

ICE: The Integrated Content Environment

The Integrated Content Environment (ICE) is a free web content management system produced by the University of Southern Queensland. Initially developed by staff at the university to produce course content for online and print delivery, it has also been used for general web site development, and to manage documents in project intranets.

Features

What is ICE?

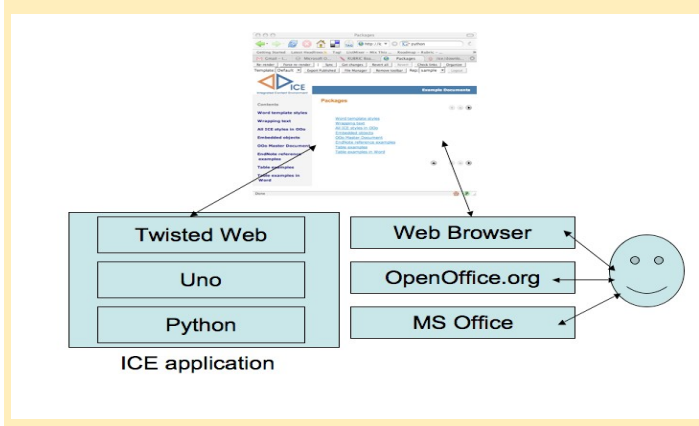
- Standards based Content Management System
- Outputs HTML and Print (PDF)
- Cross platform (Mac, Windows, Linux)
- Free, GPL licensed
- Integrated with popular word processors
- Manages distributed, version controlled content



One of the key features of ICE is its word processor integration. Authors work in Microsoft Word or OpenOffice.org Writer, a free alternative, and ICE converts their content into usable, self-contained course web sites in IMS package format. ICE encourages best-practice word processing techniques, such as use of styles to structure documents. Users are generally more productive using ICE than they were before they learned about the system.

The ICE application architecture

Architecture



ICE installs as a desktop application and runs with a web interface. A user's content is available in the file system on their own computer. Behind the scenes, ICE manages a complete version history for all files, via the open source Subversion revision control system. ICE uses standard web protocols to

maintain content in a Subversion repository.

Courseware

USQ is a premier distance educator, starting decades ago with print publishing, and now offering flexible, hybrid delivery of course on and off campus across multiple media. A growing group of pilot users have been using the system to produce content for web, CD and print delivery. ICE allows authors to work directly on their content, have it committed safely to a version controlled repository and for editorial and support staff to contribute to and format the content if required. Significant savings are expected over existing workflows, as ICE replaces several manual processes.

ICE for courseware

- Makes IMS packages (not tested for interoperability at this stage)
- Reduces re-work and re-formatting costs
- Print
- ICE is mainly non interactive, so far (but interactive elements such as Flash objects can be incorporated)

Beyond courseware

ICE is not just for courseware though. It has been used for producing web sites at USQ and in managing hundreds of project documents, and project web sites.

Other uses

- Intranets
- Public websites
<http://ice.usq.edu.au>
<http://rubric.edu.au>
- Emailing newsletters
- e-Journal
<http://www.usq.edu.au/e-jist/>

ICE offers great flexibility because of its loosely tied architecture. It uses the word processor as a print engine, avoiding complicated and expensive development of print stylesheets; allowing authors and their assistants to have fine-grained control over the look of their content.

This document, for example, is written using ICE. You might be looking at it as a two-sided colour print document, or as a web page. Or you could be viewing the presentation version, generated automatically by ICE from the 'slides' embedded in the source document as simple word processing tables.

ICE is more flexible than typical single source publishing systems. It does not use a strict schema to control content, but it does use XML in a standard document format at the back-end to ensure that content can be preserved for the long term.

Flexibility

- Built on generic yet extensible styles
- Template based
- Multiple outputs from single source
- Modular authoring

ICE for Research and Scholarship: ICE-RS



A project to extend ICE for research and scholarship, called ICE-RS, ran from November 2006 to the end of 2007, as part of the Commonwealth Government's *Backing Australia's Ability - An Innovative Action Plan for the Future*.

ICE for research and scholarship

- DEST funded project
- Will tackle theses, articles and books
- Recommend best practice reference management
- Demonstrate integration with institutional repositories
- Add annotation and 'rating' systems
- Provide 'dashboard' views of workgroup content

ICE-RS hoped to involve pilots at several institutions across Australia, and globally. We sought researchers working on papers and books, as well as research students and their supervisors.

As a result of the ICE-RS project research works can be authored in ICE and submitted directly into Institutional repositories like ePrints.

A pilot with ICE as the vehicle for managing an electronic journal has been completed. The *e-Journal of Instructional Science and Technology* (e-JIST) is an international peer-reviewed electronic journal. e-JIST is now produced using ICE, and documents are ported into another content management system. See: <http://www.usq.edu.au/e-jist/>

For research theses, ICE can provide safe backups for the chapters of a thesis, and new features allow a supervisor to add annotations. Other features under consideration include dashboard reporting of word counts and numbers of citations per chapter. For both research publications and theses key requirements are reference and citation management as well as full-text search and automated navigation generation for large document sets.

ICE-TheOREM

ICE-Theorem was a joint project between the University of Cambridge (UC) and the University of Southern Queensland (USQ) funded by the JISC (Jacobs 2008)

It demonstrated improved support for chemistry theses authoring and publication.

ICE-TheOREM

- Used SWORD deposit
- ORE described aggregated objects
- Thesis workflow designed around web architecture
- Use of embedded embargo metadata
- Conversion of cml data into 2D and 3D images
- Annotation functionality added

Getting involved

Why not get involved? There are many ways which users can contribute to the development of ICE. Just as the pilot users at USQ have provided feedback that has been the main drive, the development team is open to any feedback and ideas from all types of users. The first step is to simply try it out, or better yet become an ICE-RS partner.

To try it out and get involved

- Go to <http://ice.usq.edu.au>
- Talk to us about becoming an ICE-RS partner
- Or just download ICE and try it ...
- ... join our mailing lists and give us feedback

