



مؤتمر عجمان  
الدولي السادس للبيئة  
Ajman 6<sup>th</sup> International  
Environment Conference



# AIEC2022

Ajman 6<sup>th</sup> International Environment Conference on  
TOWARDS 2071 SHAPING THE FUTURE FOR ENVIRONMENTAL SUSTAINABILITY





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TOWARDS 2071 SHAPING THE FUTURE FOR ENVIRONMENTAL SUSTAINABILITY

# Professionalising the Engineering Workforce to Meet the Challenges of Climate Change and Net-Zero Carbon

**Professor Peter Farrell CEng, FRICS,  
FCIOB, FCABE**

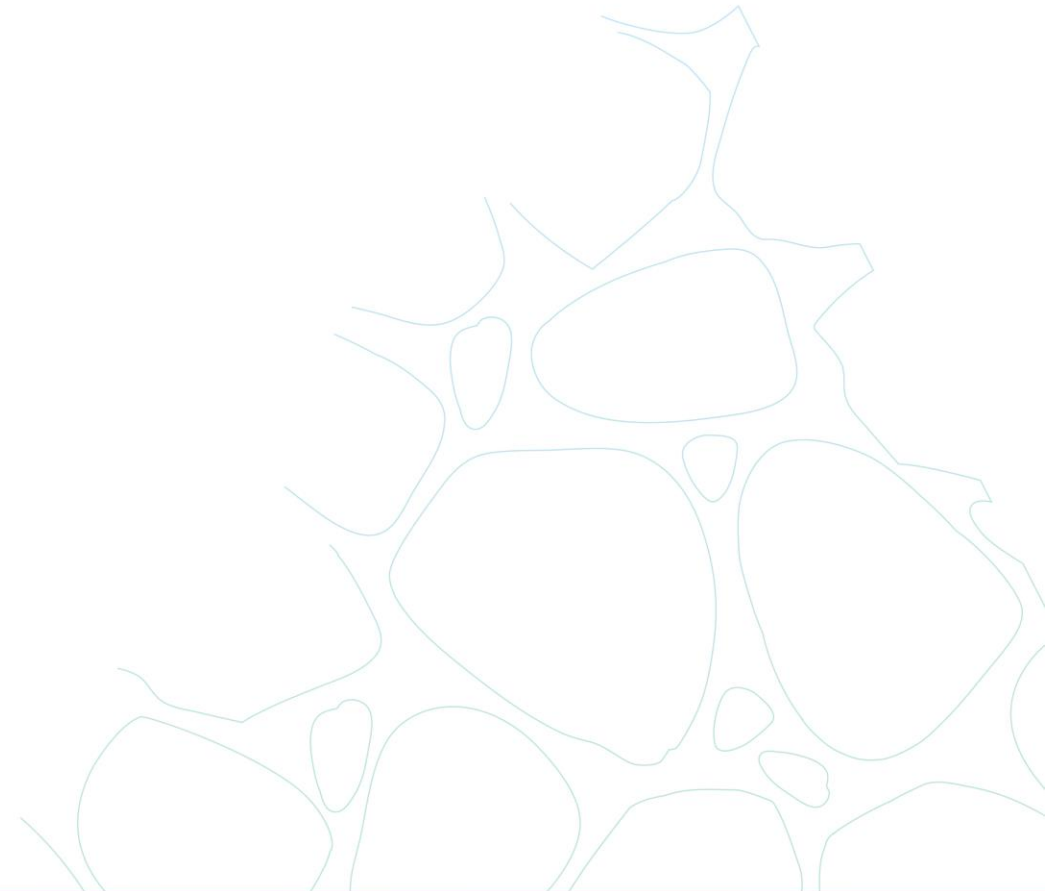
**University of Bolton, Manchester, UK**



# Structured learning; around climate change

**Reflection**

**Evidence**





# **Best practice in the UK through the Engineering Council**

## **Professional body membership / registration**

### **Four areas: (i) PDP, (ii) CPD, (iii) Ethics and (iv) Codes of Conduct**

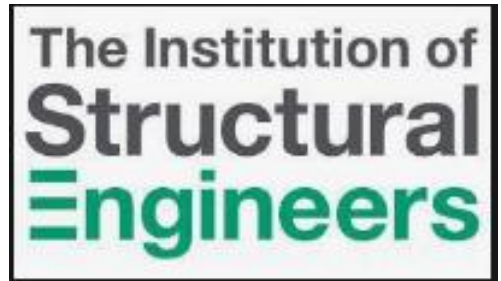
### **Plus: mentoring**



# جمعية المهندسين society of engineers



**cabe**  
chartered  
association  
of building  
engineers



**Institute  
of Water**





# To be a Chartered Engineer (CEng)

**Appropriate level of qualification – bachelors or masters**

**Experience**

**Evidence of meeting engineering competencies / attributes**



## Two examples of 41 attributes, required to be a Chartered Engineer

**Manage engineering activities that contribute to sustainable development and the United Nations' Sustainable Development Goals (UNSDGs)**

**Plan, carry out and record Continuing Professional Development (CPD) ... (Structured learning)**





## Typical mission statements:

**We drive up professional standards, push forward innovation, influence political decisions and strengthen talent across the ... global community (CIOB, 2022).**

**To qualify ... engineering professionals and give them the tools they need to continue to develop (ICE, 2022).**

**To promote the contribution that ... engineers make to society worldwide (ICE, 2022).**

**... to protect society.**



# Good for employers; employees and society

**Clients: only engage with supply chains who employ chartered / registered staff**

**Companies: only employ individuals who are chartered / registered**



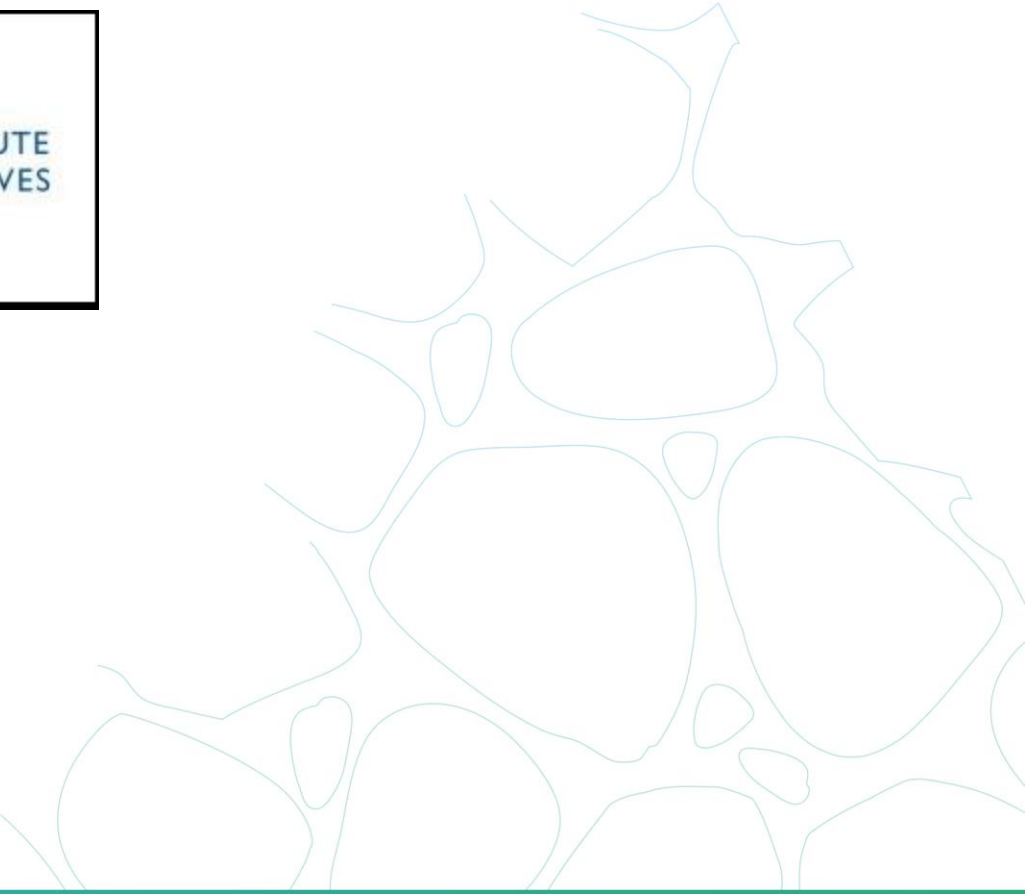
**CEng**





Chartered Engineer [India]

Chartered Certified Accountant  
*Customer Service Manager*



# 1. Professional development planning (PDP)

**Definition: a structured ... process undertaken by learners to reflect upon their own ... performance and/or achievement and to plan for their personal, educational and career development (QAA, UK)**

**for the benefit of society?**



Name: □							
Job role, responsibilities and engineering sector: □							
Review of learning needs □				Development plan □			
Date □	Ref □	In what area do I need to improve my performance? □	What do I need to learn in order to achieve this? □	What will I do to achieve this? □	What are the likely resources and support that I will need? □	How will I evaluate a successful outcome? □	What are my deadlines for meeting this target? □
□	□	□	□	□	□	□	□
□	□	□	□	□	□	□	□
□	□	□	□	□	□	□	□



# **PDP 1 planning our structured learning**

**In what areas do I need to improve?**

**What do I need to learn in order to achieve this?**

**What do I need to do this?**



## **PDP 2 planning our structured learning**

**What are the likely resources and support that I will need ?**

**How will I evaluate a successful outcome?**

**What are my deadlines for meeting this target?**





## **PDP 3 planning our structured learning**

**In what areas do I need to improve?**

**Science of climate change**

**What do I need to learn in order to achieve this?**

**Physics and chemistry**

**What do I need to do this?**

**Structured reading (authoritative), webinars, You Tube clips**



## **PDP 4 planning our structured learning**

**What are the likely resources and support that I will need ?**

**Small cost items – time!**

**How will I evaluate a successful outcome?**

**Write lecture notes and host seminars**

**What are my deadlines for meeting this target?**

**December 2022**



## 2. Continuing professional development (CPD) – doing our structured learning

**Definition 1: “ ... structured activities such as courses, distance learning programmes, private study, preparation of papers and presentations, mentoring, involvement in professional body activities, or relevant voluntary work” (The Engineering Council, 2022)**

## CPD definition 2:

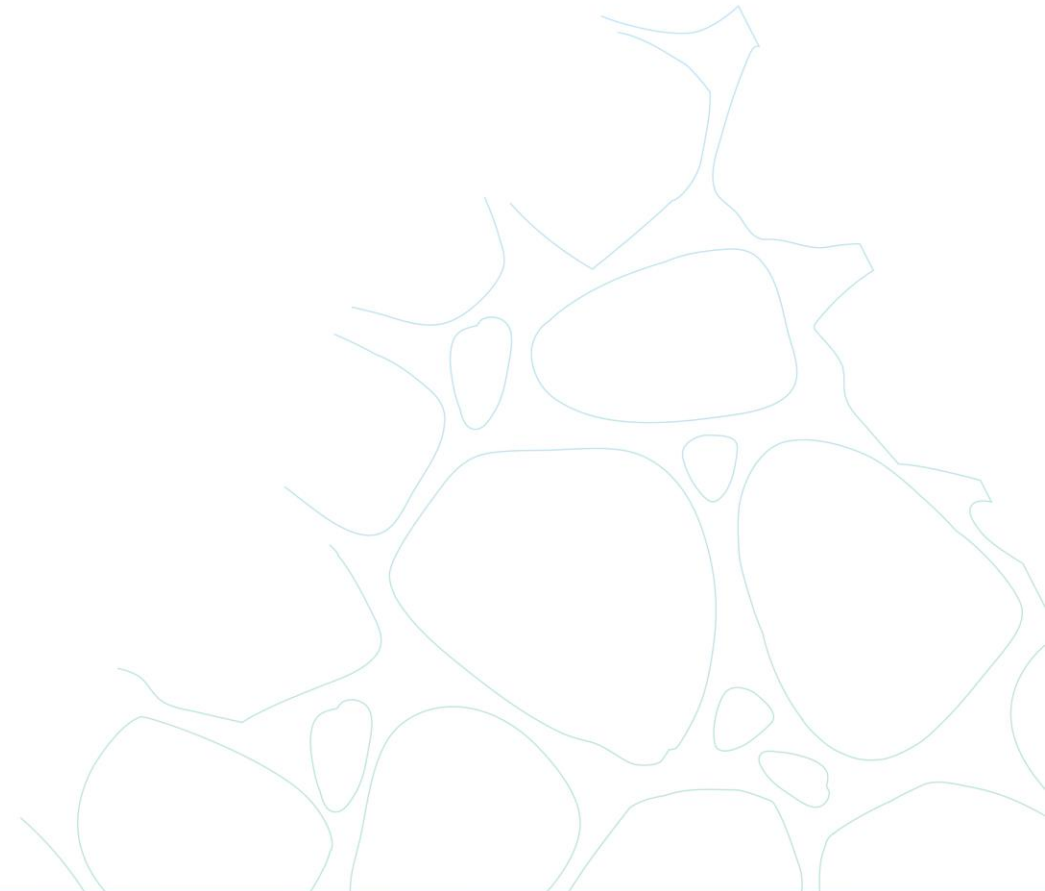
*“The **systematic** maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities, necessary for the execution of professional and technical duties throughout your working life.”*

**(The Institution of Civil Engineers, 2021)**



## **CPD definition 3:**

### **Life-long learning**





Name: □						
Job-role, responsibilities and engineering sector: □						
Development activity □				Evaluation □		
Details of CPD activity □	Dates □	Effective learning time □	Dev. Plan ref. □	Key Learning Points □	Key Benefits/Value added □	Further comments: □ Was the learning successful? □ How can I improve it in future? □
□	□	□	□	□	□	□
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## **CDP record**

**Details of CPD and dates**

**Effective learning time**

**Development plan reference**

**Key learning points**

**Key benefits / value added**

**Was the learning successful and how can it be improved in the future?**



# Reflection

**Perhaps thirty hours each year?**





### 3. Statement of ethical principles for the engineering profession



STATEMENT OF ETHICAL PRINCIPLES  
for the engineering profession



# Statement of ethical principles for the engineering profession

**Honesty and integrity**

**Respect for life, law, the environment and public good**

**Accuracy and rigour**

**Leadership and communication**



## 4. Code of Conduct

The Institution of  
**StructuralEngineers**

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Members of the Institution practice high professional standards as required by the Code of Conduct. The Code provides guidance and examples of how members are expected to conduct themselves.

**Article 3:**  
Upholding the reputation  
of the profession



**Policing of? Samples or all population?**

**Consequences if PDP and CPD not done?**

**Request**

**Reminder1 / Reminder 2**

**Fine?**

**Disciplinary panel**

**Suspension or struck-off the register – removed from membership?**



## **Actions:**

**Join or encourage others to join**

**Society of Engineers**

**Chartered Engineer**

**Chartered Environmentalist**

**Be active and engaged; not passive**

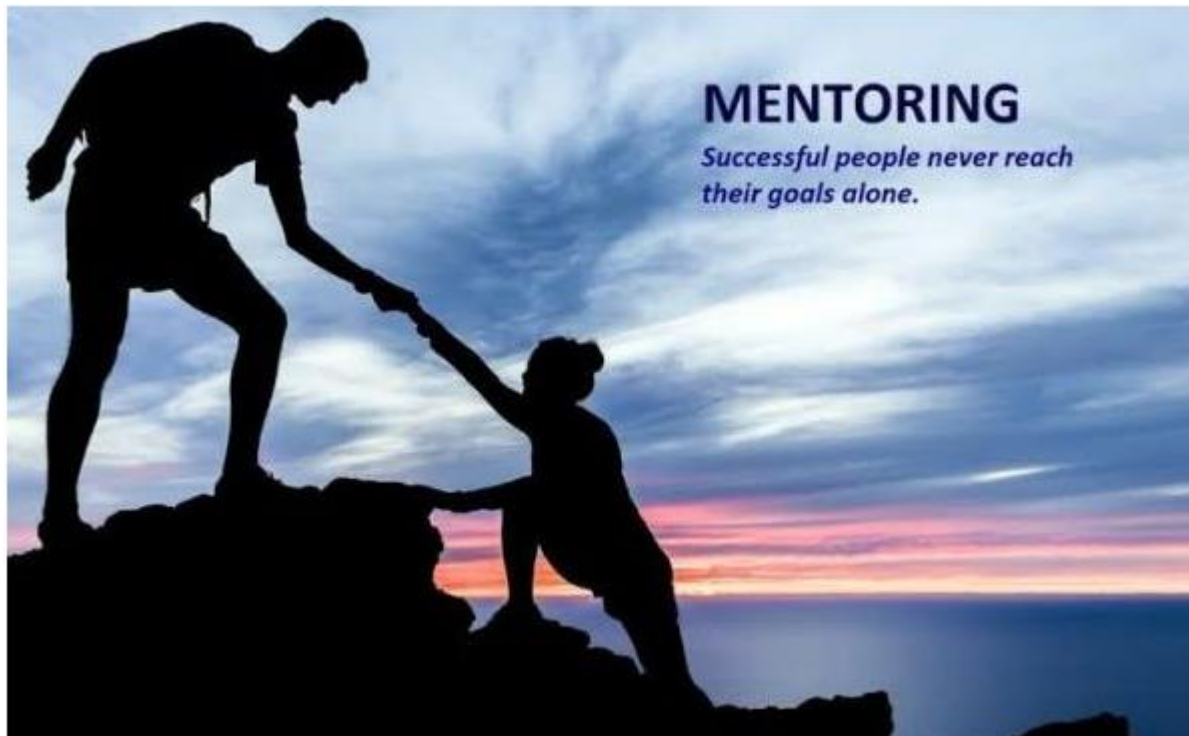


## Actions:

**We will all do our professional development plan (PDP)  
to include something in the climate change zero carbon  
arenas**

**We will record and **reflect** on our continual professional  
development (CPD)  
**and ...****

No matter what our age, we will seek out and be a mentor to someone; formally or informally – **their career development** and climate change?





## Research is:

**Spending six hours reading 35 papers, so you can  
write one sentence containing two references**

**(Gaensler, 2018 cited by Professor Konstantinos  
Kalachanis)**

**Be well read**



Under the patronage of His Highness **Sheikh Humaid Bin Rashid Al Nuaimi**,

Member of the Supreme Council and Ruler of Ajman

Municipality and Planning Department-Ajman is pleased to organize  
Ajman 6th International Environment Conference on

## **"TOWARDS 2071 SHAPING THE FUTURE FOR ENVIRONMENTAL SUSTAINABILITY"**

Monday & Tuesday, 28 -29 March 2022 at Sheikh Zayed Centre for Conferences  
and Exhibitions of Ajman University of Sciences and Technology (AUST) Campus in Ajman,  
United Arab Emirates (UAE)



## Ajman 6th International Environment Conference

### Conference Sessions

- **Session 1:** Environmental Sustainability And Artificial Intelligence
- **Session 2:** Roadmap for Carbon Neutrality 2071
- **Session 3:** Shaping the Future of Sustainable Cities and Communities
- **Session 4:** Fourth Industrial Revolution environmental peritonitis
- **Session 5:** The Future Of Clean Energy - Resilience & Sustainability

THANK YOU

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