

**COURSE
BROCHURE
2020**



Brunel
University
London



**Discover
Structural
Integrity (Asset
Reliability
Management)**

A photograph of a large industrial facility with a high ceiling and blue structural beams. Two men are standing in the center, facing each other. The man on the left is wearing a dark blue polo shirt and dark cargo pants, holding a control panel. The man on the right is wearing a dark suit and tie. In the background, there is a large white industrial tank, a computer monitor on a stand, and various pipes and machinery. A large teal circle is overlaid on the left side of the image, containing the text "Learn in a dynamic industrial environment".

**Learn in
a dynamic
industrial
environment**

Welcome

The Structural Integrity (Asset Reliability Management) MSc programme has been developed by Brunel University London in collaboration with engineering research and technology organisation TWI. Students on this specialised degree are based at the National Structural Integrity Research Centre (NSIRC), a dedicated research facility embedded within TWI's headquarters just outside Cambridge.

We look forward to welcoming you to study our MSc which combines academic excellence through Brunel University London, with extensive up-to-date industrial experience of TWI's experts across the varied disciplines essential to structural integrity, which includes material degradation, asset ageing and inspection.

The course, which requires you to work across multiple disciplines, is specifically tailored to provide graduates or practising engineers with the skills needed to develop a successful career in engineering. By the time you graduate, you'll be equipped to plan in-situ inspections and develop risk management and mitigation strategies that conform to international codes and standards – valuable skills that distinguish you for recruitment by a diverse range of companies and organisations all over the world.

To find out more about our Structural Integrity (Asset Reliability Management) MSc, please visit brunel.ac.uk/mechanical-engineering

Current funding and scholarship opportunities, can be found on our website: brunel.ac.uk/study/postgraduate-fees-and-funding



Dr. Kevin Hughes
Course Director







Discover Structural Integrity (Asset Reliability Management) at Brunel

This MSc degree awarded by Brunel is unique in the UK. There are no other postgraduate opportunities that combine academic excellence with extensive, up-to-date industrial experience across the many and varied disciplines essential to structural integrity, as applied in the oil and gas, power generation and transportation sectors.

Industry experience

The high level of industrial involvement within the degree is unique in the UK, allowing you to gain academic knowledge and industrial experience at the same time. You'll have the opportunity to work on real engineering projects, equipping you with applied knowledge of material and structural failure, finite element analysis, non-destructive testing and project management.

This early contact with industry, working and networking in a professional environment greatly increases your employability and ensures that you are industry-ready and in high demand.

Facilities

You'll have access to an on-site high-performance computing facility where large-scale computational research projects are undertaken. Industry standard commercial software packages are available for you to use such as SIMULIA Abaqus, and MATLAB, as well as TWI-developed packages including CrackWISE (fracture and fatigue assessment) and IntegriWISE (fitness-for-service assessment for ageing equipment).

You will benefit from access to joint testing facilities across Brunel and TWI, which includes mechanical and fatigue testing under different environmental conditions and NDT capability, together with access to 4D tomography and microscopy facilities.

Why the world needs integrity engineers

When structures fail, the results can be catastrophic. Not only in terms of potential loss of life and operational downtime, but also because of the huge costs associated with subsequent inspection and repair. Brunel knows how to create integrity engineers to play a crucial role in preventing these failures. Your decisions influence structural design, determine service life extensions and improve safety for a wide range of sectors, including oil and gas, power generation and transportation.

Postgraduate course

Structural Integrity (Asset Reliability Management) MSc

Course icons:



Work placement



Study abroad



Accreditation

Structural Integrity (Asset Reliability Management) MSc



Essential information

Start date September	Mode of study 1 year full-time 2 years part-time	Entry criteria 2:2 (or equivalent) IELTS: 6 (min 5.5 in all areas)
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For detailed subject and grade requirements, visit our website: brunel.ac.uk/msc-si

This unique, industry-focused MSc in Structural Integrity (Asset Reliability Management) is delivered at the National Structural Integrity Research Centre (NSIRC), a state-of-the-art postgraduate engineering facility based at Granta Park, near Cambridge.

The aim of this MSc course is to develop you into a highly sought after industry-ready engineer with in-depth knowledge in the theory and practice of the science and technology of structural integrity.

Our Structural Integrity (Asset Reliability Management) MSc focuses on detecting and dealing with defects in structures and how to assess the implications of a particular defect. You will gain a sound understanding of stress analysis, how a structure carries loads, and you'll learn different aspects relating to instrumentation and damage detection.

NSIRC is a unique academia-industry collaboration located within the headquarters of TWI. Here you'll benefit from access to a range of leading and industry relevant software packages, as well as an on-site high performance computing facility to run high-fidelity and complex numerical simulation to support your experimental work.

Based within an industrial environment, there are excellent opportunities for networking, together with undertaking applied research on real engineering projects. Combined with the benefits of living in the Cambridge area, which

includes historical, cultural and social attractions, NSIRC attracts international students and practising engineers, thus greatly enhancing your learning experience.

Careers and your future

Brunel's Structural Integrity (Asset Reliability Management) MSc prepares you to work across multiple disciplines, equipping you with applied knowledge of material and structural failure, finite element analysis, non-destructive testing and project management. Our industry-ready graduates are in high demand. They have gone on to work for industrial companies, research and consultancy organisations, including TWI Ltd, Mott MacDonald, PTT Global Chemical, and Network Rail.

We actively encourage graduates from this MSc degree to go on to PhD study, and continue their project work with their academic and industrial supervisors.

Brunel's Structural Integrity (Asset Reliability Management) MSc degree is accredited by the Institution of Mechanical Engineers (IMechE) and the Institute of Materials, Minerals and Mining (IOM3).



Course content

The course comprises eight compulsory taught modules and industry-supported dissertation. In parallel with your degree, you have the opportunity to work towards an internationally recognised CSWIP Plant Inspection professional qualification offered by TWI.



TYPICAL MODULES

Codes and Standards in Structural Integrity	Reliability Engineering
Fracture Mechanics and Fatigue Analysis	Stress Analysis
Materials – Metallurgy and Materials	Structural Health Monitoring
NDT Inspection Methodology	Dissertation
*Numeric Modelling of Solids and Structures	

Please visit our website for a full list of modules: brunel.ac.uk/msc-si

NSIRC

The National Structural Integrity Research Centre (NSIRC) is a state-of-the-art postgraduate engineering facility established and managed by a collaboration of leading industrial organisations. Brunel is the lead university partner in NSIRC, and works with the main industrial partner TWI to manage the research and educational programmes within NSIRC.

NSIRC is a unique model of university-industry interaction in the UK, pursuing academic programmes informed by the needs of industry, whilst embedded in a dynamic industrial environment.

“What I liked about the course was its industrially relevant technical content, which was delivered by professionals at TWI, experts in their field, and by experienced researchers at Brunel.

The opportunity to study and carry out my dissertation in a very professional environment at the National Structural Integrity Research Centre in Cambridge equipped me not only with the technical knowledge, but also with the soft skills necessary to perform well in my current position.”

“I was attracted to the course as it offered modules that were of particular interest to me, such as finite element analysis, non-destructive testing and radiography. Working in both an academic and industry environment has helped me enormously in my career search. Upon completion of the MSc in Structural Integrity, I began employment with TWI as a project leader, an appointment that was made possible through the knowledge, skills and the network of connections obtained during my time on my master’s degree.”



Postgraduate research

Brunel University London has a long history of collaboration with TWI, leading to the establishment of the Brunel Innovation Centre (BIC) in 2009, the National Structural Integrity Research Centre (NSIRC) in 2012, and more recently in 2016, a joint innovation centre dedicated to composites.

Brunel is the lead academic partner in NSIRC, having received 15 million pounds of funding from HEFCE in 2012 to support the development of a new postgraduate research centre to advance fundamental research to support the safe operation of products and structures, including demonstrating solutions for long-term asset management. Brunel currently has over 40 PhD students and runs two industry-led MSc degree programmes, with applied research related to structural health monitoring, damage detection, dynamic and high strain-rate loading, ultrasound wave propagation in solids and structures, numerical methods development (FEA), fatigue and fracture, composite materials and fluid-structure interaction (including meshless methods).

At the core of your research studies will be the relationship with your supervisor. We encourage you to contact the academic with related interests using our supervisor search tool online to discuss your proposal before submitting your application.

PhD programmes

- Mechanical Engineering PhD
- Structural Integrity PhD

Research groups

- Design for Sustainable Manufacturing
- Liquid Metal Engineering
- Material Characterisation and Processing
- Micro-Nano Manufacturing
- Structural Integrity

Find out more:

brunel.ac.uk/research-mech

Next steps

Location

Located in a purpose-built facility adjacent to the headquarters of TWI, the specialist off-campus Structural Integrity (Asset Reliability Management) MSc is solely delivered at the Granta Park science campus just outside Cambridge. The setting allows you to work alongside leading academics and industrial experts who are at the forefront of structural integrity research.

Getting to Granta Park is convenient and straightforward, with several shuttle buses travelling directly from the city centre every day. You can enjoy life in Cambridge and benefit from the many sporting, cultural and social events this compact cosmopolitan city provides. Cambridge is also conveniently close to London, just a 45-minute journey by train, and enjoys easy access to the major London airports and road links to the rest of the country.

Accommodation

If you're a Brunel student studying at the National Structural Integrity Research Centre (NSIRC) at Granta Park, near Cambridge, Brunel Student Lettings can assist you in finding your student home in Cambridge.

Find out more: brunel.ac.uk/life/accommodation/living-off-campus

Funding

Postgraduate

Brunel awards hundreds of scholarships each year. Details can be found on our website: brunel.ac.uk/postgraduate-scholarships

The UK Government offers loans to Home/EU postgraduate students studying on full-time or two year, part-time taught master's courses. You can borrow up to £10,000 to pay your fees and help with your living costs.

You could also consider a professional and career development loan (PCDL). This is a commercial bank loan to support learning or training that improves your job or career prospects.

How to apply

Postgraduate

The application process starts on 7 October 2019 for those looking to come to university in September 2020. The deadline for all course applications is 21 August 2020.

Find out more: brunel.ac.uk/study/admissions/how-to-apply-for-postgraduate-courses

Disclaimer

The information in this brochure is correct at the time of going to press. It is issued for the general guidance of students entering the University in September 2020 and does not form part of any contract. The University will use all reasonable endeavours to deliver the course of study in accordance with the description applied to it in the University's brochure for the academic year in which you begin the programme. However, the University reserves the right to:

- make reasonable variations to the course (including, without limitation, the content and syllabus of the course, including changes to individual modules, the location of the course or the method of delivery of the course);
- discontinue the course or combine the course with another course, especially if it has insufficient numbers of students to be viable, if the University considers this reasonably necessary. If the University discontinues the course, it will use reasonable endeavours to provide you with a suitable alternative.

The University welcomes comments on its programmes from students' parents and sponsors. However, the University's contracts with its students do not confer benefits on third parties for the purposes of the Contracts (Rights of Third Parties) Act 1999. A full copy of our terms and conditions can be found on our website at brunel.ac.uk/about-this-website/terms

Visit us


Register for a Postgraduate Open Evening to find out more about your course, meet your future lecturers and current students on your programme. brunel.ac.uk/news-and-events



Useful contacts


Applicant enquiries (pre-application)

 enquiries@brunel.ac.uk

 +44 (0)1895 265599

Admissions enquiries (post-application)


 admissions@brunel.ac.uk
(Home/EU)

 international-admissions@brunel.ac.uk
(International)

 +44 (0)1895 265265

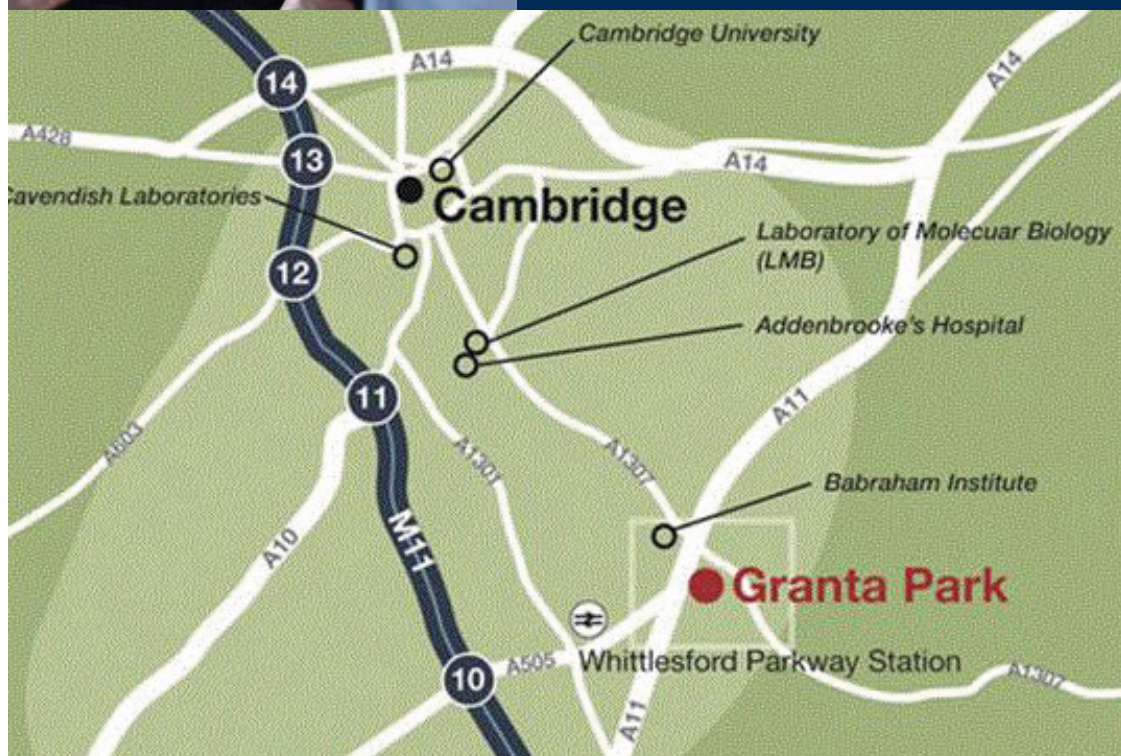
Accommodation

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Brunel Language Centre

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@brunelcampus

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