

# Professional Development Courses

2024 Programme



## Welcome

The Institution of Structural Engineers' 2024 Continuing Professional Development training programme is designed to support learning and development for all structural engineers and built environment professionals at every stage of their career.



**Louise Tingley**  
Head of Professional Development and Events, the Institution of Structural Engineers  
[training@istructe.org](mailto:training@istructe.org)

Each year we train over 750 individuals on a wide range of technical topics as well as leadership, management, and business practice, helping them to develop the skills and knowledge they need to succeed.

### Flexible formats

We recognise our truly global membership, with delegates attending from 32 countries in 2023, and as such our training courses are carefully curated for live delivery by specialist tutors online, in-person at our London Headquarters or in-house at your company premises.

### New for 2024

This year we are delighted to have added four new technical CPD courses to enable you to stay up to date with the latest building regulations and key topics related to safety, sustainability, and effective collaborative working in construction:

- Adaptive reuse of existing buildings
- Structural fire engineering and the Building Safety Act
- Ground investigations and outline foundation design
- Reinforced concrete essentials

All our training is developed and delivered through partnerships with leading experts, elite academic institutions, and trade and professional organisations to ensure the highest quality learning experience.

### Tailored corporate training solutions

We understand every organisation is different. We are happy to work with you on tailored training courses and programmes that help to maximise your training budgets and upskill your entire team.

If you would like to discuss in-house training, or if your organisation has professional development needs not currently met by the 2024 programme, please do get in touch at: [training@istructe.org](mailto:training@istructe.org)

## How to book



**Book online**  
[www.istructe.org/cpd-2024](http://www.istructe.org/cpd-2024)

## Contact us

**Email**  
[training@istructe.org](mailto:training@istructe.org)

**Telephone**  
+44 (0)20 7235 4535

## Useful information

1.  This icon indicates that a course takes place online.
2.  This icon indicates that a course takes place in-person.
3. Unless stated otherwise, in-person courses are held at our London HQ.
4. Unless stated otherwise, courses are a full day (10:00–17:30).
5. The programme is subject to change. Please check the website for latest information.

# Training calendar at a glance

February	Date(s)	Delivery format
Eurocode 9: design of aluminium structures	01 February	Online
Design and analysis of tall buildings	05 February	Online
Eurocode 3: structural steelwork design	06 February	In-person, London
Historic timber structures: assessment and reuse	12 February	Online
Temporary works design	14 – 15 February	Online
Conceptual design for structural engineers: an introduction	22 February – 14 March	Online
Net-zero structural design	22 February – 21 March	Online
Practical law 2: dealing with domestic clients	27 February	In-person, London
Structural fire engineering and the Building Safety Act <b>NEW</b>	27 February	In-person, London

March	Date(s)	Delivery format
Moving into engineering management	04 – 05 March	In-person, London
Eurocode 2: design of concrete structures	06 March	In-person, London
Business and strategic planning	12 March	Online
Lateral stability to building structures	13 March	Online
Demolition and structural refurbishment	21 March	In-person, London
Eurocode 8: an introduction to seismic design of buildings	26 March	Online
Eurocode 8: worked examples of the dynamic analysis and seismic design of buildings	27 March	Online

April	Date(s)	Delivery format
Rapid calculations for structural engineers	16 April	Online
Conceptual design for structural engineers: an introduction	18 April – 09 May	Online
Net-zero structural design	18 April – 16 May	Online
Reinforced concrete essentials <b>NEW</b>	23 April	In-person, London
Building resilience: protective design and blast engineering for structures	25 April	Online
Structural engineering appreciation for the integrated design of building structures	30 April	Online

May	Date(s)	Delivery format
Understanding structural behaviour	07 – 08 May	Online
Influencing and leadership skills	07 May – 04 June	Online
Drawing Gym for engineers	08 – 29 May	Online
Exam preparation	13 May	In-person, London
Eurocode 6: masonry design	16 May	In-person, London
Conceptual design of bridges	20 – 21 May	In-person, London
Eurocode 3: structural steelwork design	23 May	Online
Expert Witness: an introduction	28 – 31 May	Online
Seismic design of structures	30 – 31 May	Online

June	Date(s)	Delivery format
Understanding structural design	04 – 05 June	Online
Structural robustness and disproportionate collapse	05 June	In-person, London
Advanced conceptual design for design team leaders	06 – 21 June	Online
Eurocode 5: the essentials of timber design	10 June	Online
Writing skills for engineers	10 June	Online
Eurocode 5: connections and advanced topics in timber design	11 June	Online
Structural concepts – designing more efficient structures	11 June	Online

Net-zero structural design	13 June – 11 July	Online
Historic timber structures: assessment and reuse	17 June	In-person, London
Using computational design in practice	19 – 20 June	Online
Ground investigations and outline foundation design <b>NEW</b>	25 June	In-person, London
Floor vibration design and mitigation	26 June	In-person, London

July	Date(s)	Delivery format
Lateral stability of building structures	02 July	Online
Practical law 1: contract law for engineers	02 July	Online
Practical law 3: client appointments and terms of engagement	09 July	In-person, London
Structural engineering with bamboo	09 July	Online

September	Date(s)	Delivery format
Design and analysis of tall buildings	09 September	Online
Wind loading on structures to EN 1991-1-4	12 – 26 September	Online
Reliability, resilience and robustness in structural engineering design	17 September	Online
Eurocode 4: composite design	18 September	In-person, London
Digital sketching for engineers	19 September – 03 October	Online
Adaptive reuse of existing buildings <b>NEW</b>	24 September	In-person, London
Structural fire engineering and the Building Safety Act <b>NEW</b>	25 September	In-person, London

October	Date(s)	Delivery format
Structural engineering appreciation for the integrated design of building structures	02 October	Online
Demolition and structural refurbishment	03 October	In-person, London
Steel essentials: practical design of structural steelwork	07 October	Online
Eurocode 7: foundation design for small practitioners	08 October	In-person, London
Practical law 2: dealing with domestic clients	09 October	Online
Moving into engineering management	14 – 15 October	In-person, London
Understanding structural behaviour	15 – 16 October	In-person, London
Rapid calculations for structural engineers	16 October	Online
Financial fundamentals	21 October	In-person, London
Eurocode 6: masonry design	22 October	Online
Eurocode 5: the essentials of timber design	28 October	Online
Timber workshop: design through worked examples	29 October	Online

November	Date(s)	Delivery format
Expert Witness: going into court	05 November	In-person, London
Drawing Gym for engineers	05 – 26 November	Online
Temporary works design	13 – 14 November	In-person, London
Eurocode 2: design of concrete structures	21 November	Online

December	Date(s)	Delivery format
Exam preparation	TBC	Online

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# Tailored in-house training solutions

Tailored training to help you achieve individual, team and organisational objectives.

The majority of our courses can be delivered either on your premises or online just for your team on a date and time that perfectly suits your organisation.

Our trainers can deliver a listed course from the Institution's Professional Development programme. Or we can work with you to design and deliver a bespoke course, based on your team's and organisation's specific requirements.

## **Cost-effective pricing**

In-house training prices are based on the unique training solution you require. Costs are determined when we discuss and agree your requirements with you.

## **Get in touch**

Contact [training@istructe.org](mailto:training@istructe.org) and let us know the following:

- What course or topic you are interested in
- When and where you have in mind for delivery
- Number of participants (course capacities are usually 12 for business practice and 20 for technical courses)

**“The team and the trainers are really friendly and helpful, and our training programme always runs very smoothly with each course tailored to our specific requirements.”**

Rachel Simpson, Training Coordinator, AKT II

# Business practice courses

A photograph of a woman standing at the front of a meeting room, presenting to a group of people seated around a long table. The room has large windows and a modern aesthetic. The image is overlaid with a green tint.

# Business and strategic planning

## Course date:

 12 March 10:00 – 13:00 GMT

## Aim

A business plan provides a living blueprint for the running and growing of a business in order to meet goals, financial targets and operational milestones. The highly practical half-day workshop teaches the skills necessary in planning the medium and long term growth of an SME.

## Learning outcomes

By the end of the course, you should be able to:

- Write financial and marketing plans in a practical and time efficient manner
- Organise your goals into annual, quarterly and weekly objectives
- Understand the different components of a practical marketing plan
- Recognise the importance of a cashflow forecast and be able to use it to make important numbers-based decisions
- Appreciate the identity shift required to prioritise these critical planning skills

Contributes to IPD Core Objective 9, 10

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£245 + VAT	£325 + VAT
Book within 4 weeks	£275 + VAT	£365 + VAT

## Tutor



**Parag Prasad** has been an award winning business mentor to many of London's elite entrepreneurs including: ProperCorn, the 5th fastest growing company in Europe (Financial Times, 2017); Weston Williamson, one of the leading architecture firms behind TFL's £15Bn Crossrail project, and Chilango, voted one of Britain's 27 most disruptive companies by The Telegraph.



Lots of tools for improving a business and direct approach to identify natural weaknesses of engineers at running businesses.

# Expert Witness: an introduction

## Course dates:

 28 – 31 May 09:30 – 13:00 BST

## Aim

This four-half-day course is a comprehensive introduction to the roles and responsibilities of an Expert. The practical training also concentrates on the Expert's report and preparation for going into court.

## Learning outcomes

By the end of the course you should understand:

- What is required to perform as an Expert Witness
- Terms of engagement
- What the Expert needs to know and do prior to writing the report
- Witness statements
- Fact finding, early evaluation and pre-trial advice
- Codes of practice for Experts
- The meeting of Experts – procedures and problems
- How to get paid

Contributes to IPD Core Objective 2, 10

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£575 + VAT	£765 + VAT
Book within 4 weeks	£635 + VAT	£855 + VAT

## Tutor

The **Academy of Experts** is the professional society and accrediting body for Expert Witnesses of all disciplines. It is independently run by Experts for Experts and those using them. The training is conducted by a team of experienced tutors. Although their disciplines are all very different, they all have practical experience of working as Expert Witnesses and mediators or instructing them.



The content of the Expert Witness course and its presentation by an accomplished and experienced Expert Witness is a must for any engineer venturing into the world of court work.

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OF  
EXPERTS**

# Expert Witness: going into court

Course date:  
5 November

## Aim

This course is designed to provide the knowledge and experience of being in court. Cross-examination by a practising barrister in a protected environment will be carried out to improve technique and increase confidence in the case of being called to give evidence.

## Learning outcomes

By the end of the course you should understand:

- How and when to prepare for court
- How to introduce yourself and your expertise
- How to give evidence
- Lawyers' techniques for cross-examination and how to handle them

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£325 + VAT	£435 + VAT
Book within 4 weeks	£365 + VAT	£485 + VAT

## Tutor

The Academy of Experts is the professional society and accrediting body for Expert Witnesses of all disciplines. It is independently run by Experts for Experts and those using them. The training is conducted by a team of experienced tutors. Although their disciplines are all very different, they all have practical experience of working as Expert Witnesses and mediators or instructing them.

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EXPERTS

# Become an IStructE Expert Witness

## Promote and demonstrate your experience as an Expert Witness

Unlike other registers, the IStructE Expert Witness register includes details of your structural engineering specialisms

Achieve an internationally recognised professional status as an accredited Expert

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OF  
EXPERTS

Join today:  
[www.istructe.org/expert-witness-register](http://www.istructe.org/expert-witness-register)

# Financial fundamentals

**Course date:**  
📅 21 October

## Aim

This course provides an overview of accounting principles and an explanation of accounting terminology. It also covers how to understand key financial documents.

## Learning outcomes

By the end of the course, you should be able to:

- Recognise how the three key financial documents (cash flow forecast, profit and loss account, and balance sheet) are constructed
- Explain some key financial ratios that inform the health of a business
- Interpret financial data to set forward plans
- Use key financial terminology
- Identify what financial data is available in the public domain
- Work confidently alongside your financial colleagues

Contributes to IPD Core Objective 10

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£325 + VAT	£435 + VAT
Book within 4 weeks	£365 + VAT	£485 + VAT

## Tutor



**Penny Taylor** has combined an engineering career in the automotive industry and academia with postgraduate qualifications in teaching, coaching and psychology. She has been teaching Finance and Management to engineers for over 10 years, based on practical lessons learned during her engineering career.



Penny was very knowledgeable and was able to explain all items extremely well using examples personal to the attendees. Using our accounts was really useful to apply this to the real world.

# Influencing and leadership skills

**Course dates:**  
📅 Begins 7 May 09:30 – 12:30 BST

## Aim

Develop powerful tools for leading and influencing the people you work with. This practical course, to be delivered as 5 three-hour workshops across 10 weeks, aims to develop awareness about yourself and your impact on others, helping you to share your expertise and influence the direction of a project.

## Learning outcomes

By the end of the course, you should be able to utilise leading and influencing tools to:

- Gain and maintain trust
- Negotiate and agree goals and expectations
- Help people think things through
- Help people accept and work with their feelings
- Confidently give advice where it is really needed
- Challenge the gap between intentions and behaviours
- Overcome resistance to constructive honesty

Contributes to IPD Core Objective 2, 9

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£665 + VAT	£885 + VAT
Book within 4 weeks	£735 + VAT	£985 + VAT

## Tutor



**Nick Zienau** has worked as a consultant facilitating organisational change, training leaders and coaching executives in communication and relationships for the past 25 years – working in the UK and many countries in mainland Europe. His passion is for work with socially engaged leaders and organisations. That often takes him back into education, in work with NGOs and other not-for-profit organisations, and with enterprises who take their social impact seriously.



# Moving into engineering management

## Course dates:

 4 – 5 March

 14 – 15 October

## Aim

Discover how to be successful in your management career and whether management is the direction for you. This interactive two-day course gives first-time managers a toolbox of techniques to use for managing engineers and other technical staff.

## Learning outcomes

By the end of the course, you should be able to:

- Manage effectively
- Build and develop an effective team
- Delegate appropriately and effectively
- Set, monitor and achieve SMART goals for your team
- Use performance management to get the best out of everyone
- Understand what is expected of you as a Manager or Team Leader
- Know the difference between leadership and management, and how to be good at both
- Create a high-performing and happy team

Contributes to IPD Core Objective **9**

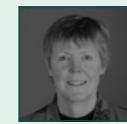
## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£575 + VAT	£765 + VAT
Book within 4 weeks	£635 + VAT	£855 + VAT

## Tutor



**Penny Taylor** has combined an engineering career in the automotive industry and academia with postgraduate qualifications in teaching, coaching and psychology. She has been teaching Finance and Management to engineers for over 10 years, based on practical lessons learned during her engineering career.



The course was truly insightful and inspiring. The team exercises were fun and engaging – difficult at times, but always focused on putting the material into practice. Highly recommended.

# Practical law 1: contract law for engineers

## Course date:

 2 July

## Aim

This popular one-day course will give you a practical understanding of the essentials of contractual relationships. It demystifies the language used, explains the concepts and provides a knowledge base to avoid common pitfalls of engineering and construction contracts.

## Learning outcomes

By the end of the course, you should be able to:

- Understand the different ways in which a contract can be formed, and the obligations created by contractual relationships
- Interpret legal jargon and understand the technical terms that lawyers use about contractual and professional liabilities
- Identify which issues really matter in a negotiation
- Recognise how best to use the contract during the progress of your projects

Contributes to IPD Core Objective **10**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£325 + VAT	£435 + VAT
Book within 4 weeks	£365 + VAT	£485 + VAT

## Tutor



**Rob Langley** took an MA in Law, then qualified both as a Barrister and as a Solicitor, and has 40 years' experience of engineering and construction law. Before specialising in training and consultancy, he was a law firm partner practicing in this expert field. He has been retained by numerous professional indemnity insurers and has represented and defended hundreds of engineers and other design professionals. A Fellow of the Chartered Institute of Arbitrators, Rob is a busy Construction Adjudicator, and a CMC-registered Civil Mediator.



The course was exactly what I wanted. All of the aspect raised by our P.I. insurers when asked to comment on contracts or the occasional warranty were included, together with a reminder of why we have certain clauses in our terms of agreement. Additionally and perhaps more importantly were the reminders of potential pitfalls.

# Practical law 2: dealing with domestic clients

## Course dates:

 27 February 13:00 – 17:30 GMT

 9 October 13:00 – 17:30 BST

## Aim

This half-day course is intended for engineers working in the domestic and small commercial sectors. It provides a solid understanding of the specific contractual and legal issues that might be posed, and it outlines the common legal mistakes that can be avoided.

## Learning outcomes

By the end of the course, you should be able to:

- Agree and record clear, enforceable agreements with non-professional clients
- Recognise the 'consumer protection' background
- Recognise and avoid misunderstandings around fees and variations, delays, and your own and the contractor's responsibility
- Respond to complaints correctly
- Communicate effectively and get paid more easily

Contributes to IPD Core Objective 1, 2, 10

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£245 + VAT	£325 + VAT
Book within 4 weeks	£275 + VAT	£365 + VAT

## Tutor



**Rob Langley** took an MA in Law, then qualified both as a Barrister and as a Solicitor, and has 40 years' experience of engineering and construction law. Before specialising in training and consultancy, he was a law firm partner practicing in this expert field. He has been retained by numerous professional indemnity insurers and has represented and defended hundreds of engineers and other design professionals. A Fellow of the Chartered Institute of Arbitrators, Rob is a busy Construction Adjudicator, and a CMC-registered Civil Mediator.



I found it extremely helpful. I received more out of this than any other seminar I have done with the Institution, as it was good to know what I was doing right and what I was doing wrong.

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**RL**

ROB LANGLEY MEDIATION

# Practical law 3: client appointments and terms of engagement

## Course date:

 9 July

## Aim

This masterclass focuses on the complex commercial contracts produced by clients. It will help engineers analyse the commercial issues, possible implications, and risks, to confidently formulate new negotiating strategies. Group exercises will utilise actual client contracts and devise practical responses.

## Learning outcomes

By the end of the course, you should be able to:

- Confidently identify and understand key issues recurring in client-led appointments
- Recognise and avoid clauses for strict liability, fitness for purpose and unfair warranty obligations
- Understand and respond to attempts to shift risk for variations, delays and unforeseen events from client to engineer
- Recognise the hidden risks of assignment, staff naming, coordination duties and third party design responsibility
- Appraise and negotiate in response to exclusion and limitation clauses
- Identify conditions precedent and the risk these pose to the profit margin

Contributes to IPD Core Objective 10

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£325 + VAT	£435 + VAT
Book within 4 weeks	£365 + VAT	£485 + VAT

## Tutor



**Rob Langley** took an MA in Law, then qualified both as a Barrister and as a Solicitor, and has 40 years' experience of engineering and construction law. Before specialising in training and consultancy, he was a law firm partner practicing in this expert field. He has been retained by numerous professional indemnity insurers and has represented and defended hundreds of engineers and other design professionals. A Fellow of the Chartered Institute of Arbitrators, Rob is a busy Construction Adjudicator, and a CMC-registered Civil Mediator.

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# Writing skills for engineers

**Course date:**  
📅 10 June

### Aim

This course intends to help improve the quality of written reports and reduce time spent writing. It covers how to adapt writing style for different documents and audiences. It will provide some grammar best practice to help with clear and concise writing.

### Learning outcomes

By the end of the course, you should be able to:

- Write in a direct and concise style
- Adapt your writing style to a range of audiences
- Write efficiently and not waste time
- Use digital tools for better writing
- Evaluate where to put your effort to improve your writing

Contributes to IPD Core Objective 2

### Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

### Price

	Member rate	Standard rate
Book 4 weeks in advance	£325 + VAT	£435 + VAT
Book within 4 weeks	£365 + VAT	£485 + VAT

### Tutor



**Penny Taylor** has combined an engineering career in the automotive industry and academia with postgraduate qualifications in teaching, coaching and psychology. She has been teaching Finance and Management to engineers for over 10 years, based on practical lessons learned during her engineering career.

# Technical Courses

# Adaptive reuse of existing buildings

## Course date:

📅 24 September

## Aim

This practical course will help structural engineers to confidently approach a refurbishment or reuse project. Looking at the initial steps needed to understand an existing structure, how to apply basic conservation principles and the design implications and considerations.

## Learning outcomes

By the end of the course, you should be able to:

- Identify a range of different materials that may be found in existing buildings
- Demonstrate knowledge of some of the typical defects that might be found in different materials/ages of construction.
- Ask the right questions and take practical steps to assess an existing structure's condition and loading capacities
- Address robustness and disproportionate collapse in your designs
- Think holistically about reuse as part of a wider sustainability discussion

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors



**Rachael De'Ath** has more than 20 years of design experience, working for Arup and more recently Marbas as well as 3 years lecturing at the University of Bristol teaching design and has continued her role as a visiting lecturer. She has a broad range of experience but prefers to work on existing buildings where she uses her skills and experience to re-imagine the existing structure into something new. She was named as one of the Women's Engineering Society's 'Top 50 female engineers' in 2018 and is an active member of her local IStructE regional group committee.



**Gavin Knowles** is a lecturer at the University of Bath and prior to this has worked in practice as a Chartered structural engineer. His previous projects including many education and office buildings, along with conservation and refurbishment projects, interweaved with diverse structures, such as rammed chalk-walled houses, recycled material stages at WOMAD Festival and the odd sculpture. He now teaches structural design, conservation and leads on student design projects.

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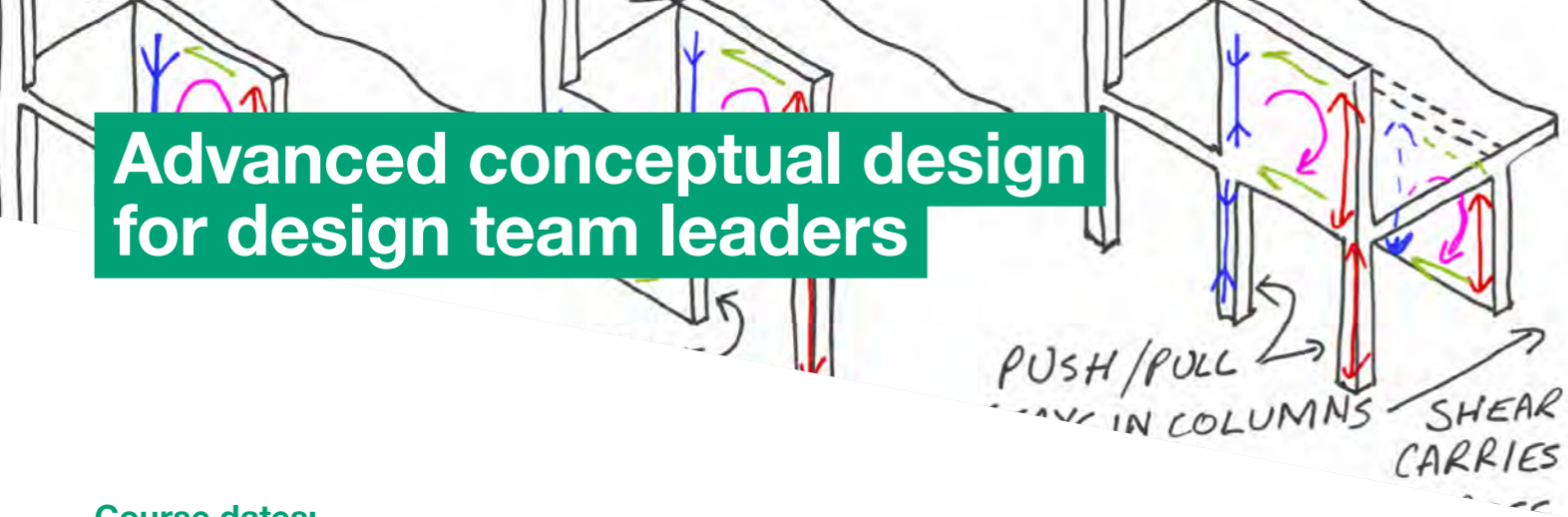
# Circular economy and reuse: guidance for designers

This publication comprises four parts, and provides actionable guidance for incorporating circular principles on engineering projects; enabling structural engineers to take the initiative on this critical transition by leading clients and project teams through the process.



**Available now:**

[istructe.org/resources/guidance/circular-economy](https://istructe.org/resources/guidance/circular-economy)



# Advanced conceptual design for design team leaders

**Course dates:**  
**Begins 6 June 09:30 – 11:30 BST**

**Aim**  
 Through a series of interactive sessions this course will help experienced practitioners take their conceptual design skills to the next level.

- Sessions**
- Week 1:** Models for understanding design
  - Week 2:** Delving deeper into the brief and establishing trust with a client
  - Week 3:** Idea generation in teams
  - Week 4:** Dealing with conflict in design
  - Week 5:** Subjective tests and decision-making in design
  - Week 6:** The art of selling ideas to our clients
- Intended for**
- Graduate engineer
  - Mid-career engineer
  - Senior engineer/Team leader/Manager
  - Business leader/Director (inc SMEs)
  - Academic/Researcher
  - Other built environment professionals and engineers

- Learning outcomes**
- By the end of the course, you should be able to:
- Characterise the design process and describe how each stage requires different skills and attitudes
  - Use techniques for understanding the underlying need behind a client brief
  - Describe a model for idea generation and use this to lead a design team through the creative process
  - Describe strategies for building an effective design team


**Price**

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

**25% discount on associated publications:**  
 See website for details

Contributes to IPD Core Objective **3**

**Tutor**



**Oliver Broadbent** is the founder and director of Constructivist. He works with leaders, teams and organisations to help them build their skills in design, creativity and regenerative thinking. He has been an 1851 Fellow in Regenerative Design, and was awarded the Sir Misha Black Award for Innovation in Design Education in 2020.

“The impact of what I have learned on my future practice is massive. It changed my way of thinking and provided me tools to do so.”



# Building resilience: protective design and blast engineering for structures

**Course date:**  
**25 April**

**Aim**  
 This course demonstrates how significant blast resilience and resistance is possible with careful design, planning and detailing of a structure.

- Learning outcomes**
- By the end of the course, you should be able to:
- Describe structural responses to blast loading with reference to ‘equivalent single degree of freedom’ analysis
  - Use pressure impulse diagrams for approximate response assessment
  - Employ principles and guidelines for protective design against the effects of blast
  - Design reinforced concrete structures subject to blast loading
- Intended for**
- Graduate engineer
  - Mid-career engineer
  - Senior engineer/Team leader/Manager
  - Business leader/Director (inc SMEs)
  - Academic/Researcher
  - Other built environment professionals and engineers

Contributes to IPD Core Objective **3, 4**

**Price**

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**Tutors**



**Bob Sheldon** was formerly senior lecturer in protective structures at the Centre for Defence Engineering at Cranfield University. Bob is now an independent consultant for security engineering and protective structures.



**Mariella Gallo** is a structural engineer with expertise in blast effects on buildings, a field she’s been specialising in since 2011. She currently leads the Protective Design Team at Arup Resilience Security and Risk in London and is a member of the Register of Security Engineers and Specialists, under the category of protection against the effects of blast. With over two decades at Arup, Mariella has contributed to a wide range of projects, including commercial buildings, transportation hubs, major infrastructure projects, and cultural and sports venues, where she has developed comprehensive protective design strategies that require blast effect analysis on structures, facades, ensuring safety and resilience in the built environment.

# Conceptual design for structural engineers: an introduction

## Course dates:

 Begins 22 February 09:30 – 11:30 GMT

 Begins 18 April 14:00 – 16:00 BST

## Aim

Through a series of interactive online sessions supported by individual study this popular course provides a theoretical framework for understanding conceptual design in the context of structural engineering.

## Sessions

- **Week 1:** Working with a brief
- **Week 2:** Developing ideas
- **Week 3:** Modelling and testing ideas
- **Week 4:** Bringing it all together

## Learning outcomes:

By the end of the course, you should be able to:

- Explain the design process as a series of discrete steps
- Describe the characteristics of a good design brief and use this knowledge to write your own brief
- Describe and use techniques for idea generation
- Describe and use techniques for modelling and testing your ideas

Contributes to IPD Core Objective 3

## Intended for:

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**

See website for details

## Tutor



**Oliver Broadbent** is the founder and director of Constructivist. He works with leaders, teams and organisations to help them build their skills in design, creativity and regenerative thinking. He has been an 1851 Fellow in Regenerative Design, and was awarded the Sir Misha Black Award for Innovation in Design Education in 2020.

# Conceptual design of bridges

## Course dates:

 20 – 21 May

## Aim

This two-day course is an essential introduction to the conceptual design process for bridges. It covers two key areas: selecting a structural form to suit the constraints of a site and arranging materials and components to meet the demands of the structure in an elegant and logical way.

## Learning outcomes:

By the end of the course, you should be able to:

- Identify how the conceptual design of a bridge is informed by physical and environmental site constraints, along with social, cultural and historical factors
- Read a bridge design
- Explain basic structural systems typically used in bridges
- Select appropriate structural forms and materials
- Form, develop and communicate a concept

Contributes to IPD Core Objective 3

## Intended for:

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

## Tutor



**Ian Firth** is a Past President of the Institution of Structural Engineers. He is a world-leading expert in bridge design and construction. During his career, Ian has been involved with the assessment and strengthening of several famous bridges. He is also responsible for the design of many award-winning bridges such as the Swansea Sail Bridge, the Third Way bridge in Taunton and the Destructor Bridge in Bath.

# Demolition and structural refurbishment

## Course dates:

 **21 March**

 **3 October**

## Aim

This course provides guidance on specific aspects of demolition and refurbishment from an engineering perspective, while addressing safety, environmental and sustainability influences.

## Learning outcomes

By the end of the course, you should be able to:

- Identify structural construction types and principles
- Evaluate practical options for the demolition or refurbishment of major buildings
- Identify specific structural hazards that may occur in demolition
- Understand temporary structural support methods in demolition and refurbishment
- Gain more knowledge of CDM principles – relating them to demolition and refurbishment works
- Enhance environmental and sustainable influences in your decision process

Contributes to IPD Core Objective **7**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Robert Millard** has 24 years construction industry experience both in contracting and consultancy disciplines across many sectors. Most recently the past 8 years have been spent leading an engineering team providing demolition / construction engineering support working across many London demolition, structural refurbishment and new build projects. As a Chartered Engineer and Chair of the Temporary Works Forum, Robert is a strong believer in knowledge sharing for the betterment of our industry.

# Design and analysis of tall buildings

## Course dates:

 **5 February | 9 September**

## Aim

This popular course includes guidance on the design, stability, safety and performance of tall buildings.

## Learning outcomes

By the end of the course, you should be able to:

- Recognise the performance of tall buildings
- Design effective lateral stability systems for tall buildings
- Demonstrate how to design a tall building under blast or impact loading
- Describe how to design tall buildings for fire safety
- Use different software to analyse tall buildings
- Apply the relevant design codes

Contributes to IPD Core Objective **3, 4**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
See website for details

## Tutor



**Dr Feng Fu** is a Fellow of IStructE, ICE and ASCE. He is an Associate Editor of the ASCE Journal of Performance of Constructed Facilities; and recently became an associate editor for the ASCE Journal of Structural Engineering. He has worked for several world leading consultancy companies and on extensive prestigious construction projects worldwide, such as the tallest building in Western Europe, the Shard. He has published more than 100 peer reviewed technical papers and 4 textbooks.



This had given me a solid foundation of knowledge from which to refer to in designing tall buildings in my future practice.

# Car park design

Brand new guidance from the Institution of Structural Engineers reflecting the necessity of a completely new approach to internal layouts and other requirements for the structural design of car parks.

The Institution's *Design recommendations for multi-storey and underground car parks* has set the standard for car park design since 1976. After more than 45 years and four editions, this guidance builds on that legacy to provide completely revised and updated information for anyone involved in car park design, construction, maintenance and reuse.



**Available now:**  
[istructe.org/resources/guidance/car-park-design](http://istructe.org/resources/guidance/car-park-design)

## Digital sketching for engineers

### Course dates:

 **Begins 19 September 10:00 – 12:00 BST**

### Aim

This interactive course provides a comprehensive foundation in digital sketching for Windows and OS system users.

### Learning outcomes

By the end of the course, you should be able to:

- Draw confidently using digital software
- Use features of Sketchbook including layers, colour and line thickness
- Make quick, professional sketch-overs and annotation to communicate concepts and communicate a process (e.g. construction sequence)
- Use the speed of digital tools to create and edit drawings
- Use Google Earth coordinates to locate a structure, then produce exploded sketch-over diagrams
- Sketch digitally over to work with Revit, CAD, BIM Rhino systems for increased efficiency and collaboration in the design process

Contributes to IPD Core Objective 2

### Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

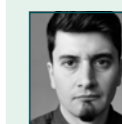
### Entry criteria

Attendees must have access to Concepts and an Apple (e.g. iPad) or Windows (e.g. Surface Pro) device and stylus.

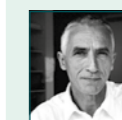
### Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

### Tutor



**Radu Axinte** is an architect who has worked on some of the most iconic architecture projects in London. A highly skilled freehand artist and watercolourist, he combines a passion for sketching with an appetite for digital image-making.



**Trevor Flynn** is the Director of Drawing At Work and founder of The Drawing Gym. He designs and teaches courses at Dyson, Foster and Partners, The Design Museum London, UCL, Bath University and The Architectural Association.



# Drawing Gym for engineers



## Course dates:

Begins 8 May 10:00 – 12:00 BST

Begins 5 November 10:00 – 12:00 GMT

## Aim

The course takes place as a series of two-hour interactive sessions over four weeks supported by independent study. The course introduces a number of drawing techniques and systems. It will increase your confidence in your sketching abilities.

## Learning outcomes

By the end of the course, you should be able to:

- Draw confidently using a repertoire of techniques and drawing systems
- Draw simple geometric forms, building details in isometric, axonometric, section and simple perspectives
- Express a broad range of concepts and forms through drawing
- Draw assuredly from your 'mind's eye'
- Use non-verbal communication professionally

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Trevor Flynn** is Director of Drawing at Work and founder of The Drawing Gym. He teaches drawing at University College London and runs the architectural and spatial drawing module of the Architectural Association foundation course. Trevor is a visiting lecturer at the School of Architecture at the University of Bath and is a drawing instructor in several architectural and engineering offices.



Trevor was a fantastic teacher; his passion for sketching is inspiring and everything he taught was useful and communicated so well as to be absorbed easily.

# Eurocode 2: design of concrete structures

## Course dates:

6 March

21 November

## Aim

This course covers the design of common structural elements to Eurocode 2. Participants will be introduced to concrete material properties and learn about designing for durability and fire.

## Learning outcomes

By the end of the course, you should be able to:

- Describe Eurocode 2
- Design concrete for beams, slabs and columns
- Determine cover for a typical element
- Design elements for bending, deflection, shear and axial loads

Contributes to IPD Core Objective 3, 4, 5

25% discount on associated publications:

See website for details

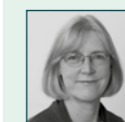
## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

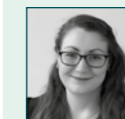
## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors



**Jenny Burridge** leads the team of structural engineers at The Concrete Centre. She is a Chartered civil and structural engineer with more than 30 years' experience in the construction industry. She has previously worked for Arup and AECOM, designing award winning buildings in both the UK and mainland Europe. She chairs the BSI Advisory Committee for Engineering Design and Construction.



**Emily Halliwell** is senior structural engineer at The Concrete Centre, where she promotes efficient concrete design and construction. Her role includes working on the development of Eurocode 2 and providing technical guidance to designers. Prior to joining The Concrete Centre, she worked on a wide range of challenging engineering schemes, including stations, stadia and commercial buildings. She is a Chartered Member of the ICE and IStructE.

# Eurocode 3: structural steelwork design

## Course dates:

 6 February

 23 May

## Aim

This course provides an introduction to structural steelwork design to Eurocode 3 for building design.

## Learning outcomes

By the end of the course, you should be able to:

- Design simple building structures to Eurocode 3
- Navigate effectively around parts of Eurocode 3 necessary for the design of steel structures
- Design tension members, compression members, restrained and unrestrained beams, column base plates and simple joints
- Identify the practical issues in steel buildings design

Contributes to IPD Core Objective **3, 4, 5**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
See website for details

## Tutors



**Professor Dennis Lam** presents the in-person course. He is a Chartered Civil and Structural Engineer and Emeritus Professor of Structural Engineering at the University of Bradford. He has extensive practical experience in structural design and analysis, with particular expertise in steel and composite structures. He is the leading author of *Structural Steelwork: Design to Limit State Theory* and has published widely on structural design and analysis.



**Bob Benton** presents the online course. He is a Chartered Structural Engineer with experience working for consulting engineers and contractors designing building and civil engineering structures including bridges. He is a visiting lecturer at the University of the West of England teaching post-graduate and mid-career engineers. He has also authored education material for the British Standards Institution.



The practical and live examples made the session interesting and understandable.

# Eurocode 4: composite design

## Course date:

 18 September

## Aim

This course supports practising designers with composite design to Eurocode 4. It will enable an understanding of the essential requirements of this code in structural design and how the code operates.

## Learning outcomes

By the end of the course, you should be able to:

- Navigate effectively around parts of Eurocode 4 for the design of steel concrete composite structures
- Understand the basic principles of composite construction
- Design composite slabs and beams with metal deck flooring
- Design composite columns
- Identify the practical issues in composite structures designing to Eurocode 4.

Contributes to IPD Core Objective **3, 4, 5**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Professor Dennis Lam** is a Chartered Civil and Structural Engineer and Emeritus Professor of Structural Engineering at the University of Bradford. He has extensive practical experience in structural design and analysis, with particular expertise in steel and composite structures. He is the leading author of *Structural Steelwork: Design to Limit State Theory* and has published widely on structural design and analysis.

# Eurocode 5: the essentials of timber design

## Course dates:

 10 June

 28 October

## Aim

This course offers an introduction to timber design to Eurocode 5. Topics covered include solid timber and engineered timber products; material properties and modification factors; design of beams, columns and connections; and discussions on deflections and vibrations.

## Learning outcomes

By the end of the course, you should be able to:

- Recognise the basics of designing timber elements to Eurocode 5
- Assess the intricacies involved in designing timber elements to Eurocode 5
- Appraise the wood technology and scientific research behind certain clauses of Eurocode 5
- Use the peripheral standards and further commercial information to design with Eurocode 5
- Use Eurocode 5 for practical design situations

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**

See website for details

## Tutor



**Dr Keerthi Ranasinghe** is an Associate at Milner Associates and was previously the Principal Engineer for Structural Timber at BM TRADA. Formerly an academic with research and teaching experience both in the UK and abroad, Keerthi has delivered timber courses for IStructE since 2008. He is the author of several TRADA publications, including *Span Tables to Eurocode 5*, and the Institution's *Manual for the design of timber building structures to Eurocode 5, 2nd edition*. He sits on British and European Standardisation Committees related to timber design.

# Eurocode 5: connections and advanced topics in timber design

## Course date:

 11 June

## Aim

This course introduces timber connections in detail and several other advanced topics in timber design to Eurocode 5. Topics covered include: connections with dowel-type fasteners, nails, screws, dowels and bolts; timber composites; notched members and slots and holes in timbers; splitting of timber and other brittle failures; design for durability; introductions to the fire and bridges parts of Eurocode 5.

## Learning outcomes

By the end of the course, you should be able to:

- Design basic and more intricate timber connections to Eurocode 5
- Appreciate the fracture mechanics aspects of wood behaviour and scientific research behind certain clauses of Eurocode 5
- Appreciate the use of dowel-type fasteners and contemporary connectors for practical applications
- Use the connections chapter of Eurocode 5 for practical design situations

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

Participation at the *Eurocode 5: The essentials of timber design* course may be advantageous.

**25% discount on associated publications:**

See website for details

## Tutor

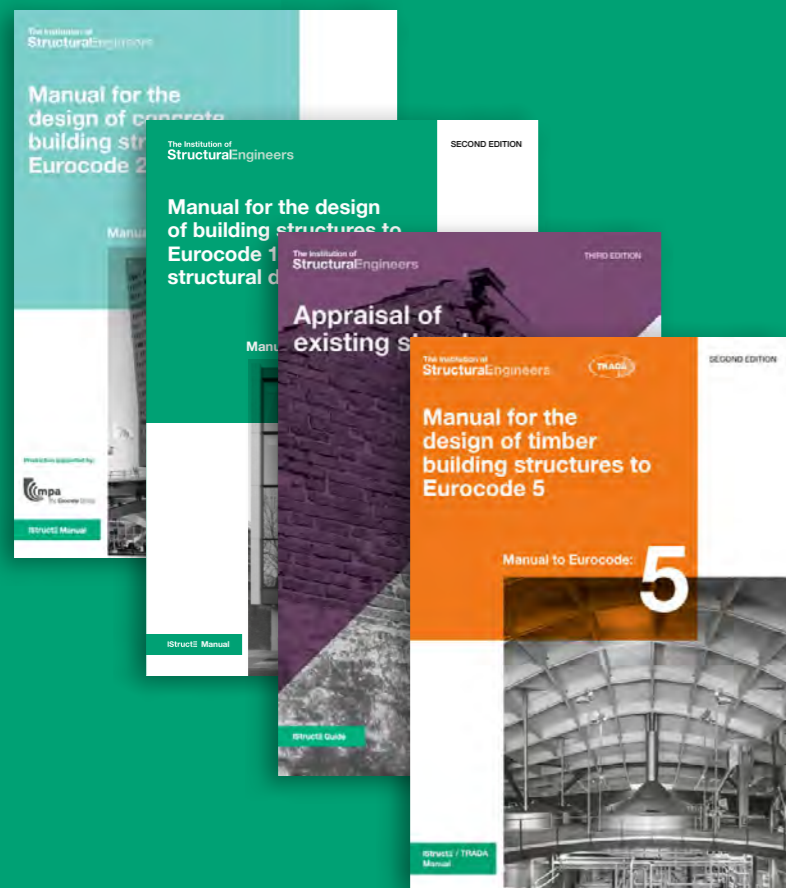


**Dr Keerthi Ranasinghe** is an Associate at Milner Associates and was previously the Principal Engineer for Structural Timber at BM TRADA. Formerly an academic with research and teaching experience both in the UK and abroad, Keerthi has delivered timber courses for IStructE since 2008. He is the author of several TRADA publications, including *Span Tables to Eurocode 5*, and the Institution's *Manual for the design of timber building structures to Eurocode 5, 2nd edition*. He sits on British and European Standardisation Committees related to timber design.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within last 4 weeks	£335 + VAT	£445 + VAT

# 25% off manuals and guides when you attend an associated course



Many of our courses have an associated, Institution published manual or guide which can be a valuable supplementary resource.

Claim your exclusive 25% discount on the associated publication when you attend.

Email: [library@istructe.org](mailto:library@istructe.org) for more information or to request a discount code.

## Eurocode 6: masonry design

### Course dates:

16 May

22 October

### Aim

This course provides participants with detailed knowledge of masonry design to Eurocode 6 and the National Annexes.

### Learning outcomes

By the end of the course, you should be able to:

- Gain an overview of the design of masonry to the Eurocode
- Understand masonry materials
- Know the standards supporting the use of masonry
- Understand how to design for vertical load
- Complete design examples for vertical load and concentrated load
- Understand how to design for lateral load and complete a design example
- Know where to find relevant information to support their future designs

Contributes to IPD Core Objective **3, 4, 5**

### Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

### Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
See website for details

### Tutor



**Professor John Roberts** is an independent consultant and the Principal of the

Technical Innovation Consultancy, which specialises in supporting innovation in construction. He currently chairs the UK panel for Eurocode 6 and is the UK project team member for the revision of the Eurocode. He is Past President of the International Masonry Society and Chairman of the International Advisory Panel for Masonry International.



I've been using EC6 but wasn't sure I was interpreting it correctly but this course gave me more confidence in using it and understanding the principles behind it.

# Eurocode 7: foundation design for small practitioners

Course date:  
📅 8 October

## Aim

This course covers aspects of the geotechnical and structural design of spread and piled foundations. It is tailored for engineers working in small practices. The content is compliant with Eurocodes 2 and 7, with opportunities for comparisons with relevant British Standards.

## Learning outcomes

By the end of the course, you should be able to:

- Develop suitable foundations using ground investigation material
- Prepare scheme designs for spread and piled foundations
- Analyse the practical problems involved in the construction of foundations

Contributes to IPD Core Objective **3, 4**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

25% discount on associated publications:  
See website for details

## Tutor



**Bob Benton** is a Chartered Structural Engineer with experience working for consulting engineers and contractors designing building and civil engineering structures including bridges. He is a visiting lecturer at the University of the West of England teaching post-graduate and mid-career engineers. He has also authored education material for the British Standards Institution.

# Eurocode 8: an introduction to seismic design of buildings

Course date:  
📅 26 March

## Aim

This course delivers key advice and guidance on seismic design of structures to Eurocode 8 as well as the application of the Eurocode. Emphasis is placed on reinforced concrete buildings although the concepts are widely applicable.

## Learning outcomes

By the end of the course, you should be able to:

- Describe E/Q damages and identify their causes
- Apply principles of conceptual design of E/Q-resistant structures in practice
- Appreciate ground motions and geotechnical aspects in structural seismic design
- Apply performance requirements and compliance criteria for various types of buildings
- Select models and methods of analysis of buildings for seismic actions
- Carry out equivalent static analysis of simple buildings, safety verifications, and simple structural element design and detail

Contributes to IPD Core Objective **3, 4**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

25% discount on associated publications:  
See website for details

## Tutor



**Professor Costas Georgopoulos** is Chair of Structural Engineering Practice at Kingston University London. He is also a practising engineer with many years' unique multi-sector experience in seismic design, including conventional buildings in Greece and state-of-the-art structures in the UK (Trident Submarine Refitting Facility at Rosyth and Sizewell B Nuclear Power Station). Costas sits on the BSI B/525/8 committee on EC8, chairs the IStructE Seismic & Dynamic Events Panel and he is a co-author of the IStructE's *Examples for the seismic design of steel and concrete buildings to Eurocode 8*.



Costas has such a wealth of experience and familiarity with the subject, it was honestly incredible. I honestly believe that we could have gone for hours more. The course notes were incredibly considered and informative. Highly recommended.

# Eurocode 8: worked examples of the dynamic analysis and seismic design of buildings

Course date:  
📅 27 March

## Aim

This course delivers practical advice through the use of worked examples on dynamic analysis, conceptual design for earthquake resistance and seismic design of structural elements to Eurocode 8. Emphasis is placed on concrete and steel buildings although the concepts are widely applicable.

## Learning outcomes

By the end of the course, you should be able to

- Understand the dynamic analysis of buildings
- Carry out the dynamic analysis of a 2DOF frame by hand
- Appreciate the principles of conceptual design of E/Q-resistant structures
- Describe the provisions of Eurocode 8
- Apply the performance requirements and compliance criteria of Eurocode 8
- Carry out building element design to Eurocode 8 by hand

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

It is expected that attendees have some experience in dynamic and seismic analysis. Participation at the *Eurocode 8: an introduction to seismic design of buildings* may be advantageous.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors



**Professor Costas Georgopoulos** is Chair of Structural Engineering Practice at Kingston

University London. He is also a practising engineer with many years' unique multi-sector experience in seismic design, including conventional buildings in Greece and state-of-the-art structures in the UK (Trident Submarine Refitting Facility at Rosyth and Sizewell B Nuclear Power Station). Costas sits on the BSI B/525/8 committee on EC8, chairs the IStructE Seismic & Dynamic Events Panel and he is a co-author of the IStructE's *Examples for the seismic design of steel and concrete buildings to Eurocode 8*.



**Dr. Kong Kian Hau** is a Senior Lecturer with the Department of Civil & Environmental

Engineering at the National University of Singapore (NUS). Awarded the NUS President Graduate Fellowship in 2002, his PhD thesis focused on far-field effects of long-distance earthquake tremors from Sumatra to buildings in Singapore. He is a practicing qualified engineer who specialises in Buildings & Infrastructure Projects (including bridges) with more than 15 years of experience. He is co-author of the IStructE's *Examples for the seismic design of steel and concrete buildings to Eurocode 8*.

# Eurocode 9: design of aluminium structures

Course date:  
📅 1 February

## Aim

This one-day online course is designed to help those using structural aluminium. It introduces basic considerations as well as giving guidance on using Eurocode 9. It includes design examples.

## Learning outcomes

By the end of the course, you should be able to:

- List the considerations necessary when deciding to design in structural aluminium rather than in steel
- Determine how to select the most appropriate aluminium alloys for a structural application
- Examine the pros and cons of different material forms and jointing methods
- Perform limit state calculations in accordance with the Eurocode

Contributes to IPD Core Objective 3, 4, 5

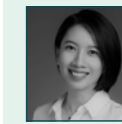
## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Dr Meini Su** is a Senior Lecturer in Structural Engineering at the University of Manchester.

She is a member of the British Standard Institution (BSI) B/525/9 – Structural use of aluminium committee. She studied at The University of Hong Kong and Imperial College London. Her principal research interests lie in the areas of structural testing, numerical modelling and the development of design guidance for aluminium alloy structures and reinforced concrete structures in marine environments.



Very knowledgeable course leader delivering a well-structured and comprehensive course with examples helping in the application of the material covered.

# Manuals supporting the design of structures to Eurocodes



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## Exam preparation

### Course dates:

13 – 15 May

Please check website

### Aim

This comprehensive three-day course is designed to prepare you for the IStructE's Chartered Membership exam; enabling you to approach the exam with confidence.

### Learning outcomes

By the end of the course, you should be able to:

- Plan your own preparation for the exam
- Recognise what is required to pass each element of the exam
- Formulate distinct and viable solutions to exam questions
- Employ conceptual tools to develop efficient solutions to exam questions

Contributes to all IPD Core Objectives

### Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

### Price

	Member rate
Book 4 weeks in advance	£615 + VAT
Book within 4 weeks	£675 + VAT

### Tutors

**Paul Toplis** is a consultant at Price & Myers consulting engineers with over 30 years' experience of designing buildings. He is personally involved in producing sketch drawings, calculations and specifications for projects – bringing 'hands on' experience to the course.

**Victoria Edmondson** is a Chartered Structural Engineer with over 15 years experience in the UK and abroad. She is passionate about coaching the next generation of structural engineers.

**Matt Goswell** has worked for a number of London-based structural consultants on projects such as the Oval cricket ground, KPMG Canary Wharf and The Shard. To broaden his horizons, Matt moved into the energy sector, predominately working as a lead engineer on onshore facilities across the world.

All the tutors are marking examiners for The Institution of Structural Engineers Chartered Membership Exam.

# Floor vibration design and mitigation

Course date:  
📅 26 June

## Aim

This course introduces key concepts in vibration serviceability of building floors. Techniques for analysis, design and mitigation for satisfactory vibration performance are outlined, as well as their potential impact on sustainability of floor construction.

## Learning outcomes

By the end of the course, you should be able to:

- Master the basic terminology used in floor vibration serviceability
- Undertake basic vibration serviceability checks of a typical floor structure
- Appreciate the vibration mitigation technologies available to reduce embodied carbon pertinent to floor vibration serviceability
- Carry out basic vibration serviceability checks for a floor featuring an active mass damper

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT



## Tutors



**Prof Aleksandar Pavic** is Professor of Vibration Engineering at the University of Exeter, with expertise in vibration serviceability of building floors. He has contributed to a number of vibration design guides currently used in the UK and internationally for floors, footbridges and grandstands. He is also Managing Director of Full Scale Dynamics Ltd.



**Dr Paul Reynolds** is an expert in civil engineering vibration with specialism in structural vibration control. He is CEO of FSD Active Ltd and was previously Professor of Structural Dynamics and Control at the Universities of Sheffield and Exeter.



**Dr Miguel Bravo-Haro** is a Lecturer in Sustainable and Structural Engineering at City University of London. His areas of research span from earthquake and seismological engineering, digital infrastructure and condition monitoring to data-driven and structural health monitoring.

# Ground investigations and outline foundation design

Course date:  
📅 25 June

## Aim

This half-day course is designed to help early career structural engineers develop a better understanding of geotechnical engineering and use that knowledge to enhance and promote sustainable design. The course encourages effective collaboration with geotechnical engineers by explaining how below ground risks are identified and investigated, leading on to an overview of shallow and piled foundation design.

## Learning outcomes

By the end of the course, you should be able to:

- Understand the desktop study and identify below ground risks
- Explain types of ground investigation and how to procure and specify them
- Identify typical foundation solutions for scheme design
- Appreciate worked examples for shallow and piled foundations
- Communicate effectively with geotechnical engineers

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£215 + VAT	£295 + VAT
Book within 4 weeks	£245 + VAT	£325 + VAT


## Tutor



**Emma Pike** is an Associate at CampbellReith and is Chartered with the Institution of Civil Engineers with over 13 years' experience in field of geotechnical engineering. Her knowledge extends across shallow and deep foundations, basements and retaining walls and ground movement assessments, having worked on a variety of small to large scale commercial, residential, healthcare, education and infrastructure projects across the UK.



# Historic timber structures: assessment and reuse

**Course dates:**  
 **12 February**  
 **17 June**

## Aim

This course introduces timber as an engineering material, with a focus on its use in historic structures. It covers non-destructive techniques for condition assessment, and strategies for the reuse of heritage structures.

## Learning outcomes

By the end of the course, you should be able to:

- Recognise timber as an engineering material and explain the inherent strengths and weaknesses of this organic and 'living' material
- Identify the cellular structure of timber in relation to softwoods and hardwoods
- Appreciate the timber grading rules to softwoods and hardwoods, and employ the rules and strategies in assigning strength classes to timber used in existing structures
- List the non-destructive testing techniques available in assessing timber used in historic structures
- Distinguish the simple structural forms of constructions used in historic structures

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
 See website for details

Contributes to IPD Core Objective **5**


## Tutors



**Dr Keerthi Ranasinghe** is an Associate at Milner Associates and was previously the Principal Engineer for Structural Timber at BM TRADA. Formerly an academic with research and teaching experience both in the UK and abroad, Keerthi has delivered timber courses for IStructE since 2008. He is the author of several TRADA publications, including *Span Tables to Eurocode 5*, and the Institution's *Manual for the design of timber building structures to Eurocode 5, 2nd edition*. He sits on British and European Standardisation Committees related to timber design.

**Philip O'Leary** is the section leader for Timber Technology Investigations at BM TRADA, the technical authority behind TRADA. With around 30 years of post-qualifying experience, he has published in local and international journals about wood science. He is the leading authority at TRADA for Visual Strength Grading and is also the Assessor for Qualified Visual Strength Graders.

# Lateral stability of building structures

**Course dates:**  
 **13 March 14:00 – 18:00 GMT**  
 **2 July 14:00 – 18:00 BST**

## Aim

This half-day course covers the methods by which the lateral stability of a building structure is achieved.

## Learning outcomes

By the end of the course, you should be able to:

- Describe the methods of achieving lateral stability in buildings
- Recognise how robustness impacts on lateral stability
- Identify second order effects on building structure frames
- Illustrate development and projection of load paths in frames
- Identify and exploit vertical and horizontal stability systems

Contributes to IPD Core Objective **3, 4**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£215 + VAT	£295 + VAT
Book within 4 weeks	£245 + VAT	£325 + VAT

**25% discount on associated publications:**  
 See website for details

## Tutor



**Chris O'Regan** is a Chartered Structural Engineer with over 30 years of experience working in the field. He draws from his experience developing structures for a large variety of buildings, ranging from music hall venues through to stadia and everything in between. Chris is keen to share the knowledge he has accrued over the years to ensure it is transferred to other practicing structural engineers. He is the author of the Technical Guidance Notes that were published in *The Structural Engineer*.



An insightful introduction into lateral stability in building structures and the course was clear, concise and engaging throughout.

# Net-zero structural design

## Course dates:

 Begins 22 February 14:00 – 16:00 GMT

 Begins 18 April 09:30 – 11:30 BST

 Begins 13 June 14:00 – 16:00 BST

## Aim

This popular course is delivered as a series of interactive online sessions across five weeks, supported by individual study. It will enable you to design structures with net-zero emissions.

## Sessions

- **Week 1:** The big picture
- **Week 2:** Materials
- **Week 3:** The brief
- **Week 4:** Design options
- **Week 5:** Advocacy

## Learning outcomes

By the end of the course, you should be able to:

- Communicate what net-zero means and how to achieve it
- Identify opportunities for reducing carbon in design, including through reimagining briefs
- Specify materials in a way that is beneficial for the industry, not just your project
- Think holistically beyond just structure, towards low carbon overall design
- Understand the basics of offsetting, its limitations and opportunities

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

Must have completed the *Embodied Carbon Basics* on-demand course.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

## Tutors



**Will Arnold** is Head of Climate Action at the IStructE. He leads the Institution's response to the climate emergency, bringing this action into all aspects of the organisation's work including the publication of best-practice emergency guidance. Prior to his current role, he was a practising structural engineer at Arup for over ten years. He sits on the Structural Awards Judging Panel and is a member of the Editorial Advisory Group for *The Structural Engineer*.



**Oliver Broadbent** is the Founder and Director of Constructivist. He works with leaders, teams and organisations to help them build their skills in design, creativity and regenerative thinking. He has been an 1851 Fellow in Regenerative Design, and was awarded the Sir Misha Black Award for Innovation in Design Education in 2020.

# Rapid calculations for structural engineers

## Course dates:

 16 April 10:00 – 13:30 BST

 16 October 10:00 – 13:30 BST

## Aim

This half-day online course provides a theoretical framework for rapid problem-solving concept calculations. Applying this to practical exercises, attendees will learn how to undertake rapid calculations for different structural members using a small scheme as an example and considering deflection, limit and materials.

## Learning outcomes

By the end of the course, you should be able to

- Understand the difference between rapid concept calculations and detailed design calculations
- Employ a useful framework for rapid calculations using typical structural design problems
- Use your own experience to inform your rapid design calculations
- Consider the types of questions to ask and have the confidence to answer others quickly

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£215 + VAT	£295 + VAT
Book within 4 weeks	£245 + VAT	£325 + VAT

## Tutor



**Rachael De'Ath** has more than 20 years of design experience working for Arup and more recently Marbas as well as 3 years lecturing at the University of Bristol teaching design and has continued her role as a visiting lecturer. She has a broad range of experience but prefers to work on existing buildings where she uses her skills and experience to re-imagine the existing structure into something new. She was named as one of the Women's Engineering Society's 'Top 50 female engineers' in 2018 and is an active member of her local IStructE regional group committee.



Rachael De'Ath hosted brilliantly. It was really well paced and engaging, with good examples of when we can use these tricks. I feel like it will be very helpful for the Structures Exam, as well as general use.

# Reinforced concrete essentials

Course dates:  
📅 23 April 2024

## Aim

This course establishes good practice in the design of reinforced concrete structures. Through practical exercises it will cover concept, design, flat slabs and finite element analysis.

## Learning outcomes

- By the end of the course, you should be able to
- Carry out preliminary sizing of reinforced concrete elements
  - Design simple elements to Eurocode 2
  - Use simple design software and have an appreciation of finite element analysis
  - Understand modern concreting methods

Contributes to IPD Core Objective **3, 4, 6**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Jenny Burridge** leads the team of structural engineers at The Concrete Centre. She is a Chartered civil and structural engineer with more than 30 years' experience in the construction industry. She has previously worked for Arup and AECOM, designing award winning buildings in both the UK and mainland Europe. She chairs the BSI Advisory Committee for Engineering Design and Construction.

# Reliability, resilience and robustness in structural engineering design

Course date:  
📅 17 September

## Aim

This interactive online course will share current state-of-the-art frameworks for the adoption of resilience-based design in professional practice, demonstrating advantages compared to a traditional prescriptive design and providing examples of how they benefit the client.

## Learning outcomes

- By the end of the course, you should be able to:
- Differentiate between reliability, risk and resilience when quantifying structural performance
  - Appreciate the role of robustness and resilience in the design of structures
  - Understand the role of aleatory and epistemic uncertainties in the design of structures
  - Decide which design situations are best suited for the adoption of performance-based approaches, and justify their use in practice
  - Break down the application of performance-based design into sequential stages; from assessing the relevant hazards to estimating the resulting losses
  - Recommend a range of structural and non-structural solutions to enhance resilience and robustness

Contributes to IPD Core Objective **3, 4**

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors



**Prof Caroline Field** is a Partner at PA Consulting and leads their resilience business. Caroline has a background in asset and infrastructure resilience with over 26 years of professional experience including 12 years in counter terrorism, blast mitigation and physical security and 7 years in earthquake engineering and dynamics.



**Dr Alessandro Palmeri**, a Chartered Civil Engineer in Italy (Dott Ing) and the UK (CEng MICE), brings over three decades of academic experience, culminated with the leadership of the Structures & Materials Group at Loughborough University from 2016 to 2023. He has recently joined Hilti EGmbH (Germany) as a Project Manager in the Anchors Research and Code (ARC) development team. Dr Palmeri has a rich academic background, marked by leading research projects at various technology readiness levels and publishing extensively on structural dynamics and the application of probabilistic methods for performance-based engineering.

# Seismic design of structures

**Course dates:**  
📅 30 – 31 May

## Aim

This course introduces seismic design of civil engineering structures. It builds on the basics of structural dynamics and engineering seismology. The course focus is on seismic loading and design codes, conceptual seismic design principles and analysis for seismic loading, and design and detailing of structural members.

## Learning outcomes

By the end of the course, you should be able to:

- Identify situations where earthquake loading must be included in the design of structures and how to define this loading
- Understand the basic principles of seismic design and select appropriate performance requirements for structures subjected to earthquake loads
- Select an appropriate structural configuration for a building situated in a seismic zone
- Analyse a building for seismic loading
- Design and detail reinforced concrete structures
- Appreciate seismic design and detailing of steel and steel-concrete composite structures and highway bridges

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

**25% discount on associated publications:**  
See website for details

Contributes to IPD Core Objective 3, 4

## Tutors



**Dr Agathoklis Giaralis** is the Director of the Research Centre for Civil Engineering Structures at City, University of London (CUoL). His research output documented in over 90 peer-reviewed articles are in structural dynamics and earthquake engineering with a focus on probabilistic seismic analysis methods and on vibration control devices for high seismically performing structures.



**Prof Konstantinos Daniel Tsavdaridis** is Professor of Structural Engineering in the Department of Civil Engineering at CUoL. His research is centred around steel and steel-concrete composite structural systems and he has published over 160 peer-reviewed articles. He specialises in the design of seismic-resistant connections and he has performed full and large-scale experiments and advanced computational modelling.



**Dr Panagiotis Mergos** is Senior Lecturer in Structural Engineering and the Programme Director of the MSc in Civil Engineering Structures at CUoL. He has worked for 18 years in seismic design and assessment of structures as a researcher and as a consultant and he is a panel member of the UK Mirror Group MG2 developing the next iteration of Eurocode 8, Part 1.

# Steel essentials: practical design of structural steelwork

**Course date:**  
📅 7 October

## Aim

This course presents practical guidance on key aspects of preliminary scheme development and detailed scheme design in structural steelwork.

## Learning outcomes

By the end of the course, you should be able to:

- Compare steel construction options available at preliminary scheme development and determine the optimum design solution
- Apply a simple methodology for preliminary sizing of members to enable budget costing to be developed
- Judge the significance of steel grade and subgrade for structural steelwork and their suitability for specification
- Understand the responsibilities for different parties under UKCA Marking
- Describe key aspects of robustness and corrosion protection
- Design for fire and assess the benefits of critical temperature calculation for fire protection
- Identify resources available to assist with the use of structural steelwork in construction

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
See website for details

## Tutor



**Richard Dixon** is a Chartered Engineer who has worked in the steel industry for 25 years. Before partnering with Steel for Life, he worked for British Steel/Corus/Tata Steel in various roles. He led the Structural Advisory Service at Tata Steel in the joint venture with the BCSA to promote efficient design in structural steelwork to the UK construction industry.

# Structural concepts – designing more efficient structures

**Course date:**  
📅 11 June

## Aim

An introduction to four structural concepts and how their implementation can lead to physical measures for creating more desirable distributions of internal forces in structures which can generate more efficient designs.

## Learning outcomes

By the end of the course, you should be able to:

- Identify and analyse four key structural concepts and their implementation
- Recognise intuitive ways to interpret structural behaviour
- Appreciate innovative engineering solutions for reducing deflections
- Identify physical measures embedded in existing structures which effectively reduce deflections
- Recognise the interaction between structural concepts and design practice

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

Contributes to IPD Core Objective 3

## Tutor



**Dr Tianjian Ji**, FStructE, is Reader in Structural Engineering at the University of Manchester. He developed “Seeing and Touching Structural Concepts” for gaining an intuitive understanding by using simple physical models and appropriate practical examples. He is the author of two books: *Understanding and Using Structural Concepts* and *Structural Design against Deflection*.



The course will enable me to provide more efficient designs based on basic concepts rather than complex computer analysis. Especially important at initial design stage where limited time is available to provide solutions to structural problems.

# Structural engineering appreciation for the integrated design of building structures

**Course dates:**  
📅 30 April  
📅 2 October

## Aim

A guide to the field of structural engineering in relation to buildings for construction industry professionals.

## Learning outcomes

By the end of the course, you should be able to:

- Appreciate how forces due to gravity and other effects are resisted in a building’s structure
- Demonstrate a knowledge of the tools available to the structural engineer to counter these effects
- Appreciate the concept of efficient design and its impact on embodied energy
- Appreciate finite element analysis methods
- Develop an appreciation of key engineering concepts and terminology

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor



**Chris O'Regan** is an Associate Director at Mason Navarro Pledge. Chris created this course to highlight the need for greater integration in the design of buildings in the wake of the Building Safety Act 2022. Chris has been actively involved with advising construction professionals on the impact the Building Safety Act will have and how it will impact the method of design of buildings. Chris has been working in the field of structural engineering for over 30 years and draws from his experience of developing structures for a large variety of buildings ranging from music halls through to stadia and everything in between.

# Structural engineering with bamboo

**Course date:**  
📅 9 July

## Aim

This course equips attendees with practical knowledge about structural design with bamboo stems (culms). The course considers aspects of concept design, detailed design and durability by design.

## Learning outcomes

By the end of the course, you should be able to:

- Describe the structural characteristics of bamboo culms
- List and interpret the advantages and limitations of using bamboo culms as a structural product
- Identify where and how bamboo culms may be used appropriately within a building structure
- Determine the capacity of bamboo culms and their connections through basic calculations
- Examine the state-of-the-art of structural design with engineered bamboo

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors



**David Trujillo** has been researching bamboo for over 23 years and has authored or co-authored more than 30 publications on the subject, including technical papers on bamboo in *The Structural Engineer*. He is a member of the committee that drafted four ISO standards for bamboo (some of which are now British Standards).



**Seb Kaminski** is a Structural Engineer in Arup's Specialist Structures Team and a specialist in the use of bamboo, especially for housing in seismic areas. He has co-authored technical papers on bamboo in *The Structural Engineer* and was also involved in the revision of ISO 22156 (Structural Design of Bamboo).

# Structural fire engineering and the Building Safety Act

**Course date:**  
📅 27 February  
📅 25 September

## Aim

This course is designed to provide structural engineers with a greater understanding of fire safety, key legislation, and the principles of risk analysis in order to ensure that adequate structural performance in fire is achieved. Participants will examine case studies of structural and non-structural failures as a result of fire.

## Learning outcomes

By the end of the course, you should be able to:

- Recognise the characteristics of fires in buildings and understand the effect on structural materials, elements and whole structures
- Understand the principles of relevant UK fire safety legislation (Building Regulations, Building Safety Act, Fire Safety Act) and the responsibilities of structural engineers
- Classify potential hazards
- Appreciate various techniques for modelling both fires and the structural behaviour when exposed to such fires
- Undertake basic risk analysis for structures against fire

Contributes to IPD Core Objective 3, 4, 8

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

Participants will be supplied with on-demand Safety Cases and relevant Building Safety Act training, that is recommended viewing prior to attending.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutors

**Ian Burgess** and **Roger Plank** started their research on structural fire engineering in 1985 at the University of Sheffield, simulating the behaviour of isolated steel elements in furnace tests. Their numerical approaches developed rapidly and they played a key role in the Cardington fire test programme, leading to the development of the award-winning software Vulcan. This has been used extensively on real design projects for modelling the 3-dimensional behaviour of steel-framed, composite and concrete structures in fire, including tensile membrane action. They have also studied the robustness of frames, conducting unique high-temperature experimental work at Sheffield on connection component behaviour and on model-scale testing of concrete slabs.

Their research was recognised through a major award from the ASCE, and their Vulcan software won two national prizes in 2005 from the British Computer Society. Their research group generated 35 PhD graduates, and the research work is now being taken further by their successors at the University of Sheffield.



# Should you be getting CROSS?

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## Structural robustness and disproportionate collapse

Course date:

📅 5 June

### Aim

This course equips practising engineers to undertake the full structural design of a building, including designing a robust building to avoid disproportionate collapse. The course covers designing buildings of Class 1–2B and alterations/change of use of existing buildings.

### Learning outcomes

By the end of the course, you should be able to:

- Describe the layout and structure of a robust building and explain what makes a building vulnerable
- Summarise which legislation is relevant to disproportionate collapse and identify key clauses
- Classify buildings into their types, with respect to building use and size
- Outline different approaches for achieving robustness
- Determine a strategy for robustness compliance for buildings of different material types, use and size
- Have an appreciation of fire protection of different building materials and how fire safety plays a role in all building design

### Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

### Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

25% discount on associated publications:  
See website for details

Contributes to IPD Core Objective 3, 4

### Tutor



**Gavin Knowles** is a lecturer at the University of Bath and prior to this has worked in practice as a Chartered Structural Engineer. His previous projects including many education and office buildings, along with conservation and refurbishment projects, interweaved with diverse structures, such as rammed chalk-walled houses, recycled material stages at WOMAD Festival and the odd sculpture. He now teaches structural design, conservation and leads on student design projects.

# Temporary works design

## Course dates:

 14 – 15 February

 13 – 14 November

## Aim

This two-day course provides participants with an understanding of the basic principles of temporary works design.

## Learning outcomes

By the end of the course, you should be able to:

- Describe the principles of basic temporary works design methodologies
- Explain temporary loads, potential modes of failure and practical considerations
- Calculate concrete pressures and design formwork, falsework and back-propping
- Design a simple trench support scheme
- Apply basic wind loading, and design a site hoarding
- Design outrigger spreader pads for mobile cranes
- Design a simple needling scheme
- Apply the principles behind temporary works for demolition, facade retention and structural propping, basement construction and scaffolding design
- Discuss loads and modes of failure

Contributes to IPD Core Objective 3, 4, 7

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

## Tutor

**Ray Filip** has over 35 years' experience in the field of temporary works design and management and is a Fellow of the Institution of Civil Engineers. He has spent 20 years working for contractors in the UK and abroad and is a member of the committee responsible for revising BS5975 (British Standard for temporary works). Ray is currently a self-employed consultant having formed RKF Consult Ltd in 2007.



Ray is a very good lecturer, engaged us in all ways during the course. He showed lots of interesting pictures and tremendous work experience in Temporary works.

# Timber workshop: design through worked examples

## Course date:

 29 October

## Aim

This advanced practical workshop will teach complex timber engineering through worked examples. It encourages problem-solving through teaching tools and group discussion.

## Learning outcomes

By the end of the course, you will learn about:

- Member sizing
- Tapered and curved members
- Connections, moment connections and avoiding brittle failures
- Fire design
- Stability and vertical diaphragm walls
- Vibration analysis
- Strength and stiffness of cross-laminated timber
- Glued-in rods

Contributes to IPD Core Objective 3, 4, 5

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

Attendance at the *Eurocode 5: The Essentials of Timber Design* course or familiarity with timber engineering to Eurocode 5.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

## Tutor




**Dr Keerthi Ranasinghe** is an Associate at Milner Associates and was previously the Principal Engineer for Structural Timber at BM TRADA. Formerly an academic with research and teaching experience both in the UK and abroad, Keerthi has delivered timber courses for IStructE since 2008. He is the author of several TRADA publications, including *Span Tables to Eurocode 5*, and the Institution's *Manual for the design of timber building structures to Eurocode 5, 2nd edition*. He sits on British and European Standardisation Committees related to timber design.

**25% discount on associated publications:**  
See website for details



# Understanding structural behaviour

## Course dates:

 7 – 8 May

 15 – 16 October

## Aim

This two-day course shows engineers how to arrive at a qualitative solution to both create a structure and check computational results.

## Learning outcomes

By the end of the course, you should be able to:

- Apply a qualitative approach to the solution of a range of framed structures
- Apply checking protocols for computational output and establish a reliable interpretation of the results
- Apply the qualitative approach to the approximate analysis of structures as an aid to the creation of the structural model
- Determine appropriate protocols for the development of these skills in the design office

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

## Tutor



**Mark Moppett** has 37 years of experience and was Senior Partner and then Managing Director at Booth King from 2006 to 2021. He is now Director and remains a fully practising engineer, committed to the training and development of engineers. Prior to his role at Booth King, Mark was an Associate with international consultancy Arup in London, Hong Kong and latterly Manchester, delivering projects both nationally and internationally.

# Understanding structural design

## Course dates:

 4 – 5 June

## Aim

This two-day course extends the principles developed in the *Understanding structural behaviour* course. It covers more complex real structures and failures, and the important skills of approximate analysis for checking computational output and member sizing.

## Learning outcomes

By the end of the course, you should be able to:

- Review the modelling process
- Recognise the fundamental behaviour of structural elements
- Appreciate overall structural equilibrium
- Describe the behaviour of 3D structures
- Interpret and explain the behaviour of real structures
- Reduce complex structures to simpler forms
- Comprehend the approximate analysis of sub-frames for member sizing
- Describe the case studies: Swiss Re HQ, London, and Centre Pompidou, Paris

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Entry criteria

Attendance at the *Understanding structural behaviour* course is recommended.

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

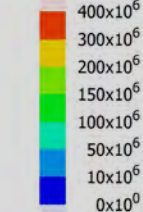
## Tutor



**Mark Moppett** has 37 years of experience and was Senior Partner and then Managing Director at Booth King from 2006 to 2021. He is now Director and remains a fully practising engineer, committed to the training and development of engineers. Prior to his role at Booth King, Mark was an Associate with international consultancy Arup in London, Hong Kong and latterly Manchester, delivering projects both nationally and internationally.



Mark was a fantastic course leader whose light-hearted teaching style encouraged participants to ask questions and interact during the course.



# Using computational design in practice

**Course dates:**  
📅 19 – 20 June

## Aim

This practical course introduces engineers to various computational design methods and systems. You will experiment with visual programming (using Grasshopper) and text-based programming (using C#). You will see how automation can improve engineers' workflows. No previous experience of computational design is required.

## Learning outcomes

By the end of the course, you will have:

- Generated parametric structural layouts
- Seen and implemented various options for parametrically analysing structures
- Explored the differences between visual and text-based programming
- Recognised how and why various data structures are used

Contributes to IPD Core Objective 3, 4

## Intended for

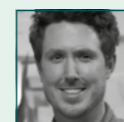
- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£515 + VAT	£685 + VAT
Book within 4 weeks	£575 + VAT	£765 + VAT

**25% discount on associated publications:**  
See website for details

## Tutor



**Harri Lewis** is an expert in applying and teaching computational methods for structural design. He is the co-founder of Mule Studio, an award-winning design studio who specialise in computational design, industrial design, architecture and teaching. He is a Chartered engineer who previously worked in the Specialist Modelling Group at Foster + Partners and Ramboll Computational Design.



I enjoyed very much the overall course structure. Particularly, the introduction of software and plugins set the scene of the course.

# Wind loading on structures to EN 1991-1-4

**Course date:**  
📅 Begins 12 September 16:00 – 18:00 BST

## Aim

This course takes place as a series of two-hour interactive sessions over three weeks. It introduces EN 1991-1-4 for determining wind actions on structures, outlines the basic principles behind the code and covers each step of the procedure for calculating the wind loads on structures. Attention is given to important features introduced by the UK national annexes.

## Learning outcomes

By the end of the course, you should be able to:

- Describe the basic principles of EN 1991-1-4
- Determine site-specific wind data for a site in the UK
- Determine the design wind loads on a typical building structure and its cladding

Contributes to IPD Core Objective 3, 4

## Intended for

- Graduate engineer
- Mid-career engineer
- Senior engineer/Team leader/Manager
- Business leader/Director (inc SMEs)
- Academic/Researcher
- Other built environment professionals and engineers

## Price

	Member rate	Standard rate
Book 4 weeks in advance	£295 + VAT	£395 + VAT
Book within 4 weeks	£335 + VAT	£445 + VAT

**25% discount on associated publications:**  
See website for details

## Tutor



**John Owen** is Associate Professor at the University of Nottingham, where he has taught structural analysis and design since 1993. He has research interests in wind engineering and structural dynamics and has conducted research on tubular structures and structural health monitoring. John is a Fellow of the UK Wind Engineering Society, where he was also Chair from 2009-2012.

# Frequently asked questions

## Q. How can I get 25% discount on associated publications?

The Institution's manuals and guides act as a valuable supplementary resource to the live teaching – and where relevant, are identified in the course description. An exclusive **25% discount** is available to course participants. Email [library@istructe.org](mailto:library@istructe.org) to claim your discount code.

## Q. Why are some courses more expensive than others?

IStructE members pay approx. 30% less than the standard (non-member) rate.

If you book more than one month prior to the course date you can take advantage of the lower early booking rates.

Our pricing is benchmarked against training offered by other professional engineering bodies.

Any surplus generated is Gift Aided back to the Institution to further its charitable aims.

## Can I book on behalf of someone else?

Yes. Select the 'Book now' button on the course page, tick 'Booking on behalf of someone else' and then select 'Add delegate'. If the delegate is a member of the Institution, you must enter the email associated with their membership to receive the member rate.

## Q. Are there reduced rates for students or those that are unemployed or on low incomes?

The CPD programme is generally aimed at postgraduates and those further on in their careers. It is therefore not suitable for undergraduate students, and so we have not set a student rate. However, any Institution member who is paying the Low Income Reduction (LIR) membership subscription fee can claim the same percentage reduction on course bookings. The LIR rate is often an option for postgraduate students, or those on low incomes or not in employment, etc. If you believe this applies to you, please contact [training@istructe.org](mailto:training@istructe.org).

## Q. Are the courses mostly in London?

The 2024 professional development programme will be delivered primarily online with some courses held at our London headquarters.

Alternatively, many of our courses can be delivered to your teams on your premises, at a place and time that suits your organisation.

## Can I cancel my booking?

Yes. You can request a cancellation via your IStructE online account or by emailing [cpdcourses@istructe.org](mailto:cpdcourses@istructe.org). See terms and conditions for further detail.

## Q. Can live courses be recorded to watch back on-demand?

No. Our courses are run as workshops with a limited number of participants. This is so we can give tutors the opportunity to build hands-on, individual and group work into the day and give participants the chance to ask questions. This format doesn't lend itself to livestreaming or filming in the same way as a lecture.

## Q: I have booked on a course. What happens now?

You will receive a booking confirmation when you book then joining instructions and further information two weeks prior to the course date.

If you have any queries please get in touch with [training@istructe.org](mailto:training@istructe.org) at any time.

# Terms and conditions

By booking your place on a Continuing Professional Development Course you are entering into a binding agreement. Your booking is confirmed as soon as payment is received. If you request an invoice to pay by BACS, your booking will not be confirmed until payment has reached our account.

If you are attending in-person training you are advised to take out appropriate travel insurance, as we will not accept any liability for travel, accommodation or other expenses incurred as a consequence of a possible course cancellation or postponement. In any event, The Institution of Structural Engineers will not accept liability for any loss, including incidental or consequential damages, etc.

## Definitions

For the purposes of these terms and conditions:

the “Course” refers to the Professional Development workshop or lecture

“Participant” means a person for whom you have ordered or purchased a place to the Course including yourself (if you are an individual)

“Venue” means The Institution of Structural Engineers, 47-58 Bastwick Street, London, EC1V 3PS, UK (unless otherwise stated).

“we”, “us” and “our” means IStructE Limited, a company registered with Companies House and incorporated in England and Wales (registered number 2444141). IStructE Limited is the wholly-owned trading subsidiary of The Institution of Structural Engineers. The registered address for IStructE Limited is 47-58 Bastwick Street, London, EC1V 3PS

“you” and “your” means, if you are acting as a consumer, the person named on the Course booking and if you are acting as a business, the organisation named as the “Company” on the Course booking.

## Price and Payment

Ticket prices are exclusive of VAT.

Bookings should be made online and paid via Visa or Mastercard. You can also request to pay by BACS. An invoice will be supplied within two working days.

Payment must be received by The Institution of Structural Engineers within 14 days of the invoice date.

Your place on the Course is confirmed once payment has been received in cleared funds. You will receive confirmation of your booking by email.

We reserve the right to change (for a reasonable alternative) the delivery format, start and finishing times, dates, speaker or presenter and the venue of the Course without incurring any liability to you.

The price does not include any travel costs or any costs of accommodation. The price relates solely to attendance at the course, (which includes refreshments and a buffet lunch for full day face-to-face courses only).

## Special requirements

Special requirements must be requested at least five working days prior to the Course. Any requests made after this date cannot be guaranteed and additional charges may apply, including, but not limited to vegan or kosher menus; special access requirements.

## Communication

You accept that communication with us may be electronic. We may contact you by email or provide you with information by posting notices on our website. For contractual purposes, you agree to this electronic means of communication and you acknowledge that all contracts, notices, information and other communications that we provide to you electronically comply with any legal requirement that such communications be in writing. This condition does not affect your statutory rights.

We may give notice to you at either the email or postal address you provide to us on booking, or in any of the ways specified. Notice will be deemed received and properly served immediately when posted on our website, 24 hours after an email is sent, or three days after the date of posting of any letter.

In proving the service of any notice, it will be sufficient to prove, in the case of a letter, that such letter was properly addressed, stamped and placed in the post and, in the case of an email that such email was sent to the specified e-mail address of the addressee.

All notices given by you to us must be given to The Institution of Structural Engineers, 47-58 Bastwick Street, London, EC1V 3PS, UK, or by email to [training@istructe.org](mailto:training@istructe.org).

## Cancellations

Cancellations can be requested online or by email. If you cancel on or before one month before the Course date, we will refund your booking fee in full or cancel your invoice. If you cancel less than one month before the Course no refund will be given. If an invoice was requested and you request a cancellation less than a month before the Course, you will still be liable to complete payment.

If we cancel the course, we will refund all booking fees paid. We do not, however, accept liability for travelling, accommodation or any other expenses incurred as a result of any cancellation or postponement of the Course.

Our liability for loss or damage incurred as the result of cancellation or postponement of the Course is limited to the amount of your booking fee.

If the Course is postponed for reasons beyond the direct control of the organisers (Force Majeure), this booking will be transferred to the revised date of the Course and all these Terms and Conditions shall apply to any such transferred booking.

If we haven't received a minimum number of bookings, we may need to cancel a course. We will offer a full refund or a transfer to a future date.

## The Course

A substitution of a Participant named on your booking can be requested by giving written notice to us. We reserve the right to accept or deny your request.

During the Course the presenter may use their own copyrighted material. Any unauthorised recording, copying or posting of this material is an infringement of their copyright.

We reserve the right to refuse entry to the Course to any Participant if, in our opinion or the opinion of the presenter, the Participants' behaviour is considered inappropriate. In this case they may be refused entry or asked to leave and excluded from the Course without refund or compensation. Reasonable security searches at the Venue may take place.

## Liability

The Institution of Structural Engineers shall not be liable to you or any Participant (whether such liability arises in contract, tort (including negligence) or otherwise for:

any loss of profit, loss of or damage to reputation or goodwill or any indirect, special or consequential damages, loss, costs, claims or expenses of any kind; and/or

any loss or damage arising from a failure or delay in performing our obligations under the Contract to the extent that

such failure or delay was caused or contributed to by an act or omission by you or any Participant.

The exclusions and limitations of liability shall not apply to any loss suffered by any person arising out of:

the fraud and/or fraudulent misrepresentation of the person seeking to rely on the exclusion or limitation; and

death or personal injury resulting from negligence on the part of the person seeking to rely on the exclusion or limitation.

You are responsible for taking appropriate insurance cover in connection with your attendance at the Course. Where a Participant is travelling from outside of the United Kingdom to attend the Course, appropriate travel insurance should be purchased independently and in advance of any travel or travel bookings.

The views expressed by any presenter at the Course are representative of the presenter's own opinions and cannot in any way be attributed to us. We are not liable for the content of the Course, although we take reasonable checks to ensure that it is appropriate.

## Correspondence Address:

**Professional Development Courses**  
IStructE Limited  
47-58 Bastwick Street  
London EC1V 3PS

Email: [training@istructe.org](mailto:training@istructe.org)

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**Register for exam:**  
[istructe.org/training-and-development/qualifications/certificate-in-structural-behaviour](http://istructe.org/training-and-development/qualifications/certificate-in-structural-behaviour)

## CPD mandatory reporting scheme

**Structural engineering is constantly evolving, and keeping up to date with technical and professional developments is essential.**

If you're a practising, professionally qualified member of the Institution (Fellow, Chartered, Associate, Associate-Member or Technician Member) we may contact you and ask you to submit a CPD Record as part of the Mandatory Reporting Scheme. Your record should outline how you have accumulated 30 CPD 'hours' per annum.

If you don't submit a record upon request, you may be removed from membership (although we would always consult with you first and mitigating circumstances can be taken into account).

Attending one of our CPD courses is a great way to demonstrate CPD but there are many other options.

You can demonstrate your development by working with Institution committees, panels and study groups; watching recorded lectures and conferences; reading *The Structural Engineer* and other Institution publications; volunteering your time for education and careers activities; and through your own practical experience.



**Find all the CPD information you need at:**  
[www.istructe.org/training-and-development](http://www.istructe.org/training-and-development)



### Book your course:

Visit [www.istructe.org/cpd-2024](http://www.istructe.org/cpd-2024)

### Take advantage of our discounts—

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**10% off** all courses when you book more than a month in advance

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**25% off** a course's associated publication where listed

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**Big discounts** when you book pairs of complimentary courses (where stated)

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### Consider other great ways to gain CPD—

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**Read** *The Structural Engineer*  
[www.istructe.org/thestructuralengineer](http://www.istructe.org/thestructuralengineer)

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**Watch** technical lectures on our Youtube channel:  
[www.youtube.com/theinstitutionofstructuralengineers](http://www.youtube.com/theinstitutionofstructuralengineers)

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**Stream** interactive webinars from our new technical webinar series. Or, watch the recording on-demand for accessible and easy to consume content.

**Book online:**  
[istructe.org/cpd-2024](https://istructe.org/cpd-2024)

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