

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)

LCRI research
outcomes



Welsh industry
skills needs

Develop & pilot training modules

Engage participants within the Welsh workforce

Enable achievement of qualifications (CCFW Level 4 and above)

Continued delivery of modules developed

Marine Energy

Swansea University

Low Carbon Built Environment (LCBE)

Cardiff University - Architecture

Large Scale Power Generation Cardiff University – Engineering

Hydrogen Technologies University of South Wales

Solar Photovoltaics Gŵndŵr University

**Collaborative
module
development:**

<i>Low Carbon Economy & Policy</i>	
<i>CPD unit</i>	<i>10 credit module</i>

<i>Enterprise in a Low Carbon Economy</i>	
<i>CPD unit</i>	<i>10 credit module</i>

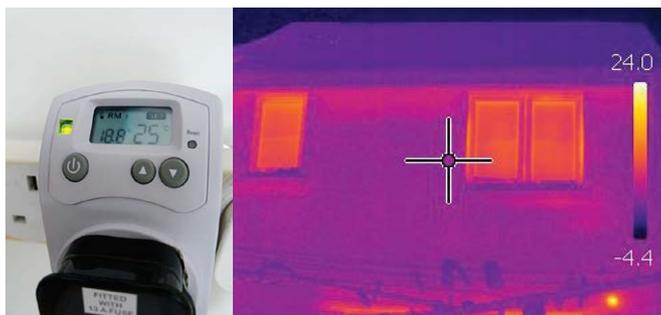
**Introductory
module in
each LCRI
Theme:**

	<i>10 credit module</i>
	<i>CPD unit</i>

**In depth
modules in
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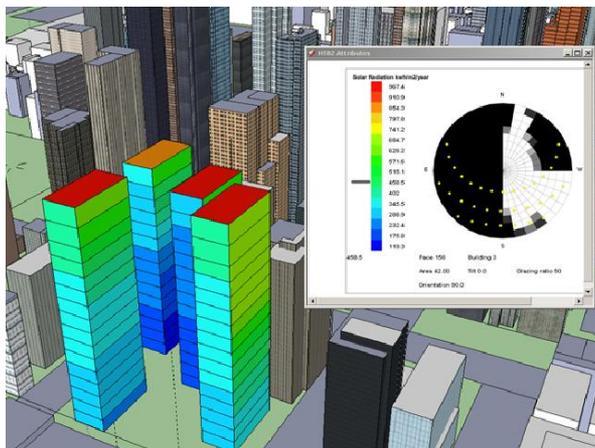
Sustainable Building Envelope



Timber in Building Construction



Homegrown Brettstapel. Image: Architype



Energy Efficient Lighting



Urban Scale Energy Demand and Supply

Monitoring Energy Performance

Low Carbon Building Design

Innovation, Technology Deployment and Market Development

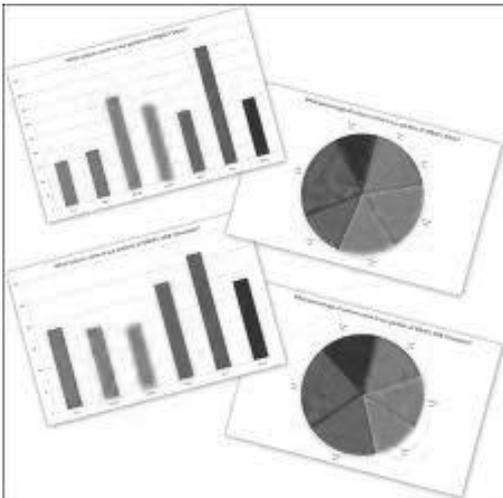
LCBE Skills & Training Needs

- 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



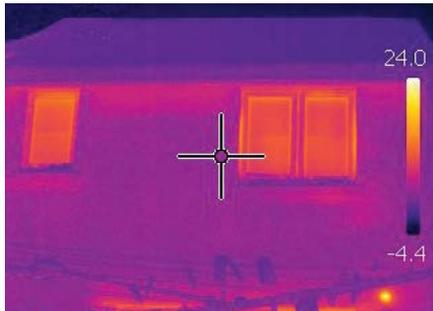
Findings:

- 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



Homegrown Brettstapel. Image: Architype



- 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)



Image:<http://tinyhousepins.com/solar-shingles-for-tiny-houses/>



Image:<http://www.energyjump.co.uk/solar-electricity/>



- 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

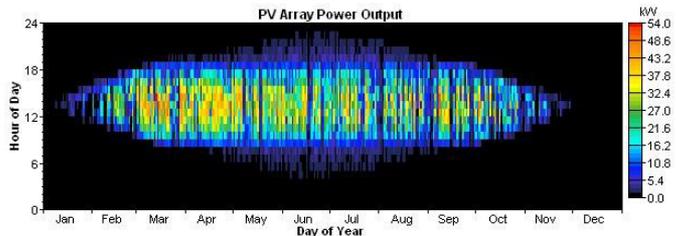


Image: support.homerenergy.com

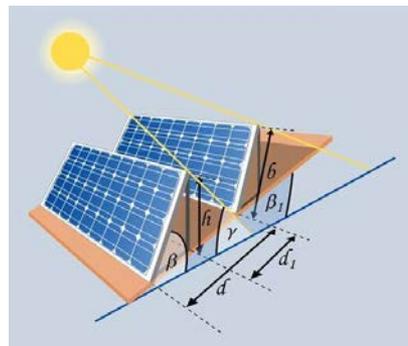
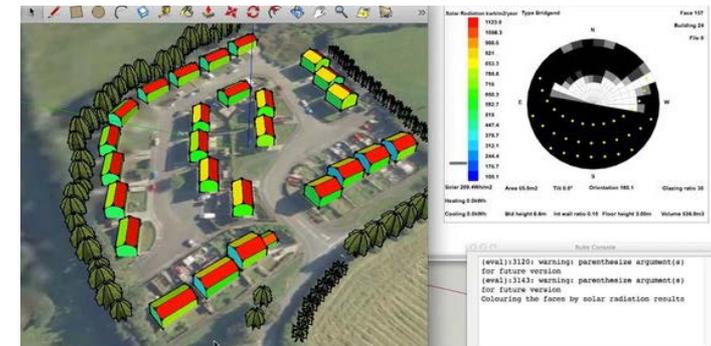


Image: www.solardesign.co.uk



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**Introductory
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Theme:**

<i>Holistic Approach to Low Carbon Buildings</i>	<i>10 credit module</i>
<i>Low Carbon Buildings Principles</i>	<i>CPD unit</i>

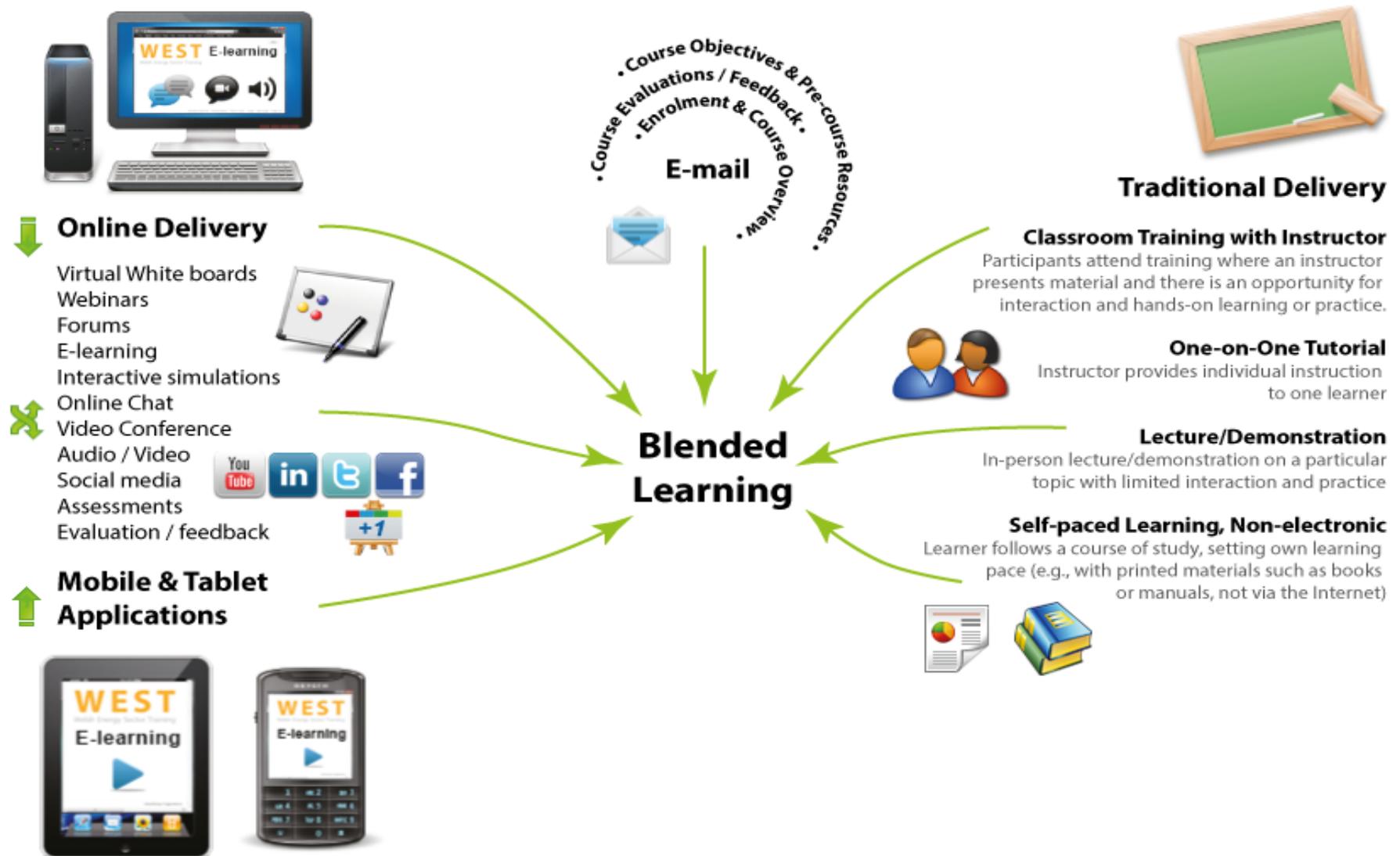
**In depth
modules in
each LCRI
theme:**

<i>Active Building Envelopes</i>
<i>Transpired Solar Collectors</i>

<i>Building with Timber in Wales</i>
<i>Welsh Timber in Building Construction.</i>

<i>Energy Simulation: Building & Urban Scale</i>
<i>Energy Simulation: Sketchup plugin</i>

<i>10 credit module</i>
<i>CPD unit</i>



Start @ work



Attend Lectures

Continue on the move

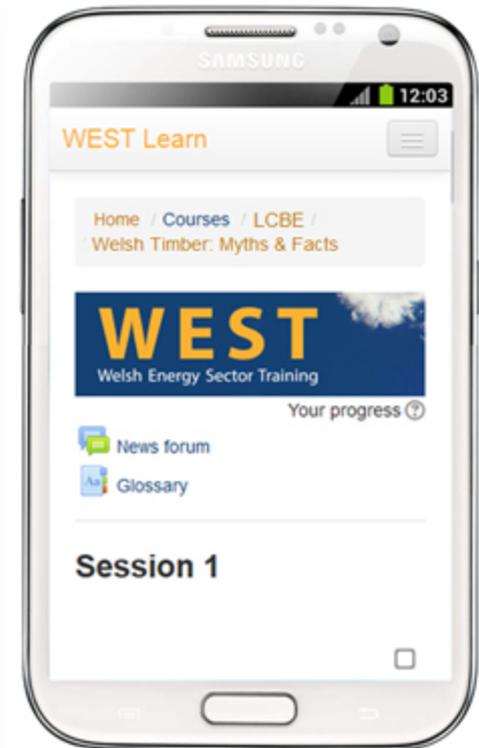
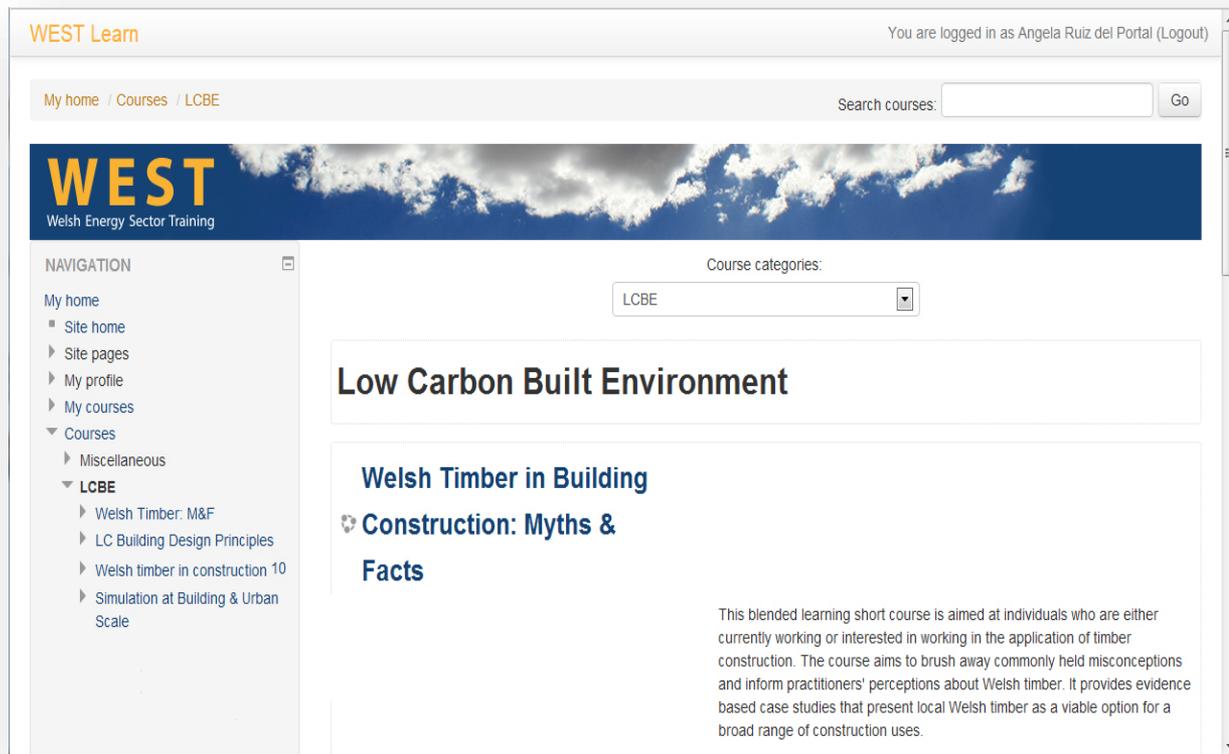


Join Discussions



Finish @ home





WEST Learn

You are logged in as Angela Ruiz del Portal: Participant(Return to my normal role)

NAVIGATION

- My home
- Site home
- Site pages
- My profile
- Current course
 - Welsh Timber: M&F**
 - Participants
 - Badges
 - Welsh Timber: M&F
 - Section 2: Timber as Building Material
 - Section 3: Welsh Timber
 - Section 5: Case Studies
- My courses

Welsh Timber: M&F

Your progress ?

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

UPCOMING EVENTS

There are no upcoming events

Go to calendar...
New event...

ONLINE USERS

(last 5 minutes)

- Angela Ruiz del Portal
- Amalia Banteli

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

UPLOADS FROM WESTTIMBERTRAINING



Mix 15

westtimbertraining posted a photo:



Credits:

Wood Knowledge Wales: WSW



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

Click on the blue titles above to reveal the content

Quit

Switch to Environmental

Switch to Economic

Switch to Indoor Comfort





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

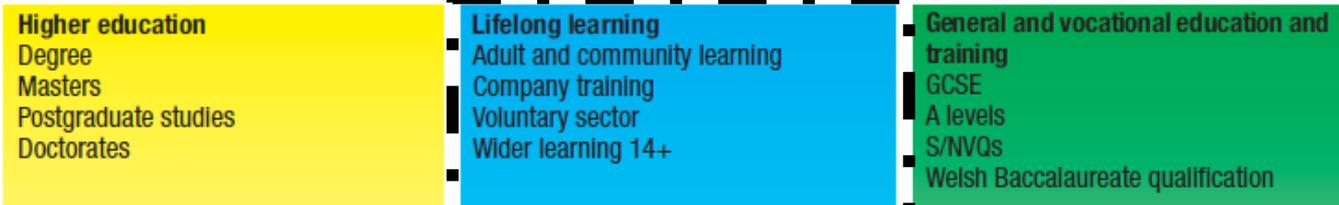
All providers

including school, college, work based trainers, university, community, industry, voluntary and other activities



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Learning and qualifications are organised into frameworks

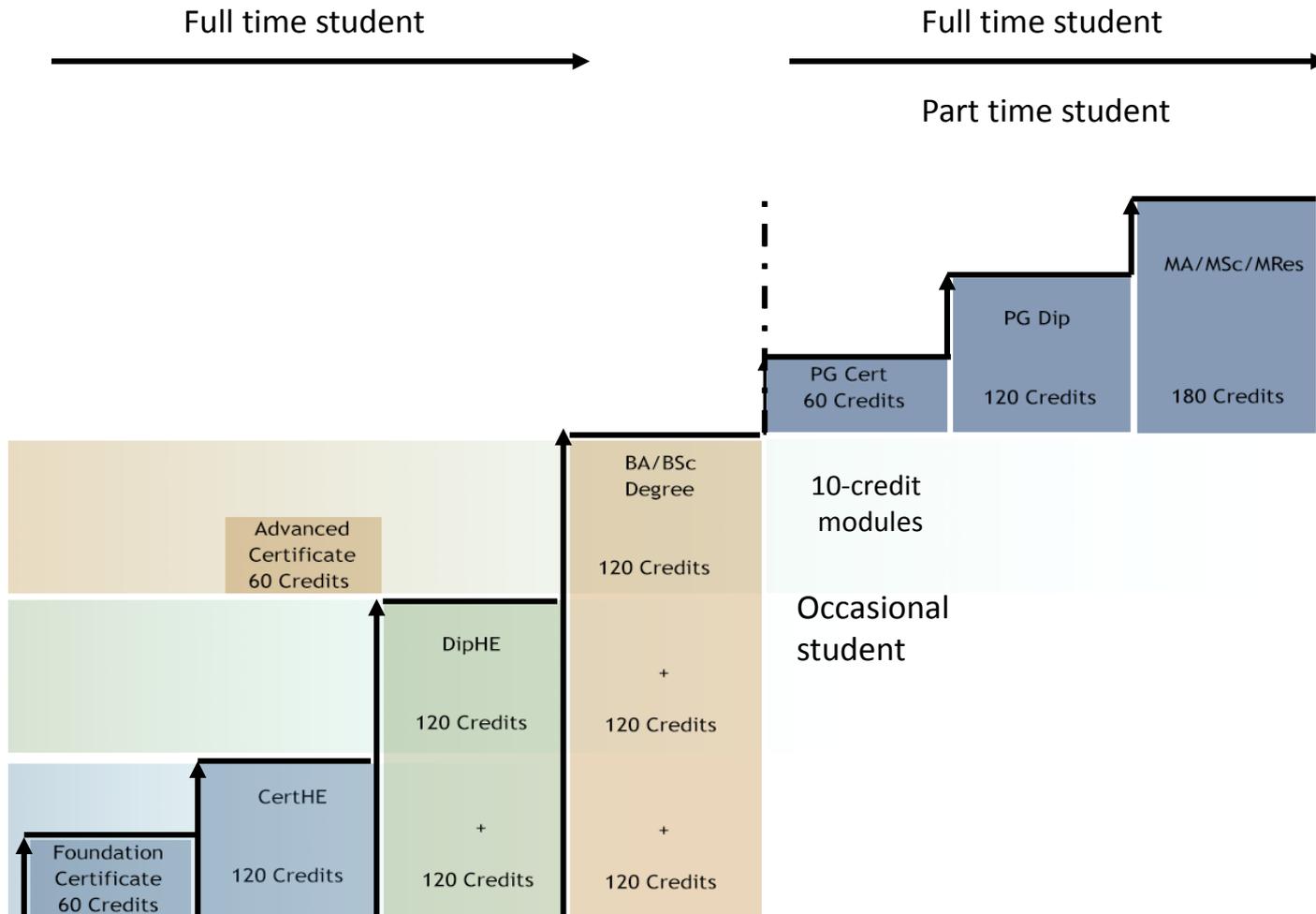


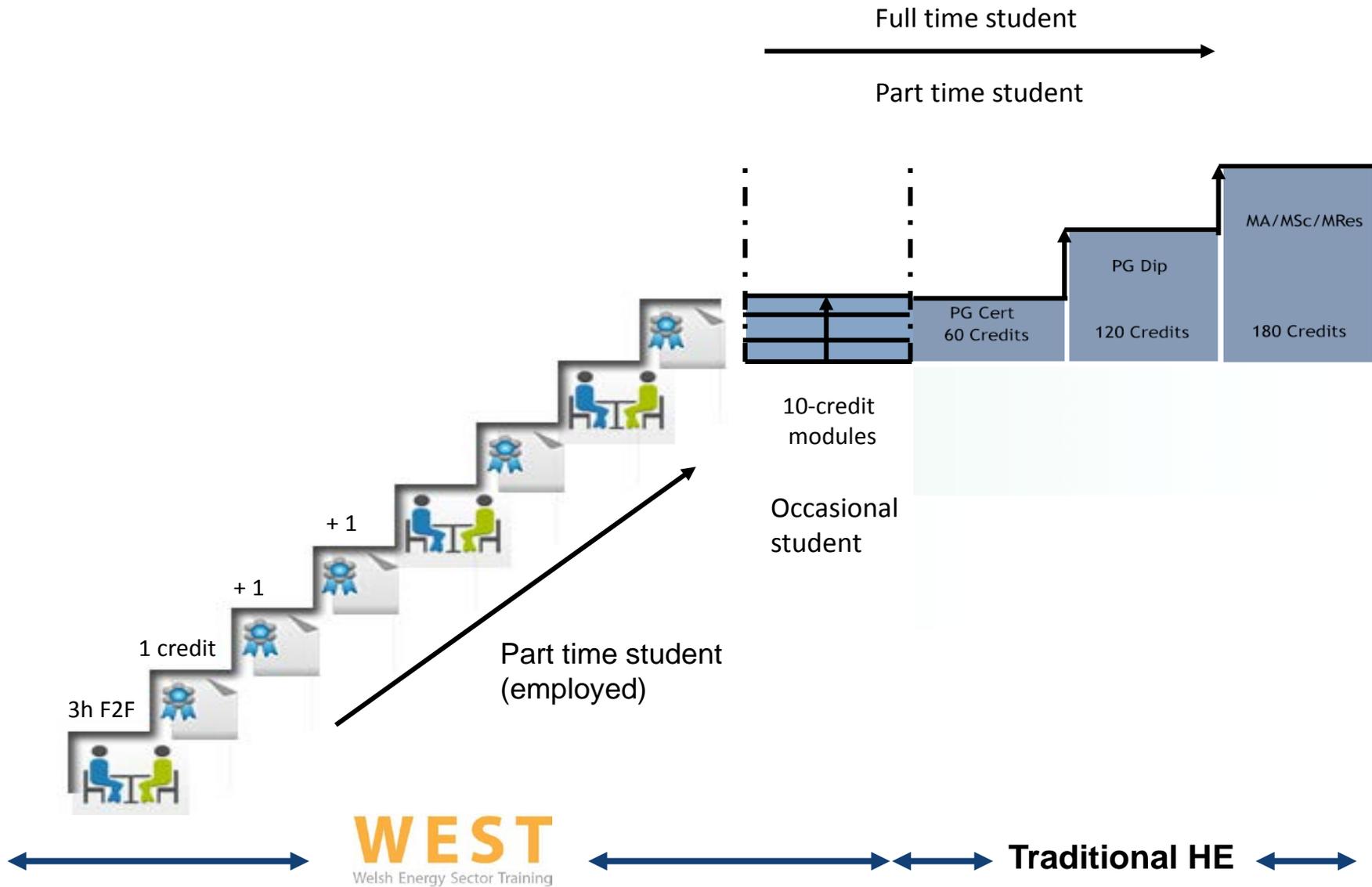
Learning and qualifications are organised into frameworks



Learning opportunities and standards are quality assured by







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<i>CPD unit</i>

- ✓ 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!

