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# 2024 Annual Corrosion Forum

## The Role of ICorr in Corrosion Management

Stephen Tate – ICorr President 2022 - 2024

Tuesday 27<sup>th</sup> August 2024

- **ICorr History**
- 65 yrs old this year.
- The British Association of Corrosion Engineers (BACE), now the Institute of Corrosion (ICorr) was **founded in 1959** to promote the dissemination of technical information about corrosion matters and to develop by means of social activities, the **free interchange of information** among members, establish suitable qualifications for corrosion engineers, and promote of standardisation in the terminology and techniques of corrosion control.
- **ICorr** is recognised by the Institute of Materials, Minerals and Mining (IOM3), British Institute of NDT (BINDT) and by the Institute of Marine Engineering, Science and Technology (IMarEST) as offering technical presentations that contribute to an individual member's Professional Development (CDP) requirements.
- ICorr provides between 70-80 Technical Presentation every year across its branches/divisions.
- Refer: [www.icorr.org](http://www.icorr.org)

- **The President**

- Stephen Tate MBA, PG. Dip Eng, is a recently retired Snr. Corrosion Engineer. Working with Oceaneering and previously CAN. He has supported Total Energies projects and operations for the last 8 yrs with 44 yrs experience altogether within the Oil and Gas Pipelines, Subsea and Offshore processing sectors.
- Stephen was twice Vice Chair and twice Chair of the Aberdeen ICorr Branch, before being elected as the ICorr National President.
- He has supported the Aberdeen Branch since 2011 in various officer roles and is currently an Observer to its Committee.
- Although shortly stepping down as President, he will remain on the Institute Board of Trustees until November 2026 and other key ICorr committees, actively supporting the incoming President from handover at Newcastle AGM on 13<sup>th</sup> November 2024.

## • ICorr – Education and Skills Training

- The role of ICorr with Corrosion Management, is primarily one of Corrosion Awareness education together with specific skills training to improve competency in Corrosion Prevention. This covers all age ranges and a wide range of Corrosion related disciplines.
- Every year the Institute in conjunction with its authorised training partners - Corrodere, Correx and IMechE delivers approved training courses to many hundreds of apprentices, applicators, engineers, technicians, inspectors and supervisors working in the Corrosion Prevention industries both in the UK and Overseas.
- ICorr regularly collaborates with other technical bodies and will soon present to the new UK Government P&SC (Parliamentary and Science Committee) on the urgent need for improved UK wide corrosion management and infrastructure protection.
- New CP Marine Training centres are planned to operate in 2025 in Aberdeen and Blyth. Additionally, ICorr delivers comprehensive technical programmes through its eight UK branches (recently expanded with the addition of Wales and Central Scotland) and also interfaces with many UK and overseas Universities.
- It has recently signed a new MoU with AMPP and has similar one in progress with CSCP (Chinese Society of Corrosion Protection).
- Finally, a new CEng direct Chartership Scheme is expected to launch early in 2025.

- **Membership Breakdown**

- Total Members 2024: **around** 1,500 members (UK and Overseas).

- Includes

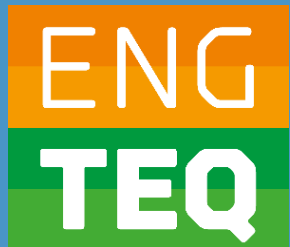
- Student Members: 20%
- Sustaining Members: 30% (inc. Gold)
- Corporate Members: 5% (inc. 4 new Corporates)
- Local Branch Committees: 5%
  
- **Balance** Individual Members: 40%

- Aberdeen Branch
- Corrosion
- Awareness
- Training

**Aberdeen Corrosion Forum (ACF) has been Ongoing for 15yrs +**



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# 2024 Annual Corrosion Forum

## Recent Growth in ICorr Activities

Stephen Tate – ICorr President 2022 - 2024

Tuesday 27<sup>th</sup> August 2024

- **ICorr is a European Federation of Corrosion (EFC) member** - The **EFC** is a federation of organisations - Member Societies and Affiliate Members - with interests in corrosion, based in Europe and beyond. Its aim is to advance the science of the corrosion and protection of materials by **promoting greater** co-operation within **Europe** and **Internationally**.
- [European Federation of Corrosion \(efcweb.org\)](http://efcweb.org)





- **ICorr Global collaboration – via EFC and Independently\***. \*3 ICorr Branch Prospects are currently being progressed.



**EFC / AMPP (Europe / USA)**



**EFC / China / CSCP**



**EFC / Australia**



**ICorr / UAE Branch\***



**ICorr / Qatar Branch\***



**ICorr / India Branch\***

- ICorr is also a member of WCO – World Corrosion Organization.
- Refer [WCO - World Corrosion Organization – Members](#)

- **WCO Vision**

- That effective corrosion control measures are implemented by governments and corporations globally.

- **WCO Mission**

- To facilitate global implementation of best practices in corrosion protection for public welfare.

- **WCO Objectives**

- To communicate how the United Nations Sustainable Development Goals can be advanced through best practice in corrosion protection
- To enhance public awareness of the importance of corrosion control via the annual Corrosion Awareness Day (24<sup>th</sup> April) and other activities. ICorr at UoM in 2024.
- To facilitate influencing of policy makers with respect to consideration of sustainable use of materials in a circular economy

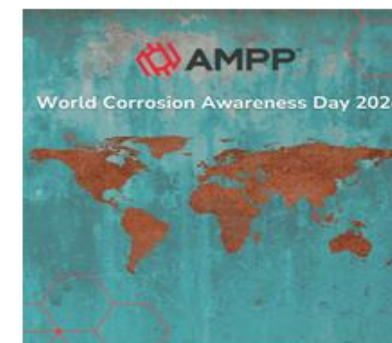
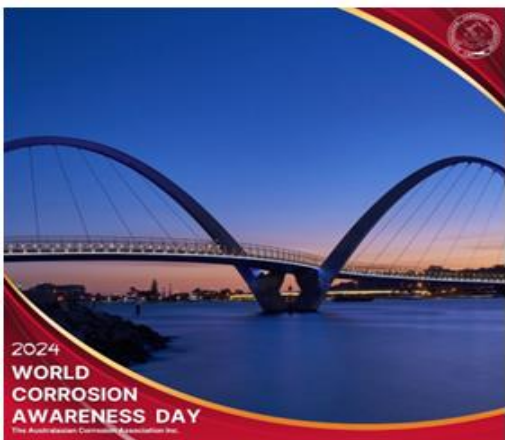
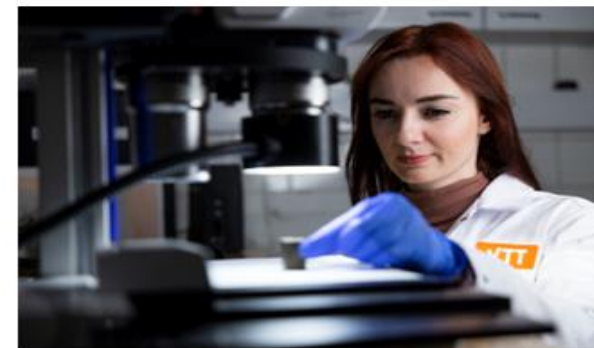
- **Achieving WCO Goals**

- Joint committees have been designated to work on strategies for achieving each goal.



- Global Cost of Corrosion – 2.5 Trillion Dollars Annually.

## World Corrosion Awareness Day



- UK Cost of Corrosion – Similar to UK Education Budget



**£80bn**  
**per year**



Up to 35% of these costs could be saved by application of existing corrosion control practices

**Saving £28bn per year**

- **UK Government Interfacing – Post Q3 2024 General Election + Science in Parliament Magazine**
- **ICorr will be presenting to George Freeman MP of the Parliamentary & Scientific Committee APPG on Tuesday 15<sup>th</sup> October, in the new parliamentary session on the Theme – ‘Repair, Reuse and Recycle’.**

## 1. Raising Awareness of Corrosion’

**Prof. Gareth Hinds FREng FIMMM FICorr FNACE**

Senior NPL Fellow, Electrochemistry  
National Physical Laboratory

**President**, World Corrosion Organization  
Vice President, European Federation of Corrosion  
Past President, Institute of Corrosion

**2. Value Retention Processes (VRPs)’ – supporting 500,000 UK jobs.**

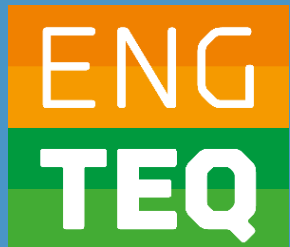
**David Parker, MBA, MSc, BA, MIChemE, CEnv**  
Sustainability Consultant  
Oakdene Hollins

## 3. Mentoring the Next Generation towards Corrosion Prevention’

**Izabela Gajewska MSc (Eng), MICorr**  
Corrosion Engineer - Consultancy Services  
Intertek CAPCIS

## 4. Monitoring / Repair of Reinforced Concrete Structures – including RAAC’

**Dr Christian Stone, Technical Expert and Doctoral Researcher** at Loughborough University.  
Concrete Preservation Technologies Ltd



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# 2024 Annual Corrosion Forum

## New and Regenerated Branches

Stephen Tate – ICorr President 2022 - 2024

Tuesday 27<sup>th</sup> August 2024

- **ICorr Regional Branches**

- ICorr now operates 8 local branches, all with their own Technical Programme's.

- Aberdeen
- Central Scotland (New for 2024)
- Wales and South-West (New for 2024)
  
- London
- Midlands
- North-East
- North-West
- Yorkshire and Humber

- New Branches - Wales &
- South-West England



## Key Attributes:

**New Branch Launched Q1 2024**

Covering a region with a hugely diverse range of business sectors, including:

- Aerospace
- Chemical Plants
- Construction Products
- Energy Production
- Oil & Gas
- Petrochemical
- Renewables
- Steel and Metal manufacturing
- Universities

Events – Planned to Rotate around Wales and South-West England e.g. Bristol



- **New Branches - Wales & South-West England**



**Inset - Adeeba Zachary  
Vice Chair**



## **ICorr Wales & South-West England Branch 2024-2025**

Session Committee (Left to Right): Ben Capewell (Events Co-ordinator), Rene Brueckner (Finance & Sponsorship Officer), Stephen Tate (ICORR President), Sarah Bagnall (Chair), Maryam Bonyadi (External Secretary), Barrie Goode (Student & Liaison and CPD Officer), Chris Weirman (Internal Secretary).

- **New Branches – Central**
- **Scotland**



## Key Attributes:

**Launched Q2 2024**

Covering an Industrial region with a hugely diverse range of Downstream Businesses, including:

- INEOS Chemicals business comprises a large ethylene cracker with downstream plants producing ethanol, polyethylene and polypropylene. Also producing a wide range of petrochemicals, fuel and oil products, including: - petrol/gasoline; diesel; jet fuel; heating oil.
- Completing the INEOS Grangemouth industrial complex is the recently acquired Forties Pipeline System that delivers almost 40% of the UK's North Sea oil and gas production.

- **New Branches – Central Scotland**



**New ICorr Central Scotland  
Branch, 2024-2025**

- **New Branches – Central Scotland**



**New ICorr Central Scotland  
Branch, 2024-2025**

- **Regenerated**

- **Branches**

- **Newcastle**

- The Committee currently comprises:
- Matt Fletcher (Chair)
- Bruno Ravel (Vice Chair)
- David Mobbs (Secretary)
- Josie Watson (Treasurer)
- Barry Turner (Events Manager)
- Patrick Johnson (Committee Member)
- Simon Daly (Committee Member)



- Regenerated
- Branches
- North-West

**ICorr North-West Committee - L to R, Izabela Gajewska, Kathy Brook, Paul Lambert, Brenda Peters, Greg Brown and Jane Lomas**



- Recent Overseas Activity - Beijing – USTB and CSCP Vice President Visit



- **Recent Overseas Activity – China – Surface Treatment Certification (via TUV).**



Candidate  
Undertaking  
Level 2  
Protective  
Coatings  
Inspector  
Course in  
China.



- Recent Overseas Activity – China – ICorr Surface Treatment Certification (via TUV).



**Huang Guangan** – Protective Coating Inspector Level 2, Coating Technical Director of Anhui Honglu Steel and the **1000th ICorr IAR TUV Cert Holder.**

- Recent Overseas Activity – (MoU) Qatar University for ICorr Training (Advanced Courses)



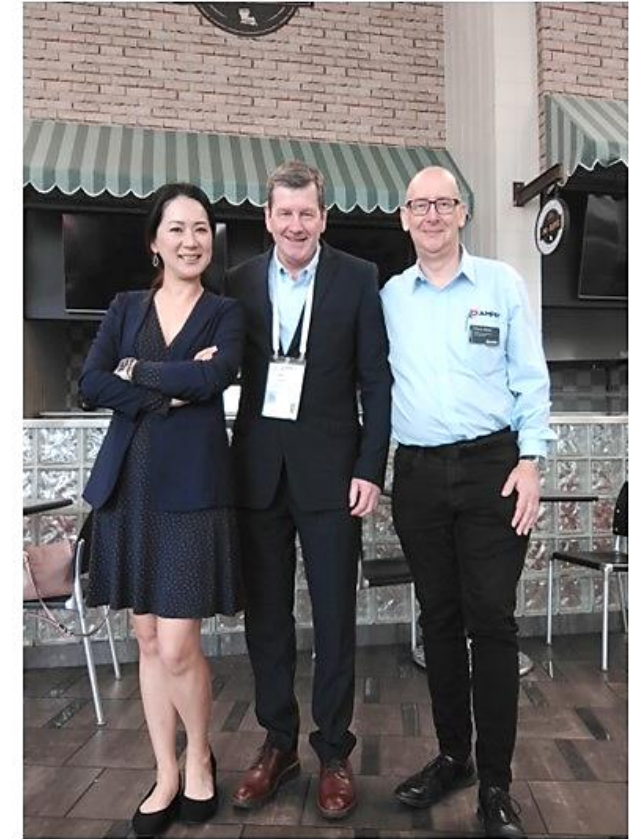
- Recent Overseas
- Activity – (MoU)
- AMPP / ICorr
- just signed.

There are 2 planned UK Joint AMPP / ICorr Events – **Aberdeen (May 24)** and **London (Jan 25)**



**AMPP 24** – Juan Caballero (VC)  
and Marco Castillo  
(Roemex / Leeds University)

Other ongoing  
Discussions (ST/YG)  
with AMPP with a  
view to Training and  
MoU Development



**AMPP 24** - Phoebe Hsueh  
(Manager Global Operations)  
and  
Stuart Bond (European Manager)

- Work of CED
- Corrosion Engineering
- Division

## 2023 - Corrosion Engineering Division (CED)



•Awards – Apr. 23



London – Apr. 23

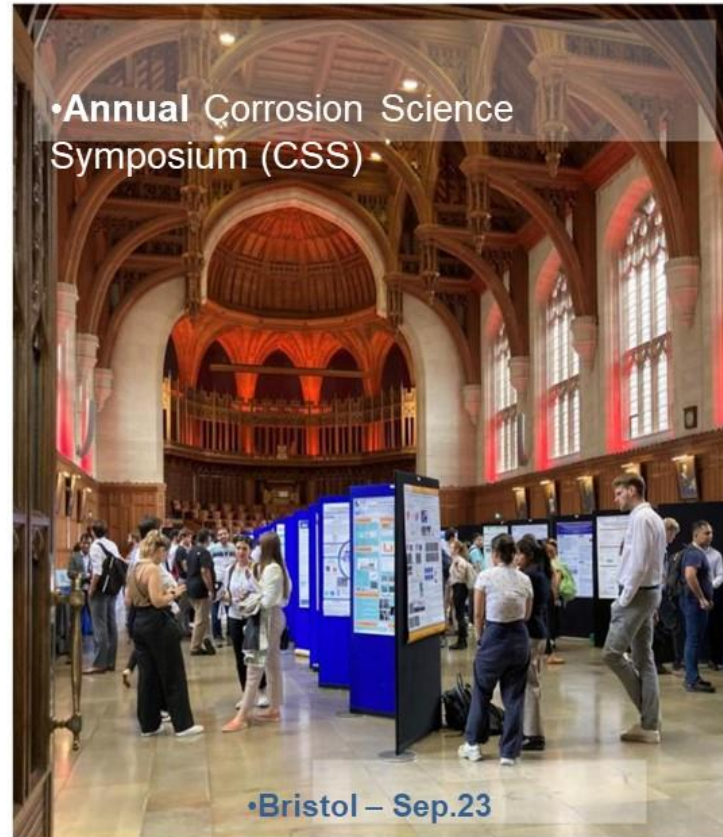
- Work of CED
- Corrosion Engineering
- Division

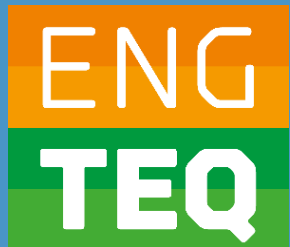
## 2023 - Corrosion Engineering Division (CED)



- Work of CSD
- Corrosion Science
- Division

## 2023 - Corrosion Science Division (CSD)





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## Training Expansion

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- ICorr Training
- Types

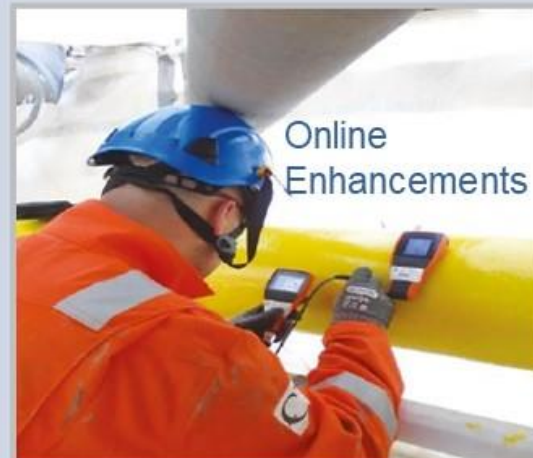
## Operative



## Technician



## Inspector / Supervisor



## Engineer





- Recent CP
- Training Expansion
- 40x CP Courses expected
- to run in 2025
- Buried, Concrete and
- Marine CP



## Cathodic Protection Training and competence certification

### Meeting standards, exceeding expectations

The Institute of Corrosion Training and Certification Scheme for Cathodic Protection Personnel to BS EN ISO 15257:2017.

All CP Technicians and CP Design Engineers are required to have certification to ISO 15257.

The Institute of Corrosion provides training, examinations, assessment and certification for CP in steel in concrete, in collaboration for the Corrosion Prevention Association.



+ CP  
Training

- **New Marine CP Centre (2025) – Port of Aberdeen**







- **New Marine CP Centre (2025) – Blyth (Newcastle Branch)**

**Robotics and Autonomous Systems Testing and Validation**

Testing and validating tomorrow's robotic and autonomous maintenance solutions.

- Marine Robotics & Autonomous Systems Testing
- Contact systems testing

Discussions initiated by CPGB, for additional Marine CP Training at Blyth. **Agreed in Principle.**



The Catapult's National Offshore Assembly Hub (NOAH), off the coast of Blyth, Northumberland.

- Work of YICorr/YEP
- Young ICorr

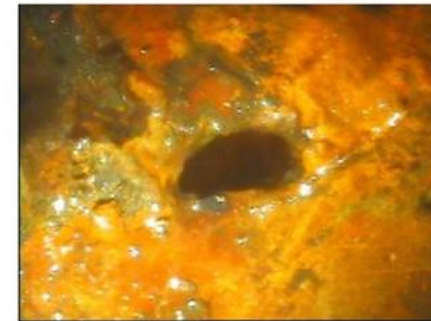
## •YICorr and YEP CORROSION TRAINING



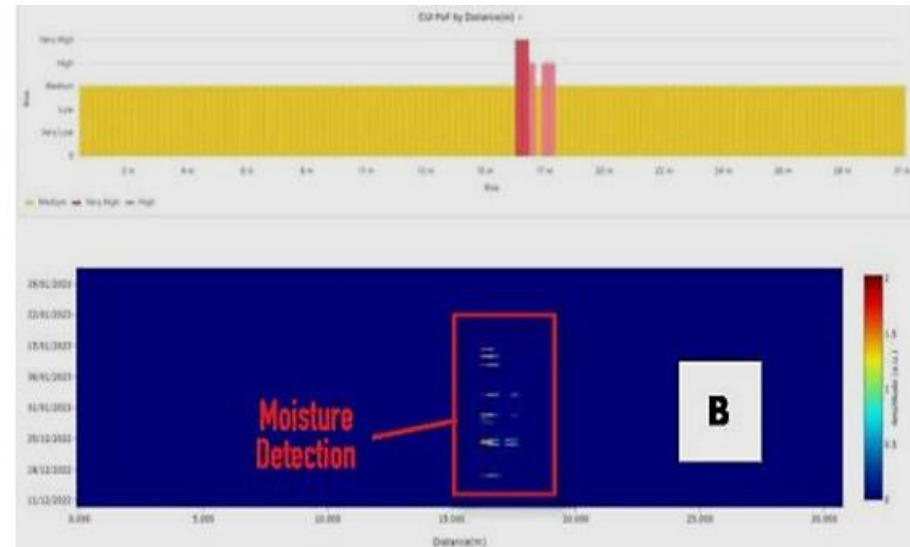
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- Work of YICorr/YEP
- Young ICorr
- Reality (Typical YEP Case Study)

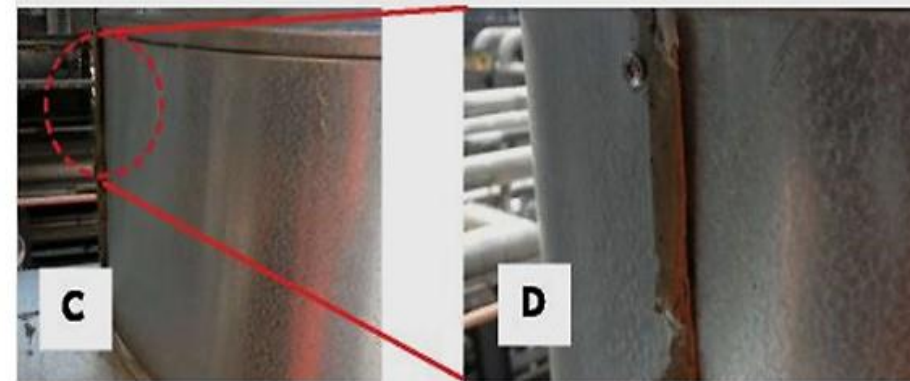
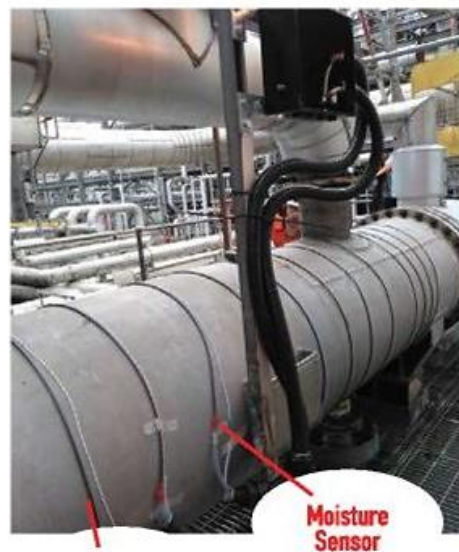
- Heat Exchanger Failure



- CUI Course



- Starting Oct.24



## New CUI Course

- **FOCE Course – Next Course - Sep. Aberdeen (In-Company for Rysco, ABZ)**
  - **ICorr Fundamentals of Corrosion or Engineers Course**
  - This industry leading course provides direct access to professional membership of ICorr, for those with relevant experience. Corrosion management, failures and remediation commonly occur throughout all branches of engineering where metals are part of the structure or process.
  - **FOCE is a corrosion course that covers the basic principles of corrosion** that are needed by engineers to understand why and how failures occur, actions that can be taken to manage the ongoing corrosion and/or remediate the structure, and options to prevent further corrosion, where possible. The course is presented as a series of modules.
  - Both the general and the different types of localised corrosion such as crevices, pitting, bi-metallic corrosion, etc., is considered. Common atmospheric and immersed conditions, re-bar in concrete, high-temperature atmospheres, water treatment, buried pipes, etc are considered to understand corrosion.
  - Corrosion management strategies, including material selection, cathodic protection, surface preparation, coatings, chemical treatments, inhibitors, etc., are included in the course.
  - The role of the corrosion engineer is described and includes investigation of failed components, inspection, and testing of samples, with practical examples and case histories included in the course notes.
  - As a classroom-based course, **FOCE is provided in English by an experienced, practicing corrosion consultant.** A copy of the training material is provided to each attendee. The learning modules are given over four intensive days, and candidates for the examination on the final day are encouraged to revise the material each evening to ensure that they understand the course content.
  - At the end of the course, all attendees are given a Certificate of Attendance, which shows that they have been present for all the modules.
  - **After passing the examination, participants receive a Certificate of Achievement,** which demonstrates that they have received sufficient corrosion training to apply directly for a Professional grade of Membership of ICorr, such as TICorr or MICorr, depending on the other requirements of the membership grade.

- Corrosion
- Mechanisms
- Courses






- **Materials Courses**

The image shows the cover of a course titled "CORROSION MECHANISMS IN STAINLESS STEELS". The cover has a dark blue background with white and yellow text. At the top right, there are two logos: the British Stainless Steel Association (BSSA) logo and the Institute of Corrosion (ICorr) logo. The title "CORROSION MECHANISMS IN STAINLESS STEELS" is written in large, white, sans-serif capital letters. Below the title, the text "Slides, Case Studies and Attendee Exercises" is written in a smaller, white, sans-serif font. In the bottom right corner, the text "We have BSSA Agreement for ICorr Involvement" is written in yellow. At the bottom left, there is a logo for "R-TECH MATERIALS". At the bottom center, there is another BSSA logo.


- MIC Course

## Microbiologically-Influenced Corrosion Training Course




The Institute of Corrosion (ICorr) has developed the only known certified Microbiologically-Influenced Corrosion (MIC) training course to meet increasing industry demand, avail of latest technologies, and share best practices, to control the spiralling and highly damaging MIC cases across different industry sectors.

Bio-corrosion or MIC is a costly and devastating problem. It can occur in systems with traces of water. It is caused by sessile microorganisms on metal surfaces altering the kinetics of the electrochemical process.



**MIC is the least understood corrosion phenomenon**  
 The annual cost of MIC is estimated at USD 2.5 billion in oil and gas industry  
 Microbes thrive in various industrial systems and pipelines  
 MIC is predominantly manifested as severe localised corrosion (pitting)



The course is designed with theoretical and practical modules for three different levels of proficiency

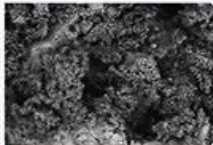
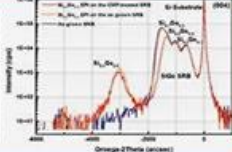
|                                                                                                                                            |                                                                                                     |                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Certified MIC Technologist                                                                                                                 | MIC Technologist                                                                                    | Awareness                                                                                        |
| <ul style="list-style-type: none"> <li>A five-day course including certification exam</li> <li>ICorr Certified MIC Technologist</li> </ul> | <ul style="list-style-type: none"> <li>A four-day course</li> <li>Attendance certificate</li> </ul> | <ul style="list-style-type: none"> <li>One-day course</li> <li>Attendance certificate</li> </ul> |

Advance your career with the internationally recognised ICorr certification programme and effectively protect company assets from a highly damaging corrosion phenomenon

Who should attend

The course is of benefit to industrialists and academia with interest in research and applications

- Management and stakeholders
- Corrosion engineers and industrial microbiologists
- Scientists and researchers
- Technical staff and laboratory technicians
- Inspectors and assets managers
- Students


| Identification                    | Internal Scale           |
|-----------------------------------|--------------------------|
| Description                       | Solid                    |
| Sample quantity                   | 0.05203 grams            |
| Sample code                       | Surrounding Surface Film |
| Microbial Count/Measuring Unit    |                          |
| Total bacteria                    | 1.03E+08                 |
| Total archaea                     | 7.94E+05                 |
| Sulfate-Reducing Bacteria (SRB)   | Below Detection Level    |
| Sulfate-Reducing Archaea (SRA)    | 9.27E+04                 |
| Acid Producing Bacteria (APB)     | 1.20E+05                 |
| Acetic acid producing bacteria    | 1.18E+05                 |
| Butyric acid producing bacteria   | 1.93E+03                 |
| Iron Oxidising Bacteria (IOB)     | 2.67E+06                 |
| Leptothrix & Sphaerotilus species | 2.67E+06                 |
| Gallionella species               | Not Detected             |
| Denitrifying Bacteria (DNB)       | 2.22E+05                 |
| Methanogens                       | Not Detected             |

Courses cover various aspects of MIC

- Theories and mechanisms
- Corrosion causing microorganisms
- Monitoring technique methodologies
- Affected materials
- Identification and managing MIC
- Practical session
- Case studies

Courses can be delivered either at our Northampton HQ or at your company premises

Scan the QR Code for registration / payment  
**Tel: +44 (0) 1604 438222**  
**email:**  
[admin@icorr.org](mailto:admin@icorr.org) [www.icorr.org](http://www.icorr.org)





## Currently 3x Courses Planned:

- Nov. 24 – Northampton
- Feb. 25 – Alberta (In-Company)
- Online as discussed with IMechE

- **New Bursaries**



The University of Manchester



## University of Manchester - New 5 Year Scheme Launched 2023

The Institute of Corrosion (ICorr) is providing prestigious scholarships at UoM to promote corrosion awareness and to **address the shortage of corrosion engineers and scientists worldwide.**

There are **2x MSc** scholarships available for September 2024 entry, each scholarship is worth £8,500 and is awarded as a tuition fee reduction. All those holding an offer for a UoM MSc in Corrosion Control Engineering are eligible to apply for this scholarship. The scholarships will be allocated based on the information provided in the application form, which will be emailed to all offer-holders.

The deadline to apply is 1 August 2024. If you have any queries about this scholarship, please contact the [PGT Admissions team](#) and <https://www.icorr.org/new-university-of-manchester-bursaries-scheme/>

There are also **4x Undergraduate Scholarships available.** ICorr will provide £2,000 bursaries for undergraduate (UG) students. The UG scholarships will be allocated in December 2024, which is when the final year students will choose the options for the second semester, (they can choose up to 3 Corrosion units).

- **Nov. AGM /**
- **The Future**

## Continuity - President and Vice President

- **President - Stephen Tate** MBA, P.G

Dip. Eng, MICorr

- Senior Corrosion Engineer at TOTAL
- Energies E&P UK (Technical Services - ABZ)
- **Past 2x Chair, ICorr Aberdeen**
- **Branch.**



- **Vice President – Dr Yunnan Gao**

- PhD CEng, CSci, FICorr, FIMMM.
- Pressure System & Integrity Engineer, BP, Sunbury-on-Thames
- **Past 2x Chair, ICorr Aberdeen**
- **Branch.**



# Thank You for your Attention



**Presenter Details**

Stephen Tate



Email: [president@icorr.org](mailto:president@icorr.org)