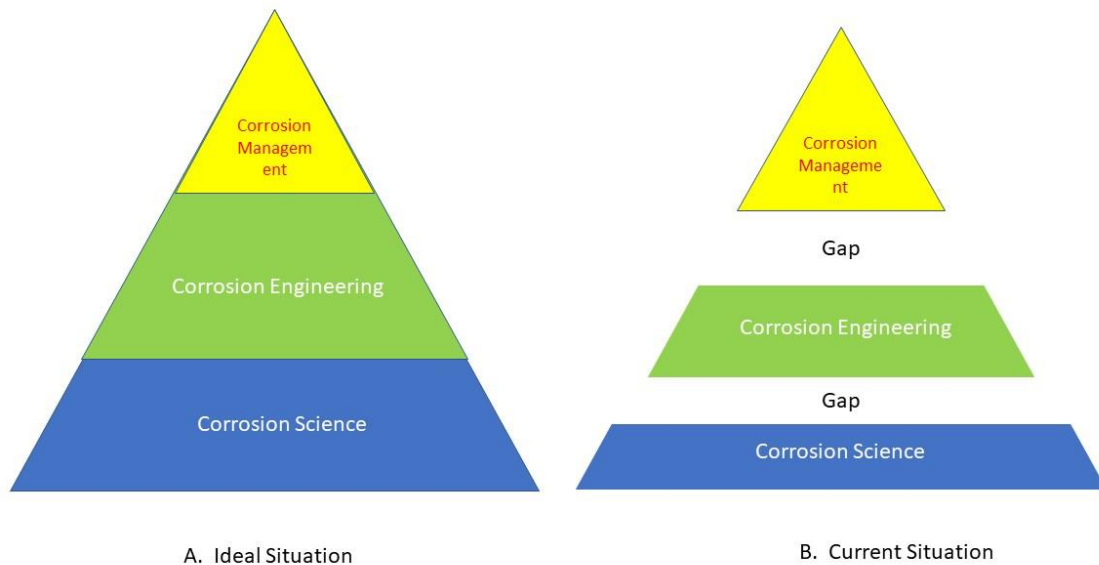


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Use of Standards in Corrosion Education



Studies performed in USA and Europe have indicated that there are three distinct levels of corrosion knowledge: corrosion science, corrosion engineering, and corrosion management¹⁻³. Transition from level to another should be smooth, intuitive, and systematic (Figure A) but, in reality, there exists a gap, rather barrier, between each level (Figure B).

Further none of the studies have emphasized the importance of standards in early education and skill development, i.e., at the corrosion science level. One solution to fill the gap is to integrate the existing corrosion standards into the education system at the corrosion science level.

Standards are minimum requirements with which suppliers, users, producers, third-party laboratories, academicians, and scientists are comfortable with. International associations, such

as ASTM International, International Organization for Standardization (ISO), and AMPP (NACE international) develop standards on corrosion control.

Standards are developed based on the inputs and voluntary participation of many people in a common field. They are updated regularly (typically every 4 to 5 years) based on new knowledge and experience. Standards are valuable to develop a product or process, to write specifications, to implement government regulations, to promote a technology or knowledge, and to educate next generation professionals. Adoption of standards helps the community and industry as a whole to at least meet a minimum value or parameter or practice. Many regulations are also based on standards or they refer to standards.

Standards are valuable to educate students in the academic institutes in the corrosion science level. Introduction of standards at the corrosion science level will prepare the students well before they enter into practical world of corrosion engineering and corrosion management.

Short term course such as [STEM Corrosion™](#) introduces 100+ standards used in the oil and gas industry; walks the participants through corrosion science, corrosion engineering, and corrosion management; and provides tips to overcome the gaps that currently exists between these levels.

1. Assessment of Corrosion Education, Committee on Assessing Corrosion Education, National Research Council, The National Academics Press, ISBN 978-0-309-11703-6 (2009); www.nap.edu.
2. G. Schmitt, “Global Needs for Knowledge Dissemination, Research, and Development in Materials Deterioration and Corrosion Control – A White Paper”, The World Corrosion Organization, May 2009.
3. International Measures of Prevention, Application, and Economics of Corrosion Technologies Study (IMPACT) Study, NACE International, Houston, TX, March 1, 2016.

Raising Star of This Newsletter:

Chukwuma Candidus (Chuks) Onuoha



My Story

My career ambition has always been to become a world-renowned corrosion specialist. To achieve this dream, I entered into an MSc program in Corrosion Control Engineering at the prestigious University of Manchester United Kingdom (UMIST) in 2007. As I was eager to learn more about corrosion, I became a student member of NACE (now known as AMPP) in 2008 while in Manchester, United Kingdom.

Because of my drive to become a world-renowned corrosion specialist, I worked hard at UMIST, and my academic and research excellence led to the awarding of a full scholarship to pursue my PhD degree in Materials Engineering (corrosion specialization) at Dalhousie University, Canada in fall 2010. While completing my PhD degree at Dalhousie University, I was involved in several AMPP certification training programs and worked for Wood Group PSN (now Wood) as a materials/corrosion specialist, where I performed coating, materials, and corrosion evaluations. Upon completion of my PhD degree in 2013, I was hired by Wood in St. John's, Newfoundland on a full-time basis, which gave me the opportunity to take part in several exciting and challenging projects and to strengthen my knowledge and expertise.

In May 2014, I joined PureHM in Edmonton, Alberta, Canada as a corrosion engineer and worked on several corrosion evaluations and pipeline integrity projects. I was actively involved in AMPP certification training courses and became an AMPP-certified corrosion specialist in 2018. In addition, I have been participating in AMPP conference events and have authored/co-authored over 40 corrosion-related academic and technical papers. I am also a Fellow of the Institute of Corrosion UK. In 2020, I joined Xylem as a Global Product Manager for

corrosion, where I engaged with cathodic protection and overline survey technologies.

After attaining 15 years of corrosion engineering experience, I decided to pursue my life ambition and started Canchuks Corrosion Inc in 2022 and am currently working as an independent corrosion consultant. <https://canchukscorrosion.com/about/>

As a believer in continuous improvement, my goal is to use my corrosion knowledge and expertise to help clients address corrosion, materials and pipeline integrity problems while staying actively involved in AMPP and other corrosion society events as I progress in my career. I am in the process of becoming an AMPP international instructor and am looking forward to sharing my corrosion expertise and learning from participants all over the world.

My Style

I am a believer in the value of continuous improvement and am always willing to learn new things while drawing on my corrosion knowledge and expertise to address practical problems. I love attending corrosion conferences and sharing knowledge with my fellow professionals around the globe. At every corrosion conference and / or event I attend each year, I always learn something new and look forward to refreshing my knowledge, implementing effective corrosion control techniques with industry best practices, and becoming a leader in the field.

Things That Excite Me to Continue in the Industry

As a believer in continuous improvement, I love all corrosion society events and the application of industry best practices in the implementation of corrosion control. I am driven to become a world-renowned corrosion specialist and take every opportunity to receive formal education and certification training and to gain hands-on experience. I am excited to continue applying my corrosion knowledge and expertise in solving real-life challenges. As a business owner, I am excited to continue working with passionate corrosion professionals in my quest to implement industry best practices and combat corrosion.

I love teaching and am in the process of becoming an AMPP instructor; this deeply excites me, as it will open up the opportunity to teach students across the globe about corrosion while also learning from them. I greatly value being an active member of AMPP, as it allows me to contribute to the development of industry best practices so that corrosion professionals can use their knowledge and expertise to prevent corrosion failures.

Changes I would Like to Make in the Industry

I would like more universities to start offering corrosion engineering specialized degrees, as this would encourage stronger collaboration between industry and academia. Developing stronger corrosion collaboration would help overcome the challenges that the oil and gas industry as well as corrosion control professionals are currently facing. More enlightenment and/or awareness programs should also be

developed to gain more support from the government. When corrosion professionals, universities and government agencies simultaneously work together to combat corrosion, it can be highly effective and have beneficial long-term impacts.

More government grants should be made available to support innovative business corrosion service providers and / or owners to fully explore, develop, implement, and expand corrosion applications in the areas of remote monitoring, corrosion data analytics, machine learning and artificial intelligence.

Advice to Attract Youngsters to the Industry

AMPP has been doing a tremendous job in developing standards and industry best practices and hosting corrosion society events. These activities provide opportunities for both young and experienced professionals to catch up and learn from each other. I would encourage workers just entering the profession to follow in the footsteps of their successful mentors in the industry.

They should also be active in AMPP corrosion events and improve their knowledge through AMPP certification training program events and other reputable training events such as [STEM Corrosion™ online courses](#) because these courses would strengthen their foundational skills and knowledge and help them exceed their career expectations.