09.00–10.00 | Statistical energy analysis | N S Ferguson
- 10.15–11.15 | Vibrations of rotating machinery | E Rustighi
- 11.30–12.30 | Active control of vibration | S Daley
- 12.30–13.30 | Lunch
- 13.30–14.30 | Qualification Testing | N S Ferguson, T P Waters
- 14.45–15.45 | Workshop | D J Thompson, P F Joseph

## Enrolment form

Advanced Course in Structural Dynamics
12-16 September 2011

Name

Job title

Company

Address

Tel Fax

Email

Company VAT Number

☐ If you would like to receive other promotional information please tick this box.

**Privacy Policy** The University of Southampton does not pass on information to any third party. The information is used in University marketing activities only in accordance with the Data Protection Act.

| **Fees** | Refresher course ***plus*** advanced course | Advanced course only |
|---|---|---|
| Non-residential | ☐ £1150 | ☐ £1000 |
| Residential | ☐ £1350 | ☐ £1200 |

There is a discount of £100 for applications received before 1 July 2011.

☐ I enclose a cheque payable to 'University of Southampton' or

☐ Please invoice my company

Signed

Please return this enrolment form as soon as possible and no later than **19 August 2011** to:

Miss J Hazell
ISVR, University of Southampton, Highfield, Southampton, SO17 1BJ, United Kingdom.

Tel: +44 (0)23 8059 2936 Fax: +44 (0)23 8059 3190
Email: jh2@isvr.soton.ac.uk

Please note that there will be no refund of fees for cancellations received at ISVR less than two weeks before the start of a course. For cancellations received between four weeks and two weeks prior to the start of a course, 50 per cent of the fee will be refunded. Cancellations made by telephone will be accepted if confirmed immediately in writing. Delegate substitutions, however, may be made at any time.