

**Imperial College  
London**

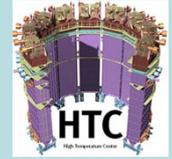
**STRUCTURAL INTEGRITY CENTRE**

Department of Mechanical Engineering,  
South Kensington London, SW7 2AZ  
United Kingdom

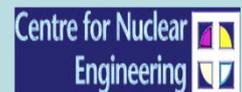
Post-Experience Course

*3<sup>rd</sup>–5<sup>th</sup> July 2019*

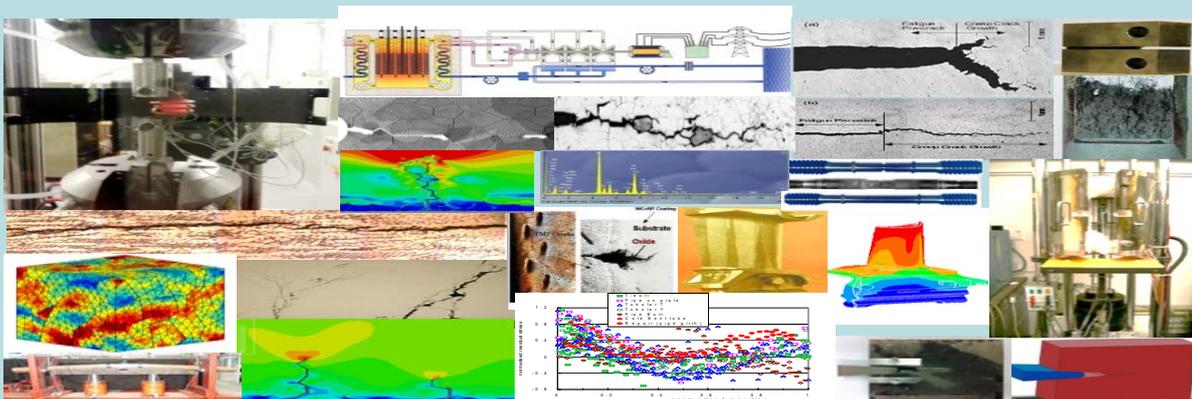
<http://www.imperial.ac.uk/si>



VAMAS



**STRUCTURAL  
INTEGRITY AND  
COMPONENT  
LIFE ASSESSMENT**



**EDF ENERGY STRUCTURAL INTEGRITY CENTRE – IMPERIAL COLLEGE**

## **“Structural Integrity and Component Life Assessment”** 3<sup>rd</sup>-5<sup>th</sup> July 2019

**Resumé:** This well established course incorporates the most recent advances in the subject of fracture and damage based structural integrity for high temperature component lifetime assessment under static and cyclic loading conditions. It aims to provide a comprehensive understanding of the latest procedures for assessing safety of cracked and un-cracked components so that criteria for their safe use can be specified using damage and fracture mechanics concepts. The methodologies described are established in EU and Internationally. Reference will be made to International codes dealing with crack growth test procedures.

*The lectures will include advice and examples on the use of A16, R5 / R6, BS7910, API/ASME, FITNET, ASTM procedures for component defect assessment and testing methodologies. The course is relevant to the chemical, aerospace, nuclear and conventional power industries.*

### **Topics to be addressed in this course include:**

<i>Mechanisms of fracture, creep</i>	<i>NDE and NDT app</i>	<i>Damage mechanics concepts</i>
<i>Metallurgical aspects of lifing</i>	<i>Fracture mechanics K, J, C*</i>	<i>Corrosion/oxidation mechanics</i>
<i>Treatment of residual stress</i>	<i>Testing and analysis</i>	<i>Models of crack initiation/growth</i>
<i>Industrial lifing– parent/weld</i>	<i>Thermo-mechanical fatigue</i>	<i>Creep-Fatigue interaction</i>
<i>Component Lifing predictions</i>	<i>Probabilistic methods</i>	<i>Codes – BS7910, R5/R6, API, A16</i>

**Who should attend?** The course is suitable for engineers, managers, materials scientists and technical personnel, with a degree or equivalent, involved in the aerospace, chemical, electrical and the power industry.

**A certificate of attendance will be awarded to each participant at the end of the course.**

### **The lecturers have extensive experience of materials modelling, testing and lifetime assessment methods**

Bob Ainsworth is a fellow of the Royal Society, Professor of Structural Integrity at the University of Manchester, visiting Professor at Imperial College and a consultant to EDF Energy. He is involved with the development of criteria for determining the significance of defects in nuclear power plant and engineering equipment.

Frank Abdi Visiting Professor at Imperial and UCLA in the USA. He is also head of Alphastar Corp, Long beach, California working with DoD and NASA. He has extensive expertise in progressive failure analysis, in NDE assessment using sensor technology in addition to testing, modelling processes in 3D additive manufacturing.

Esteban Busso is a visiting Professor at Imperial, London and at several universities internationally. With a PhD from MIT, and an academic member at Imperial, head of R&D Ecole des Mines and a Scientific Directors of ONERA he has been a leader in advancing multiscale materials modelling as well as environmental and damage kinetics

Peter Cawley Head of Mechanical Engineering Department and leads the Non-destructive Evaluation (NDE) research group ([www.imperial.ac.uk/nde](http://www.imperial.ac.uk/nde)); he is the PI for the UK Research Centre for NDE (RCNDE) at Imperial College. He is also a fellow of the Royal Academy, the Royal Society and director of several spin-out companies

David Dean is a visiting Professor at Imperial College London and a high temperature specialist in the Assessment Technology Group within the Nuclear Division of EDF Energy managing their high temperature R&D. As chair to the R5 panel he oversees development of the R5 high temperature assessment procedure,

Catrin Davies is a senior Lecturer at Imperial College London following her PhD at Imperial and is presently the chairman of BSI 7910 High Temperature group and member of ASTM and VAMAS committees. She has developed numerical and advanced test methods for predicting damage under creep and fatigue of welds with residual stress.

Noel O'Dowd is Professor of Mechanical Engineering at the University of Limerick, Ireland. He received his PhD from Brown University in the USA and then worked at the California Institute of Technology before joining Imperial College London. His R&D interests are in fracture mechanics and relevant computational methods.

Peter Skelton until recently worked as a senior Research Fellow in the Mechanical Engineering Department at Imperial College London. He previously worked with the former CEBG and then National Power. His vast experimental experience lies in the fields of short cracks, low cycle fatigue and thermo-mechanical fatigue.

Kamran Nikbin Holds a Royal Academy of Engineering/EDF Energy Professor's Chair in 'Structural Integrity' at Imperial College ([www.ic.ac.uk/SI](http://www.ic.ac.uk/SI)). He develops creep/fatigue/environmental fracture mechanics predictive models and research findings are used to establish standards and codes for determining the safety of structural components.

**“Structural Integrity and Component Life Assessment”** 3<sup>rd</sup>-5<sup>th</sup> July 2019

**Course Booking and Payments** should be made online starting 1<sup>st</sup> Jan. 2019

Please complete and submit the registration form at :-

<http://www3.imperial.ac.uk/mestructuralintegrity/siclaform> which will proceed to the payments page (Note in the ‘Event Fees’ page the *Organiser* option should be ‘Mechanics of Materials’).

**ON-LINE REGISTRATION: OPEN ON THE SITE FROM 1<sup>ST</sup> Jan. 2019**

If you are unable to complete the on-line registration form please contact: Miss Valerie Crawford by email (preferable), or post to the address shown below *quoting*

“Ref: SICLA19, c/o K. Nikbin”

**Ms Valerie Crawford (SICLA19-Course)**

Mechanics of Materials Division

Department of Mechanical Engineering

Imperial College London

South Kensington Campus , London, SW7 2AZ

**Email:** [v.crawford@imperial.ac.uk](mailto:v.crawford@imperial.ac.uk) or [k.nikbin@imperial.ac.uk](mailto:k.nikbin@imperial.ac.uk)

Detailed joining instructions, including the final timetable, a map of the venue and details of lecture rooms, will be emailed to all participants 10 -14 days prior to the commencement of the course. While every attempt will be made to ensure the material arrives in time, it is the participants’ responsibility to contact the course organisers if no information has been received.

**Places on the course are limited therefore EARLY REGISTRATION IS ADVISABLE.**

**Accommodation** is available at <http://www.imperial-accommodationlink.com> where you can book rooms at Imperial College Campus which will make it very convenient and economical for the attendees.

**Early booking is recommended** by contacting the Imperial Summer accommodation and Hotel Booking Service **by calling Tel: +(44)20 7594 9506/11; Fax: +(44)20 7594 9504/5; Or Email: [reservations@imperial.ac.uk](mailto:reservations@imperial.ac.uk)** or <http://www.imperial-accommodationlink.com> following the link to the South Kensington Campus.

**The centre will also help with list and reservations at local hotels** if College rooms are unavailable for that period.

**The LECTURES** will take place in the South Kensington Campus, Imperial College London. The College is located in a pleasant part of London, close to Hyde Park, the Royal Albert Hall and world renowned museums. **Detailed information** regarding the course technical contents and venue will be sent to delegates after registration.

**For more information and queries for administrative matters contact:**

**Ms Valerie Crawford (ref: SICLA19-course) [v.crawford@imperial.ac.uk](mailto:v.crawford@imperial.ac.uk)**

## **“Structural Integrity and Component Life Assessment”** 3<sup>th</sup>-5<sup>th</sup> July 2019

**Tuition** will be through lectures, examples and practical discussions

**Who should attend?** The course is suitable for engineers, managers, materials scientists and technical personnel, with a degree or equivalent, involved in design, manufacture, testing and operation of a wide range of high temperature components in the aerospace, chemical, electrical and the power (conventional and nuclear) industry.

Course Fees (VAT Exempt) to cover tuition, course notes, refreshments, lunches and dinners **\*\*Please note fees must be received BEFORE the course start date\*\***

<b>Registration before 10<sup>th</sup> June 2019</b>	<b>£1200</b>
Registration of two or more persons (same Organisation)	<b>£990 pp</b>
<b>Late registration after 10<sup>th</sup> June 2019</b>	<b>£1250</b>
Registered Students	<b>£850</b>
<b>Attendees from outside European Union</b>	<b>£850</b>

### **Methods of Registration and Payment:**

**For registration (starting 1<sup>st</sup> January 2019) form and payment options by credit/debit card please go to:**

**<http://www.imperial.ac.uk/mestructuralintegrity>**  
**and go to SICLA -19 Course to register**

### **ON-LINE REGISTRATION: OPEN ON WEBSITE 1<sup>ST</sup> January 2019**

Should you require alternative methods of payment or have difficulty registering/paying on line, please fill this form and send or contact: Valerie Crawford, MED, Imperial College, London SW& 2AZ, UK

**Email: [v.crawford@imperial.ac.uk](mailto:v.crawford@imperial.ac.uk) or Tel: +44 (0)20 7594 7083**

**Note 1: If you need an official invoice for a purchase order, please send a request on letter-headed paper. If you need an official receipt please request upon payment**

**Note2:** A 10% administration fee will be levied for cancellations up to two weeks prior to the start of the course. Cancellations thereafter will be liable to the loss of the full fee. A notice to cancel must be given in writing, email, letter or fax. The College reserves the right to cancel or postpone the course at short notice. It will endeavour to provide participants with as much notice as possible, but will not accept liability for any costs incurred by participants if the course is cancelled or postponed. If a course is cancelled, fees will be refunded in full.