

Teacher Implementation Plan

FUELLING A HYDROGEN FUTURE: STEM SKILLS FOR SECONDARY LEARNING

This implementation plan is designed to help teachers utilise Fuelling a Hydrogen Future: STEM Skills for Secondary Learning, an online hydrogen learning micro-credential for secondary students. The resource aims to provide students with an engaging and interactive experience that helps them understand the properties, uses and applications of hydrogen.

The implementation plan includes the following key elements:

- Micro-credential Summary
- Learning Outcomes
- Facilitating Learning
- Assessing Learning.

MICRO-CREDENTIAL SUMMARY

The renewable energy industry provides an opportunity for development and innovation of new renewable energy technologies to sustainably meet burgeoning global energy demands. The hydrogen industry in Queensland is set to be a promising option for storing energy from renewables, advancing the decarbonisation of regional and global economies and positioning Queensland as a sustainable energy powerhouse nationally and internationally. Students undertaking this micro-credential will learn how hydrogen can support the world's global energy demands while reducing the global carbon footprint, as well as develop the STEM skills relevant to participating in the emerging hydrogen industry.

This is a non-creditable micro-credential which is awarded a digital badge and Certificate of Completion which can be shared to your social networks and displayed in your professional portfolio.

This micro-credential is aligned to Goal 7 – Affordable and clean energy from the [United Nations Sustainable Development Goals](#).

What is a [Digital Badge](#)?

This micro-credential includes five learning modules; videos with Queensland-based experts in the hydrogen and energy industries; infographics; formative learning activities including quizzes, cloze activities, and essay responses; and a 15-question multiple choice summative assessment.

The micro-credential also features video interviews

with a diverse range of young professionals working in the industry and downloadable STEM profiles of each professional.

The micro-credentials are ACARA/QCAA curriculum aligned. A Curriculum Alignment Plan accompanies this resource.

LEARNING OUTCOMES

The Learning Outcomes from the micro-credential include:

- Describe the chemical and physical properties of hydrogen
- Examine historical uses of hydrogen as well as current applications
- Identify the sources of commercial hydrogen production
- Reflect on the main applications of hydrogen technology
- Examine the storage, transportation and challenges of hydrogen
- Reflect on the future of the hydrogen industry in Queensland and internationally.

FACILITATING LEARNING

Teachers may use a variety of approaches to facilitate learning using this micro-credential, including providing guidance, feedback and support in class, or supporting students to work independently in class or as homework. Students may also independently enrol in the course and do not require teacher or school permission to participate.

Teachers may wish to scaffold content or adjust delivery based on learners' needs. Teachers should establish clear expectations and guidelines for online behaviour and assessment completion.

ASSESSING LEARNING

Students will receive feedback on their learning through formative online learning tasks and through a summative multiple choice quiz assessment. There is no limit on the number of times that students may attempt the quiz and they must receive 90% to pass.

Teacher Implementation Plan

FUELLING A HYDROGEN FUTURE: STEM SKILLS FOR SECONDARY LEARNING

FURTHER INFORMATION

Students must be enrolled using their Education Queensland email address. Teachers may bulk enrol students by contacting H2learning@cqu.edu.au and requesting a bulk enrolment template.

For further information on Fuelling a Hydrogen Future, contact H2learning@cqu.edu.au or the course authors:

- Dr. Cal Devney
(c.devney@cqu.edu.au)
- Assoc Prof Aruna Jayasuriya
(a.jayasuriya@cqu.edu.au)