WEST LCBE Course Suite

A blended-learning approach to addressing the low carbon educational needs of the Welsh built environment sector.

15th 16th May 2014
iBEE – Nottingham
Angela Ruiz del Portal
✓ WEST project - LCBE
✓ Understanding the built environment sector’s needs
✓ WEST LCBE Course Suite
✓ Delivery mechanisms
✓ Access to HE
✓ Conclusions
WEST: Welsh Energy Sector Training

Main objective:

to develop skills to aid the utilisation and uptake of new technologies developed through the industrial research projects of the Low Carbon Research Institute Convergence Energy Program (LCRI CEP)
WEST project

LCRI research outcomes

Welsh industry skills needs

TRAINING

Themes:
- Large Scale Power Generation
- Cardiff University – Engineering
- Hydrogen Technologies
- University of South Wales
- Solar Photovoltaics
- Glyndŵr University
- Marine Energy
- Swansea University
- Low Carbon Built Environment (LCBE)
- Cardiff University - Architecture

- Develop & pilot training modules
- Engage participants within the Welsh workforce
- Enable achievement of qualifications (CQFW Level 4 and above)
- Continued delivery of modules developed
Collaborative module development:

**Low Carbon Economy & Policy**
- CPD unit
- 10 credit module

**Enterprise in a Low Carbon Economy**
- CPD unit
- 10 credit module

Introductory module in each LCRI Theme:

- 10 credit module
- CPD unit

In depth modules in each LCRI theme:

- 10 credit module
- CPD unit
LCBE Research Themes

Sustainable Building Envelope

Energy Efficient Lighting

Timber in Building Construction

Urban Scale Energy Demand and Supply

Monitoring Energy Performance

Low Carbon Building Design

Innovation, Technology Deployment and Market Development
LCBE Skills & Training Needs

- Interviews with LCRI CEP LCBE researchers
  - Training material
  - Professionals

- Background research

- Consultation with Industry
  - Importance
  - Knowledge
  - Interest
LCBE STNA outcomes

- Drivers for skills demand
- Welsh Built Environment Sector training needs
- Interest of Welsh industry in training arising from LCBE research
- Appropriate training delivery methods
Findings:
- Lack of broader understanding of theory underpinning low carbon strategies and technologies
- Demand for training that provides a holistic approach to low carbon buildings

'A Holistic Approach to Low Carbon Buildings'

Content:
- General content from all the themes
- 'Low Carbon Design' at its core
Findings:
- Moderate interest in ‘Timber in Building Construction’
- Misconceptions regarding Welsh timber
- The timber supply chain is one of significant potential in the Welsh economy

‘Welsh Timber in Building Construction’

Content:
- ‘Timber in Building Construction’ research with focus on Welsh timber
Findings:  
- Major interest in ‘Sustainable Building Envelopes’ theme  
- Links to LCRI Solar PV have been established

‘Active Building Envelopes’

Content:  
- ‘Sustainable Building Envelopes’  
- Solar Photovoltaics (LCRI Solar PV)
Findings:  - ‘Urban scale energy demand & supply’: the theme that practitioners had least knowledge about.
  - Interest in Energy simulation tools

‘Energy simulation: Building & Urban scale’

Content:  - Energy simulation tools developed in LCBE. Arch
  - Comparison to other available simulation tools. Eng

Image: www.solardesign.co.uk
Image: support.homerenergy.com
Collaborative module development:

<table>
<thead>
<tr>
<th>Low Carbon Economy &amp; Policy</th>
<th>Enterprise in a Low Carbon Economy</th>
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<tbody>
<tr>
<td>CPD unit</td>
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Introductory module in each LCRI Theme:

<table>
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<th>Holistic Approach to Low Carbon Buildings</th>
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WEST LCBE Course Suite

WEST Welsh Energy Sector Training
Delivery mechanisms

**Online Delivery**
- Virtual White boards
- Webinars
- Forums
- E-learning
- Interactive simulations

**Mobile & Tablet Applications**

**Blended Learning**

**Traditional Delivery**

- **Classroom Training with Instructor**
  Participants attend training where an instructor presents material and there is an opportunity for interaction and hands-on learning or practice.

- **One-on-One Tutorial**
  Instructor provides individual instruction to one learner

- **Lecture/Demonstration**
  In-person lecture/demonstration on a particular topic with limited interaction and practice

- **Self-paced Learning, Non-electronic**
  Learner follows a course of study, setting their own learning pace (e.g., with printed materials such as books or manuals, not via the Internet)
Delivery mechanisms

Start @ work
- Attend Lectures
- WEST E-learning

Continue on the move
- WEST E-learning
- Mobile devices

Join Discussions
- Video conferencing
- Online discussions

Finish @ home
- WEST E-learning
- Laptop
Low Carbon Built Environment

Welsh Timber in Building

Construction: Myths & Facts

This blended learning short course is aimed at individuals who are either currently working or interested in working in the application of timber construction. The course aims to brush away commonly held misconceptions and inform practitioners' perceptions about Welsh timber. It provides evidence-based case studies that present local Welsh timber as a viable option for a broad range of construction uses.
Welsh Timber in Construction

Welsh Timber: M&F

- Navigation Guide
- Course Overview
- Choose your Face to Face Session

Section 2: Timber as Building Material

- Section 2: Introduction
- Benefits of timber as a building material
- Forum: Design Benefits
- Considerations
- Why Local Timber
- Sustainable Lifecycle
- References Section 2

Further Reading

- Additional Video: Wood at the heart of the local economy, Vorarlberg, Austria
- Further Reading: Benefits of Using Wood
- Further Reading: Sustainable Construction with Timber in Wales
- Further Reading: Integrated Strategies for Welsh Timber Industry, Forests

Section 3: Welsh Timber

- Section 3: Introduction
- Welsh Species
- Supply Chain

Further Reading

- Further Reading: Integrated Strategies for Welsh Timber Industry, Supply Chain
- Further Reading: Good Wood Guide
Wood has the lowest carbon footprint of any commonly used building material. (Forestry Commission 2014 (1))

...is less energy intensive

Materials frequently used as alternatives to timber in construction such as steel and concrete imply highly energy intensive processing methods in order to turn their constituent raw materials into usable construction products.

In comparison, timber is only affected by primary processing (harvesting and initial lumber conversion), secondary processing (into required products) and drying (Jones et al. 2010; Dean 2010; Forestry Commission 2014 (1)).

...means less waste

...is a renewable resource

...reduces energy use thanks to an Energy efficient fabric
The Credit and Qualifications Framework for Wales

**All learners**
All learning programmes including taught courses, distance learning, work-related training, technology-enhanced learning and other education/training activities.

**All providers**
Including school, college, work-based trainers, university, community, industry, voluntary and other activities.

Learning and qualifications are organised into frameworks:
- **Higher education**
  - Degree
  - Masters
  - Postgraduate studies
  - Doctorates
- **Lifelong learning**
  - Adult and community learning
  - Company training
  - Voluntary sector
  - Wider learning 14+
- **General and vocational education and training**
  - GCSE
  - A levels
  - S/NVQs
  - Welsh Baccalaureate qualification

Learning opportunities and standards are quality assured by:
- **QAA**
- **CQFW**
- **DCELLS, Ofqual, CCEA and SCQF partnership**

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CAT/CM/0003 October 08

[www.cqfw.net](http://www.cqfw.net)
Access to HE

Full time student

Part time student

Part time student (employed)

Occasional student

10-credit modules

1 credit

3h F2F

1 credit

1 credit

10-credit modules

PG Cert 60 Credits

PG Dip 120 Credits

MA/MSc/MRes 180 Credits

Traditional HE

WEST
Welsh Energy Sector Training
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CPD unit
Conclusions

- Widening Access Agenda
- Cross fertilisation between FT and PT (employed) students
- Delivery mechanisms
- Administrative processes
email: WEST@cf.ac.uk

twitter: @LCRI_WEST

web: www.westproject.org.uk

Thank you!