

Education Program Project

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ASTRI

AUSTRALIAN SOLAR
THERMAL RESEARCH
INITIATIVE

In order to strengthen Australia's ability to provide efficient and affordable Concentrating Solar Thermal (CST) power, it is necessary to build human capacity in CST research and development. High-quality education tools and environments are, therefore, needed for the next generation of CST researchers and professionals. The program involves developing specialised, current and advanced educational material in concentrated solar thermal technology.

Objectives

The objective of this project is to develop specialised education material in a broad range of CET-related topics.

The program will improve access to educational material focused on CST, because it will be shared among the ASTRI partners and made available to interested professional practitioners.

Choosing a stage approach using an online module will be disseminated to enrich and broaden the knowledge base of existing and future university students.

Methodology

- A stage approach has been chosen, with preliminary work to develop short, online education lectures. These will be disseminated to enrich and broaden the knowledge base of existing and future university students.
- The proposed lectures are classified as either 'core' or 'enriching'. Figure 1 represents a selected slides from both core and enriching lectures.
- The core modules will cover collection, concentration and use of solar energy, which includes applications beyond electrical power generation, such as solar fuels.
- The enriching modules will examine the details of technology development, maintenance and the specialised use of solar energy.
- The long-term approach is to develop a detailed CST course for undergraduate and postgraduate students that will become a reference course in Australia.
- The proposed course will keep engineers, students and researchers up to date in this field.

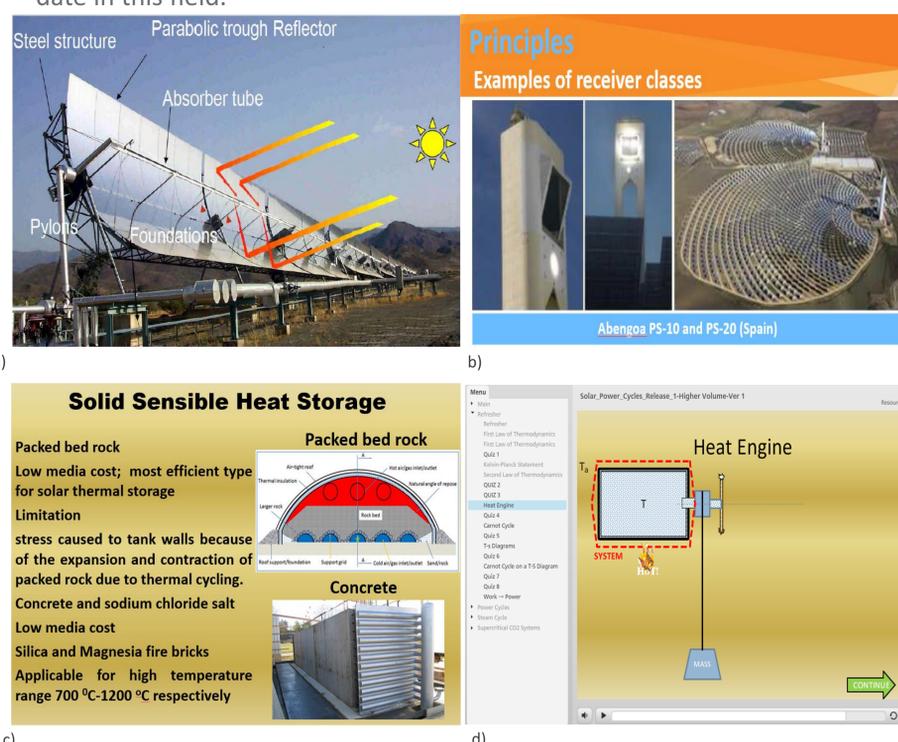


Figure 1: Sample of selected slides from both core and enriching lectures extracted from different lectures, slides extracted from a) (Miller 2015), b) (Pye et al. 2015), c) (Saman et al. 2015), d) (Gurgenci 2015).

Presentation of module

Articulate storyline package will be employed as a powerful functionality software to create a content for each lecture in the format of "HTML" file and built a more immersive with video and simulations. Articulate story line makes it fast and easy to engage learners with a visual tour.

Employing Articulate Storyline facilitates to create flash-based online courses that are graphically rich and interactive. The slides include audio voice that explain the content of the lecture.

Figure 2 shows a Storyline's interface which consists of following parts:

- Scenes: A birds-eye view of the lecture and allows to navigate from slide to slide.
- Timeline: Make objects, animations, trigger events, and other elements appear in the right place at the right time with the intuitive visual timeline.
- Triggers and Layers Panel: This panel has the available property options to assign the objects that appears on the slide. It is possible to add trigger to objects or the slide itself.
- Slide: Contains the content of lecture.
- Ribbon: Contains all the content and interaction types that facilitates to add the project.

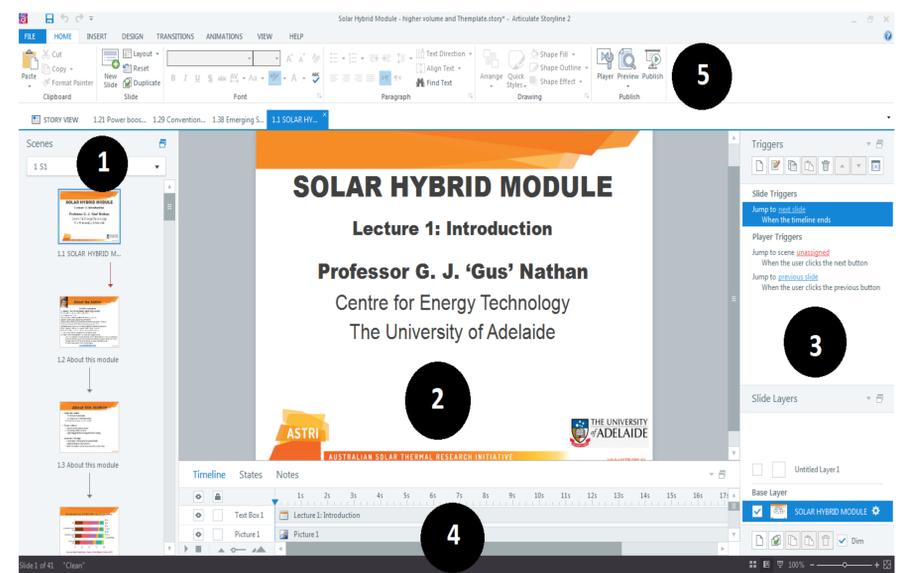


Figure 2: Sample of lecture including authoring interface in Articulate Storyline software (Graham Nathan 2015).

Outcomes and benefits

- The education program will provide skilled students, graduates and professionals for both research in the final years of ASTRI more general research, development and implementation of CST in Australia.
- The collaboration of the involved institutions will also enhance relationships between them, and lead to best-practice in solar thermal education being spread across a number Australian universities and institutions.

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ACKNOWLEDGEMENTS

The Australian Solar Thermal Research Initiative (ASTRI) program is supported by the Australian Government, through the Australian Renewable Energy Agency (ARENA).