Deliverable D6.1

Accredited Training implementation

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Content

1   Accreditation of LCA to Go Training

The purpose of this Deliverable is to explain how Task 6.1 Accreditation was implemented. The description of the Task addressed by this Deliverable is:

Task 6.1 Accreditation

The purpose of this task will be to organise the various theoretical and operational aspects of the "LCA to go" methodology and tools developed, into one or more training modules that may be professionally accredited by the Project, and provide the basis for replication and accreditation in the different Partner regions. The methodology used for this process will be to organise in the manner prescribed by official accreditation systems, the information provided by the various project results, in particular that of the Web based tools (above). We propose to use the Irish FETAC (Further Education Training Advisory Council) accreditation system for the initial accreditation of the modules.

Task Description

The Task will involve:
- Breaking down the practical results of the project into a number of logical and practical modules (possible at Level 5 of 6 NCVQ equivalent)
- Discussing and negotiating the accreditation of the Modules by FETAC
- Piloting the training and qualifying of trainees from participating SMEs
- Integrating this training with Enterprise Ireland's services for SMEs
- Scoping equivalent accreditation frameworks in other Partner regions as guidance to other partners in securing local accreditation, investigating the viability of EU-wide accreditation
- Commercialising the training at a European level
- This task will be performed by José Ospina (MicroPro), being an expert in this field, assisted by EDC.

The Partners responsible for implementation of this Task was MicroPro Computers and specifically Jose Ospina, Project Manager.

Work on this Task began in June 2011 with discussion with Dublin Institute of Technology, Bolton Street, which is an accredited FETAC trainer. The process for FETAC accreditation as explained on the web site was investigated http://www.fetac.ie/fetac/search.do?actualQuery=Module+Descriptors&query=Module+Descriptors

Further discussions were undertaken in August 2012 with a training company in Dublin Professional Development Ltd. (http://www.pdlcourses.ie) who also deliver FETAC accredited business training courses, and with Dir. Colm Cyan (http://www.sustainablerefurbishment.com/uploads/CV_Colm_V._Cryan_Short_II_v1a.pdf) , a freelance expert based at the University of Limerick, and finally with Northside Community Partnership (http://northsidepartnership.ie/) that deliver a number of FETAC accredited modules.

1.1　Why not FETAC

The conclusion reached from all the above consultation was that FETAC certification **would not be an appropriate vehicle for the LCA to go training,** for a number of reasons:

- In investigating the matter we found it was too difficult to accredit such modules using the FETAC framework, which is intended for Adult Vocational Training, as these Modules have to be **centrally produced and accredited nationally**.

- Although it is conceivable that a nationally accredited LCA course made up of FETAC modules could be developed, given the public nature of FETAC accreditation, such a course would have to cover **all** aspects of LCA use, not just LCA to Go.

- FETAC qualifications are mainly aimed at skilling technicians and manual workers rather that at professional or academic training. It is questionable whether the intended client group of LCA to go would not be better served by a post-graduate level qualification.

This response was given by all FETAC users approached, who were in principle willing to develop a course base don the FETAC framework, but could not guarantee that such a course would be approved by FETAC centrally. If it was not approved the aim of recognised accreditation would not be achieved. An approach was also made to FETAC, asking for clarification of this issue, but no response was received.

1.2　The Alternative: Academic Accreditation

With the formation of LCA Network Ireland (http://goo.gl/59ZYTv), MicroPro and other LCA to Go Partners were put in contact with a broader group of academic institutions working around Life Cycle Analysis in Ireland. One such was the UCD School of Biosystems Engineering at University College Dublin. Prof. Nick Holden, Associate Professor at the School of Biometric Engineering at UCD (http://www.ucd.ie/eacollege/biosystems/staff/academic/profnicholasmarkholden/staff,100199,en.html) was a founder of LCA Network Ireland who had experience in provision of on-line training through the UCD Online brand of taught programmes. He also teaches LCA at the University. UCD has pioneered the development of accredited academic on-line training in Ireland that is recognised both in Ireland and at European Level. As recognised by the Universities Act (http://www.ucd.ie/govauth/universities-act-1997.html), UCD offers and has the right to accredit courses from national standard level 6 (certificate) to level 10 (doctorate) (http://www.nfq.ie/nfq/en/about_NFQ/framework_levels_award_types.html). It has a comprehensive portfolio of academic, vocational and professional development programmes between these levels.

The oversight of programmes offered by the university is via a hierarchy: an individual proposes a programme which is supported by their School. The school reviews the

programme to ensure it is within its competence and resource limitations. The School then proposes the programme to a Programme Board, which reviews governance and academic content. The Programme Board then proposes the programme to the appropriate University oversight, in this case the Board of Studies: Continuing Professional Development, which ensures compliance with university policy, programme level classification and academic merit. On completion of this process a programme can be offered and is managed by a school, with an individual academic (the programme coordinator) nominated to manage the programme, and others (module coordinators) responsible for the delivery of the academic content and its assessment. Assessments are reviewed by the School Examination Committee and the relevant Programme Board Examination Committee. UCD qualifications are recognised globally, thus this route provided the ideal accreditation for LCA to Go training.

After considering the options, the LCA to Go Partnership decided to opt for the academic qualification route, rather than FETAC. In this case the course of study only needed to be approved by the University to be formally accredited. Students successfully carrying out this course of study (known in UCD as a programme) will have 5 ECTS credits allocated as a level 7 Professional Certificate. The programme is being delivered on-line means so that any person, anywhere in the world, who is eligible, may register and carry out the course of study, mainly on line, but with access to personal tutorial assistance if necessary. The programme was set at level 7 to permit admission without the formal school qualifications required for a level 8 degree. This seemed most appropriate for the requirements of the deliverable and the target students. On successful completion and examination each student will receive an academically accredited CPD (Continued Professional Development) Professional Certificate from University College of Dublin (which is recognized in all other Countries globally as far as is known). As the credits are ECTS classified, they may used as accredited prior learning at a later stage anywhere in Europe depending on the policy of the institution the student applies to.

2   How does it work

LCA to Go Training has been developed by UCD School of Biosystems Engineering as a Professional Certificate programme within the context of Continuing Professional Development (CPD). Successful students will be accredited by UCD with a Professional Certificate in Rapid Life Cycle tools.

The Course and its work programme have been approved by:
- The UCD School of Biosystems Engineering
- The Engineering Programme Board
- The CPD Board of Studies (a sub-committee of University Programme Board).

In the first instance the student applies to UCD via its homepage: http://www.ucd.ie/apply. Having been accepted the student is enrolled in three modules, 1 on fundamentals (1 ECTS credit) and two domain specific applications (2 x 2 ECTS credits). The student accesses these modules through UCD online within Blackboard; the Fundamentals module is shown as an example in Figure 1. Within each module the student accesses materials for learning using the left hand column of tabs. Material is released sequentially so that a student has to have either completed an activity, or spent a minimum amount of time before the next step of the module is made available (Figure 2). At each stage in the module there are rapid assessments (multiple choice, fill-in-the-blank and similar) to allow the student to track progress. The fundamentals module is assessed at the end with a short online examination while the application modules are assessed by practical exam using the LCA to Go tool. The available modules in the programme are: BSEN20080 LCA to go: semiconductors; BSEN20090 LCA to go: photovoltaics; BSEN20100 LCA to go: industrial machines; BSEN20110 LCA to go: plastics; BSEN20120 LCA to go: fundamentals; BSEN20130 LCA to go: circuit boards; BSEN20140 LCA to go: smart textiles.
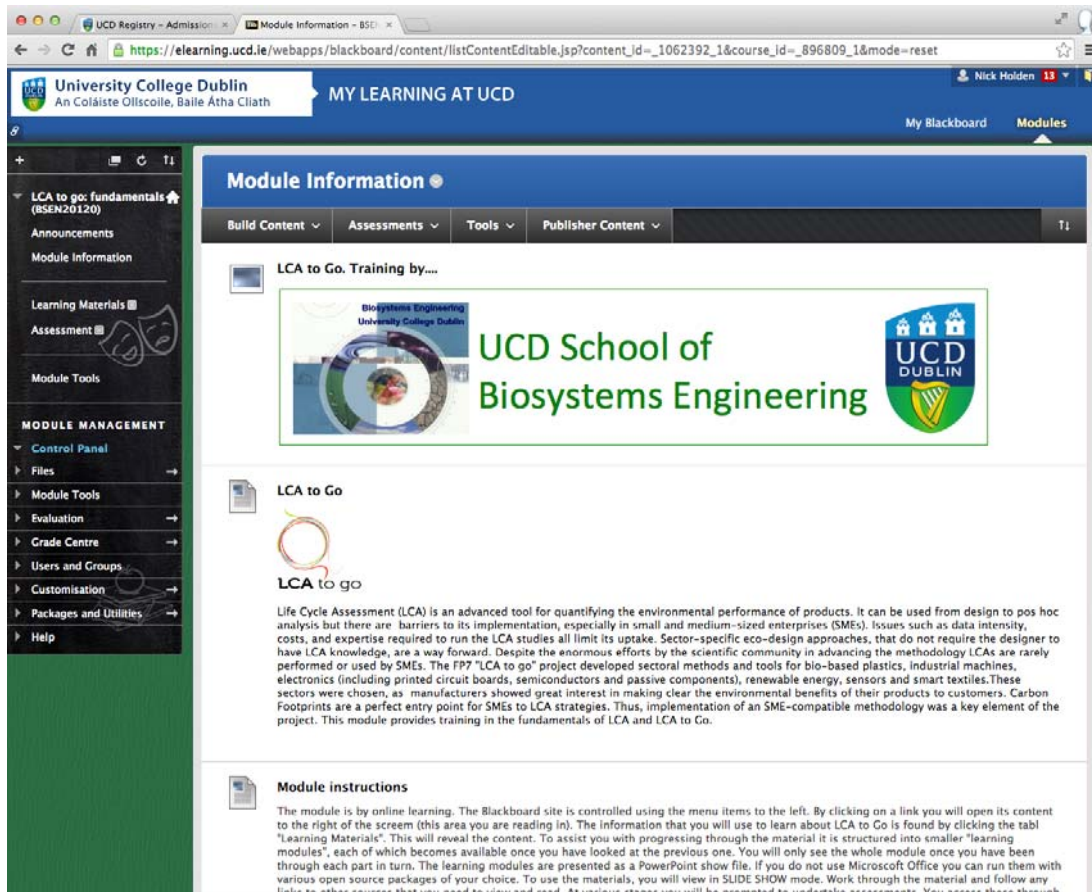
Figure 1: Screenshot of the module information page of *BSEN20120 LCA to Go: fundamentals*
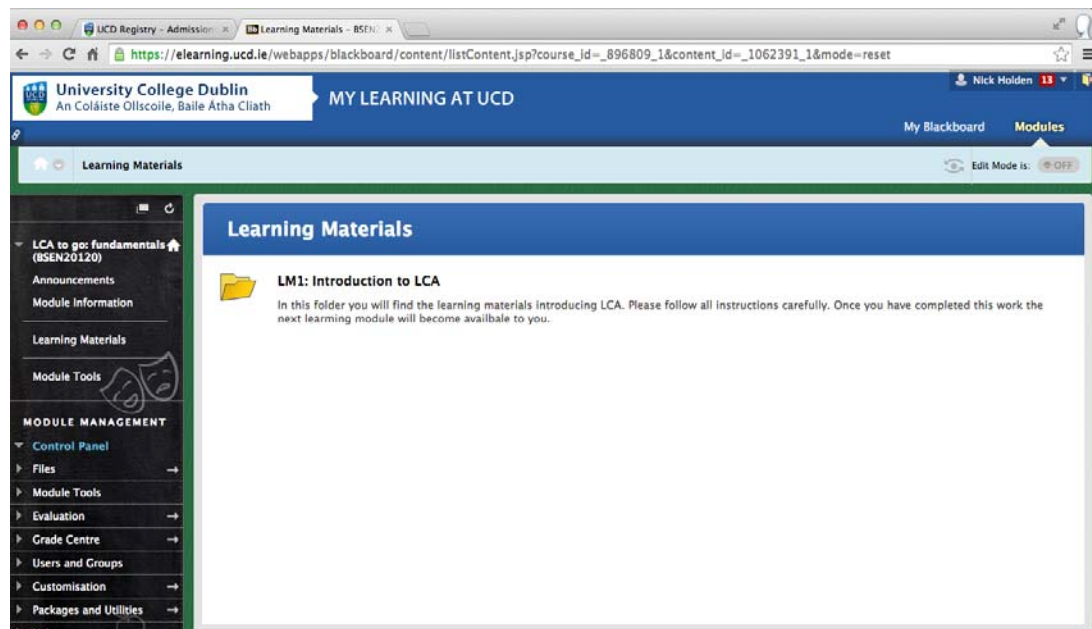

Figure 2: Screenshot of the module learning materials of *BSEN20120 LCA to Go: fundamentals,* indicating the progressive release of content as the student moves through the module

A School framework for CPD has been set up and agreed, so that the programme can go live. The programme will be taking registrations in Q4 of 2014 because admissions have to be aligned to university Semesters beginning in September, January and April. The programme will be piloted in 2014, and then opened to SME's and the public. It will be advertised and promoted by the College of Engineering and Architecture.

3 Accreditation - The European Credit Transfer and Accumulation System

The value of the accreditation provided by the CPD model, apart from being delivered professionally by an experienced academic body, it its access to the ECTS (European Credit Transfer and Accumulation System).

ECTS is a standard for comparing the study attainment and performance of students of higher education across the European Union and other collaborating European countries. For successfully completed studies, ECTS credits are awarded. One academic year corresponds to 60 ECTS-credits that are equivalent to 1500–1800 hours of study in all countries respective of standard or qualification type and is used to facilitate transfer and progression throughout the Union.

The ECTS will be complemented by the European credit transfer system for vocational education and training (ECVET) which the ministers are responsible for vocational training in 32 European countries agreed to develop in the Maastricht Communiqué of 14 December 2004.

4   Evidence of Accreditation

From: Martina Boyle <martina.boyle@ucd.ie>
Subject: Professional Certificate in Life Cycle Tools
Date: 30 September 2014 12:34:23 IST
To: Nick Holden <nick.holden@ucd.ie>
Cc: Paula Fogarty <paula.fogarty@ucd.ie>

Dear Nick,
I would like to confirm with you that the new programme proposal, Professional Certificate in Life Cycle Tools, NFQ level 7, 5 ECTS credits, was approved at a summer sitting of the University Programme Boards (UUPB/UGPB) on 23 June 2014.
Given that this programme has been approved, it can now be advertised.
If you have any further queries do let me know.
Regards,
Martina
(Secretariat to the University Programme Boards)

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5 Target group, didactical concept, credit scheme, embedded in which studies

The target group for the Professional Certificate is those working, or planning to work, in or with SME and larger companies who are interested in sustainability assessments of products. The programme was defined at a level that does not require specific terminal school qualifications and does not meet the entry requirements for Masters level studies. While the primary target audience is graduate who are currently working in industry, the programme is designed so that companies can support whoever is most suitable in their workforce to engage with the training without having to worry about entry requirements. The general educational specifications are detailed in Figure 3. The ordinary level degree learning specifications were used as the guide for programme design. The target groups are:

- University students in higher education who find value in using LCA to go for simplified LCA assessments.

- Professionals who are seeking training in LCA to Go but want a recognised certification for such training.

- Employees of SME's who wish to have training backed by a recognised qualification in the use of the LCA to Go tool.

Ordinary Bachelor Degree (NFQ Level 7 – major award)

The Ordinary Bachelor Degree is normally awarded after completion of an accredited programme of three years duration (180 ECTS credits) in a recognised higher education institution/provider. Entry to a programme leading to an ab-initio Ordinary Bachelor Degree is typically for school leavers and those with equivalent qualifications. In addition, there are 1 year add-on Ordinary Bachelor degree programmes (60 ECTS credits) for holders of the Higher Certificate. The Ordinary Bachelor Degree is compatible with the Bologna First Cycle descriptor, though holders of this award do not generally gain immediate access to programmes leading to Second Cycle awards in Ireland.

Descriptor

Title	Ordinary Bachelor Degree
Purpose	This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.
NFQ Level	7
Volume	Large
Knowledge - breadth	Specialised knowledge across a variety of areas
Knowledge - kind	Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas
Know-how and skill - range	Demonstrate specialised technical, creative or conceptual skills and tools across an area of study
Know-how and skill - selectivity	Exercise appropriate judgement in planning, design, technical and/or supervisory functions related to products, services, operations or processes
Competence - context	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts
Competence - role	Accept accountability for determining and achieving personal and/or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work
Competence – learning to learn	Take initiative to identify and address learning needs and interact effectively in a learning group
Competence - insight	Express an internalised, personal world view, manifesting solidarity with others
Progression & Transfer	Progression to programme leading to an Honours Bachelor Degree or to a Higher Diploma. Progression internationally to some second cycle (i.e. " Bologna masters") degree programmes.

Awarding bodies: Higher Education and Training Awards Council, Dublin Institute of Technology, Institutes of Technology with delegated authority, and some Universities

Figure 3. Academic specification of NFQ level 7, as used for the design of the Professional Certificate in Rapid Life Cycle tools.

5.1 Methodology for Course Development

Using the guidelines in Figure 3, the programme was designed in stages:

- UCD was supplied with teaching materials provided by the LCA to Go consortium to structure into modules one covering "fundamentals" (1 ECTS credit) the 7 applied sectors (2 ECTS credits) to make a 5 ECTS credit Professional Certificate Programme at Level 7.

- Training materials were revised to develop a learning storyline or narrative suitable for use in an online learning environment. The fundamentals module places LCA to Go in the context of LCA in general while the applied modules focus on specific technical skills required to use the too.

- Each module is split into blocks of learning (called learning modules) that represent 20-120 minutes of activity for the student. There are then separate assessment exercises. The learning modules are presented as **PPT and PPS** files but UCD will consider changing this to Flash based video depending on feedback (PPT can be viewed with open source software on multiple platforms, Flash is not viewable on tablets and other mobile devises now commonly used for online learning).

- Each block is release to the student once the previous one has been completed.

- There are assessments at critical stages and at the end of the module.

The actual programme has the following structure:

1. BSEN20120 LCA to go: fundamentals (1 ECTS Credit)

This module presents an overview of LCA, why it useful and its fundamental principles. It will also explain the rational of LCA to Go, and, in broad terms, the methodology of the tool. It will not be sector specific, but will place the tool in the context of LCA in general and ISO standards.

Assessment is by a series multiple choice and similar questions at the end of each learning module and a terminal examination completed on line.

The Core Module is fundamental and is common to all students.

2. 7 x Sector Modules (2 ECTS Credits each)

(BSEN20080 LCA to go: semiconductors; BSEN20090 LCA to go: photovoltaics; BSEN20100 LCA to go: industrial machines; BSEN20110 LCA to go: plastics; BSEN20130 LCA to go: circuit boards; BSEN20140 LCA to go: smart textiles.)

The seven sector modules were developed by UCD on the basis of information provided by LCA to Go, corresponding to the seven sectors covered by the LCA to Go Project.

7 x Sector Modules are sector specific modules where the hands on experience are presented.

Each Sector Modules includes:

(1) A worked example
(2) An example for supervised learning (assessed)
(3) An example for examination (assessed)

Each student will see how the tool is used, will use it under guidance, and then will use it alone and be examined on the outcome.

5.2   Delivery

Delivery will be through the UCD Online Training Portal, and on the basis of a Blackboard module developed for each component. Anyone who has basic terminal school qualifications or suitable work experience will be able to register with UCD Online, pay the fee (which has been estimated at € 500 for the programme, which is less than normally charged for such CPD courses). On registration students will gain access to Blackboard within 24 hours. They are then guided sequentially through the modules.

5.3   What is a Blackboard Module?

- Educational technology software. Contains all tools necessary, including learning material, information, assessment etc.
- It is one of 2 industry standard tools and is the one UCD use.
- http://www.niu.edu/blackboard/guides/learning_modules.pdf

Role of MicroPro and other LCA to Go Partners

MicroPro and other LCA to Go Partners have:

- advised UCD on what should go into the core module

- provided UCD with content for the 7 specific domains

- provided examples for each sector, specifically :

    1 demo

    1 guided test

    5-10 scenarios to set as the final exam.

These will be offered at random to students (one each) for the final exam for the domain modules (2 ECTS)

5.4 Terms and condition of the Agreement between LCA to Go and UCD

Terms and Conditions will be confirmed in a written Agreement between LCA to Go and UCD. A fee from 2015 onwards is payable to LCA to Go from the Fees received for the Course, which should cover the cost of updating data bases, etc. (but this will be dependent on fees income).

5.5 Examples of Training Materials

Some examples of the types of materials being used are presented in Figures 4 and 5. Figure 4 illustrates the first learning module of the fundamentals and Figure 5 illustrates some of the background materials required to understand the context of LCA to Go. This static view does not capture the animation and audio that provides support for student progress through the learning materials. In all cases hyperlinks are used to bring the student to external material that will support learning, so not all of the content is presented directly on the slides. This is consistent with the Level 7 specification of the programme.
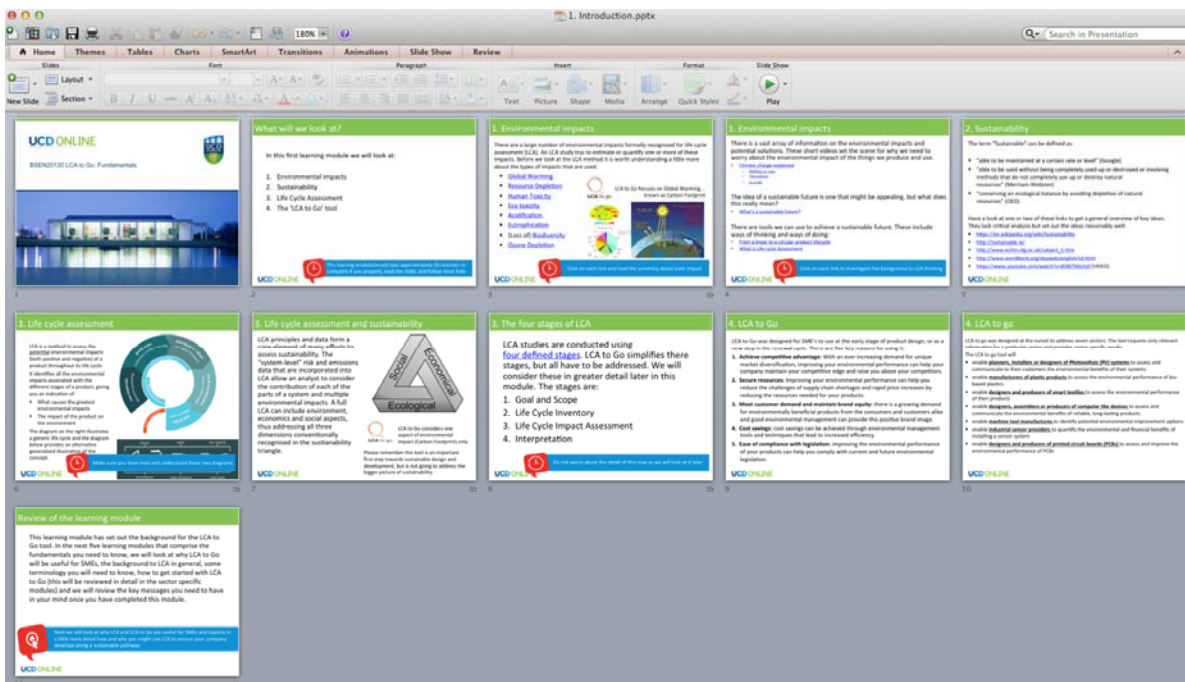

Figure 4. Introduction to the fundamentals (LM1). BSEN20120 LCA to Go: fundamentals
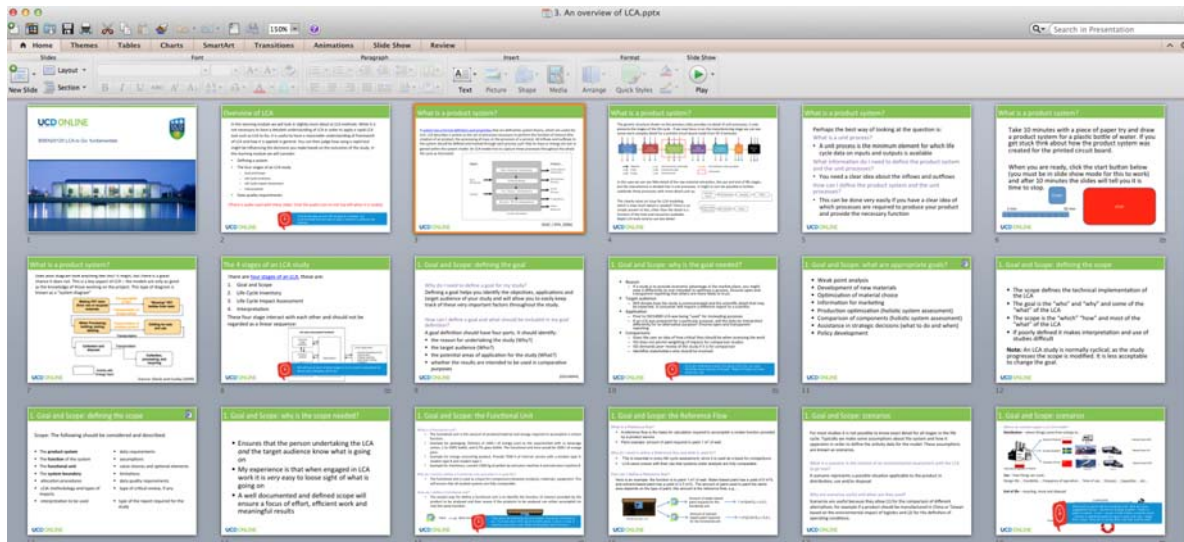
Figure 5. Selection of slides from the section on LCA theory (LM3) in the fundamentals module. BSEN20120 LCA to Go: fundamentals.