Designing a Degree Programme

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Introduction

The modernisation of Higher Education within the European Higher Education Area (EHEA) and beyond is now at a critical stage. There is activity in all countries within the EHEA as demonstrated by the series of Ministerial Summits [1]. This article will focus on the practical matter of designing or modernising a degree programme. The article will firstly set the scene by looking at the role of the Qualification Frameworks[2] and the ECTS Users' Guide (2015)[3]. This will be followed by a step by step guide to designing a degree programme using as an example a second cycle degree, MA International Higher Education. This degree is not to the authors' knowledge taught at any Higher Education Institution; it is purely for example purposes. Finally, the topic of modernising existing degree programmes will be covered.

Qualification Frameworks

In order to set the international level of a degree programme it is important to have a set of benchmark descriptors. Benchmark descriptors are typically defined at National or Regional level and sometimes by professional bodies. In the UK one can find benchmark examples provided by the Quality Assurance Agency[4] at one level and by the Engineering Council[UK] at a professional body level[5]. At a European level one can find descriptors for knowledge, skills, and competence for levels 1-8 of the European Qualification Framework (EQF)[6]. The EQF descriptors for the 1st and 2nd cycles are as follows.

> **Qualifications that signify completion of the first cycle are awarded to students who:**
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> - have demonstrated knowledge and understanding in a field of study that builds upon and their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study;
>
> - can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have **competences** typically demonstrated through devising and sustaining arguments and solving problems within their field of study;
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> - have the ability to gather and interpret relevant data (usually within their field of study) to inform judgements that include reflection on relevant social, scientific or ethical issues;
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> - can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences;

[1] http://www.ehea.info/
[2] https://ec.europa.eu/ploteus/search/site?f[0]=im_field_entity_type%3A97#
[3] http://ec.europa.eu/education/ects/users-guide/index_en.htm
[4] http://www.qaa.ac.uk/assuring-standards-and-quality/the-quality-code/subject-benchmark-statements
[5] http://www.engc.org.uk/standards-guidance/standards/uk-spec/
[6] https://ec.europa.eu/ploteus/content/descriptors-page

- have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy.

Qualifications that signify completion of the second cycle are awarded to students who:

- have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;

- can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;

- have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements;

- can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

- have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

It is important to clarify the meaning of competences used in these EQF descriptors, namely, professional, competence, and research. These are clarified within the EQF glossary. The word '**competences**' is defined as "The proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. (Source: EQF Recommendation)"

Furthermore, it is important to discuss the use of the two terms, **learning outcomes**, and **competences**. Kennady, Hyland, and Ryan, in their article on "Learning Outcomes and Competences", state, "competences with a narrow focus can be written as learning outcomes. In this article only the term 'learning outcome' will be used and they will be referred to as **key learning outcomes**, and **individual course (module) level learning outcomes**. Programme level learning outcomes are linked to module level learning outcomes through the **module map**. These three items form the core of any degree programme. There description and use will be covered in a later section.

The ECTS Users' Guide

The ECTS Users guide was updated in 2015[7] to take into account the shift in emphasis from a purely workload based credit transfer system to a learning outcome focussed accumulation system. There are over 100 references to the term learning outcomes within the guide indicating the importance of the methodology. With regards to (providing publicly available information in a common consistent format, the Users' Guide provides a list, commonly known as the "Course Catalogue". Section 2 of the course catalogue consists of the "Information on programmes", which is as follows.

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[7] http://ec.europa.eu/education/ects/users-guide/index_en.htm

General description:
- qualification awarded
- length of programme
- number of credits
- level of qualification
- fields of study
- specific admission requirements
- specific arrangements for recognition of prior learning (formal, non-formal and informal)
- qualification requirements and regulations
- **profile of the programme**
- **programme learning outcomes**
- programme structure diagram
- mode of study (full-time, par t-time, elearning...)
- examination regulations, assessment and grading
- obligatory or optional mobility window
- work placement(s) if applicable
- programme director or equivalent
- occupational profiles of graduates
- access to further studies

Description of individual educational components (module[8]) units:
- course unit title
- course unit code
- type of course unit (compulsory, optional)
- level of course unit (e.g. first, second or third cycle; sub-level if applicable)
- year of study (if applicable) semester/trimester when the individual educational component is delivered
- number of ECTS credits allocated
- name of lecturer(s)
- **learning outcomes of the course unit**
- mode of delivery (face-to-face, distance learning)
- prerequisites and co-requisites
- course contents
- recommended or required reading and other learning resources/tools
- **planned learning activities and teaching methods**
- **assessment methods and criteria**
- language of instruction.

All of this information is important. However, for the purposes of this article the main items of interest are those in bold above, namely the profile of the programme, the key learning outcomes, the learning outcomes of the course unit, the planned learning activities and teaching methods, and the assessment methods and criteria.

Programme Design

As was noted in the introduction the process of designing a degree programme will be demonstrated with the use of an example. The degree programme that is to be designed is a 2nd cycle (Masters

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[8] The word module has been added here as individual courses are referred to as modules in some countries.

level) degree programme. From an international perspective the benchmarking of this degree will be undertaken by linking its level to the Dublin descriptors. This means that the programme should build on 1st cycle (Bachelor level) and after completing the programme students should be able to;

apply their knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;

integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements;

communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

continue to study in a manner that may be largely self-directed or autonomous.

The example degree that will be designed within this article is an MA International Higher Education. The following 5 steps will be used to design the degree programme starting from the Dublin descriptors and concluding with the alignment of the module level learning outcomes through the Learning Outcomes, Learning, an d Assessment, LOLA, methodology.
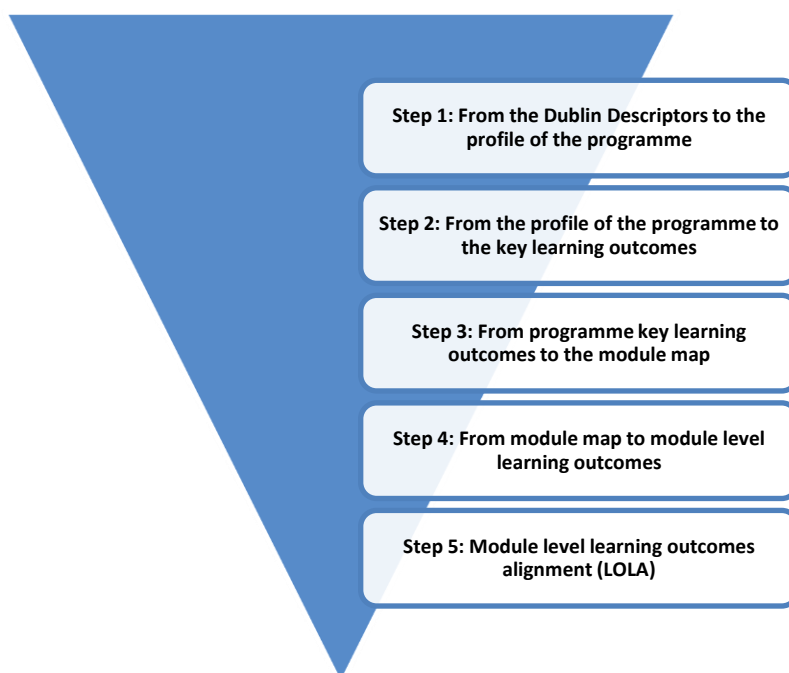

Step 1: From the Dublin Descriptors to the profile of the programme
Step 2: From the profile of the programme to the key learning outcomes
Step 3: From programme key learning outcomes to the module map
Step 4: From module map to module level learning outcomes
Step 5: Module level learning outcomes alignment (LOLA)

Figure 1 Five step planning process

Step 1: From the Dublin Descriptors to the profile of the programme

After reading the Dublin descriptors and taking into account any State Standards or Professional/Statutory body requirements and after consulting relevant stakeholders one can develop the profile statement of the programme. This profile statement should set out the overall aim of the degree programme making it clear what the learner will know do or be able to

understand at the end of the programme. For this example the following profile statement is given.

MA International Higher Education: Degree profile

The **MA International Higher Education** is a 24-month Masters programme. The teaching and learning aims of the programme are to equip students with the knowledge and skills required to work at a senior level within International Higher Education. Students will develop knowledge, understanding, and undertake independent research in key topics such as quality assurance, governance, programme design, internationalisation, qualifications frameworks and credit systems, lifelong learning and research strategy/policy.

Exercise 1

Read the example profile statement above and analyse it. Does the statement give you a full and clear description of the degree programme? You are not looking for a large amount of detail, just a statement of what characteristics a graduating student will possess.

Once you have analysed the example profile statement try writing profile statements for a degree that is already taught in your Institution and for one that you might like to teach. In the first case you will have information on the degree so this should be an easier task. The second case is more challenging but none the less you will be faced with the need to write profile statements for new degree programmes.

If you are working through this document with other people you might consider holding a review meeting where you read, analyse, and feedback your comment to the authors of the profile statements.

Step 2: From the profile of the programme to the key learning outcomes

The profile statement gives the overall aim of the degree programme. The key learning outcomes[9] show how this overall aim breaks down into different abilities developed by the students as a result of undertaking the degree programme. It is usual to break these down into categories. In the UK these categories are as follows;

> Knowledge and Understanding
> Intellectual/Cognitive Skills
> Practical Skills
> Key Skills

It may be that in your own country there is an already agreed set of categories, or it may be necessary to align your key programme learning outcomes with those set as state standards. For the purpose of this example the UK categories will be used. It is very helpful if these key learning

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[9] This article assumes the reader is already familiar with the process of constructing learning outcomes.

outcomes are developed across an Institution. It is quite likely that the same form can be used for different subject areas. In the case of practical and key skills it is highly likely that a generic set can be developed and used across an Institution. The key programme learning outcomes for the example degree programme, MA International Higher Education are as follows;

MA International Higher Education: Key Programme Learning Outcomes

Knowledge and Understanding

KU1. The principles that underlie the operation of a Higher Education Institution.
KU2. Quality assurance both on a National and International level.
KU3. Governance principles in a wide range of National settings.
KU4. The principles of Higher Education programme design.
KU5. Qualifications frameworks and credit systems both on a National and International level.
KU6. The principles of lifelong learning.
KU7. The role of research and enterprise within a Higher Education Institution.

Intellectual/Cognitive

IC1. Integrate knowledge and information to establish strategies and policies on key aspects of Higher Education operation.
IC2. Interpret International level information and place it in a National context.
IC3. Gather, analyse, evaluate and report evidence.
IC4 Argue from an evidence base and with clarity.

Practical Skills

P1. Use relevant IT tools to support effective working.
P2. Report complex matters regarding Higher Education.
P3. Demonstrate professionalism and team working skills.
P4. Demonstrate self-motivation, self-discipline, and initiative.

Key Skills

K1. Report effectively, both written and oral, in structured fashion on independent and group work
K2. Use current computer systems for communication, data acquisition, data management, and data analysis.
K3. Manipulate numbers effectively in order to utilise mathematical data relevant to Higher Education operation.
K4. Explore, combine and deduce techniques for solving complex problems.
K5. Work effectively as a team member and gain experience of leadership.
K6. Evaluate background knowledge; assess learning pace, plan work with realistic targets.

Notice that each of the statements above is given a code. The purpose of this is to make it easier to identify and map the development of the students' abilities in step 3

Step 3: From programme key learning outcomes to the module map

> **Exercise 2**
>
> Using the profile statement you wrote in step 1 and taking into account any state standards that define the programme level learning outcomes generate a set of key programme learning outcomes. You will need to decide if you are going to adopt a structure like in the UK (Knowledge and Understanding, Intellectual/Cognitive, Practical Skills, Key Skills) or if a structure is imposed by any State Regulations. You should look to develop these key programme learning outcomes in collaboration with other Faculties and potentially across an Institution. You may find that you can use the same Key learning programme learning outcomes for many degree programmes in particular in the area of "key skills".

After developing the programme key learning outcomes, it is possible to map them onto the set of modules that will be the component parts of the degree programme. Firstly, the set of appropriate modules need to be decided. These will possibly be constrained by the awarding Institution as there may be restrictions on the credit size of modules. For an example an Institution may have a policy that only modules of credit sizes 7.5 and 15 can be used. This policy is often introduced to make inter-disciplinary degree programmes easier to construct. Deciding the set of modules and their names gives another clear signal regarding the importance of topics within the degree programme. For example, imagine a 1st cycle degree in Electronic Engineering in which there was no modules that had "mathematics" in their name.

The example degree programme is a two-year Masters degree in International Higher Education. Let us assume that the degree will consist of two academic years of 60 ECTS credits each. The first year will consist of 8 modules of 7.5 ECTS credits and the second year of 4 modules of 7.5 ECTS credits and one module of 30 ECTS credits (dissertation). The module structure is shown in Table 1.

Table 1: The Programme Module Structure

Code	Title	Credits
Year 1 (Two semesters of 15 weeks)		
CE701	International Higher Education and The Bologna Process	7.5
CE702	International Higher Education Quality Assurance	7.5
CE703	Governance in Higher Education	7.5
CE704	Programme and Module Design	7.5
CE705	Research Policy and Strategy	7.5
CE706	Research Techniques I	7.5
CE707	Team Project and Thesis	15
Year 2 (Two semesters of 15 weeks)		
CE801	Engaging with Stakeholders	7.5
CE802	International Policy and Strategy	7.5
CE803	Lifelong Learning and Expanding Opportunities	7.5
CE804	Research Techniques II	7.5
CE805	Individual project and thesis	30
	Total credits	120

The choice of these modules has taken into account the programme key learning outcomes so mapping them onto the modules is relatively straightforward. Remember the key learning outcomes were categorised into 4 groups, knowledge and understanding, Intellectual/Cognitive, Practical skills, and Key skills. Notice that each of the modules has been allocated a code. Using these codes and the ones developed earlier for the key learning outcomes, a module map can be developed. This makes it easy to check that all the key learning outcomes are included and where they will be developed through the programme. The module map looks like the following;

Table 2: Programme Key Learning Outcomes Module Map

Module	Knowledge & Understanding							Intellectual/Cognitive				Practical Skills				Key Skills					
	KU1	KU2	KU3	KU4	KU5	KU6	KU7	IC1	IC2	IC3	IC4	P1	P2	P3	P4	K1	K2	K3	K4	K5	K6
CE701	*				*	*			*		*	*	*	*	*	*	*				*
CE702		*							*		*	*	*	*	*	*	*				*
CE703			*					*			*	*	*	*	*	*	*				*
CE704				*					*		*	*	*	*	*	*	*				*
CE705							*	*	*		*	*	*	*	*	*	*				*
CE706									*	*	*	*	*	*	*	*	*	*	*	*	*
CE708	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CE801		*		*	*	*	*	*			*	*	*	*	*	*	*				*
CE802		*			*	*	*	*	*		*	*	*	*	*	*	*				*
CE803	*			*		*		*	*		*	*	*	*	*	*	*				*
CE804									*	*	*	*	*	*	*	*	*	*	*	*	*
CE805	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*

Exercise 3

Study the module titles given above and look again at the key programme learning outcomes developed at step 2. Then study the module map above and analyse and critically assess it. Look for any potential problems such as over duplication of coverage of programme key learning outcomes or for vulnerabilities due to under coverage of particular learning outcomes. Write a short evaluation of this module map regarding the distribution of programme   key learning outcomes and the suitability of the programme key learning outcomes to the modules.

Step 4: From module map to module level learning outcomes

The module map has now been created and checked to ensure good coverage of the programme key learning outcomes across the degree programme. It is now possible to design the individual modules. This stage is normally undertaken by the person teaching/leading the module. Consultation with the programme designer is however advised to ensure good linkage between the programme key learning outcomes and the module learning outcomes. Listed below are the learning outcomes for the module entitled "Programme and Module Design" which has the code CE704 . The link to the programme key learning outcomes is demonstrated in the table below.

Table 3 : Mapping Programme Key Learning Outcomes to Module Learning Outcomes

Programme Key Learning Outcomes	Module Learning Outcome
KU4: The principles of Higher Education Programme Design IC2: Interpret International level information and place it in a National context. P1: Use relevant IT tools to support effective working. P2: Writing and reporting complex matters regarding Higher Education. K1: To report effectively, both written and oral, in structured fashion on independent and group work K2: To use current computer systems for communication, data acquisition, data management, and data analysis. K6: To evaluate background knowledge, assess learning pace, plan work with realistic targets.	1. Create a critical review of relevant international literature. 2. Create National Policy statements regarding programme design. 3. Create guidance documents regarding programme design.
P3: Demonstrate professionalism and team working skills. P4: Demonstrate self-motivation, self-discipline, and initiative. K1: To report effectively, both written and oral, in structured fashion on independent and group work. K2: To use current computer systems for communication, data acquisition, data management, and data analysis. K6: To evaluate background knowledge, assess learning pace, plan work with realistic targets.	4. Work actively within the multinational team with a specific role and demonstrate reflective practice.

Exercise 4

Study the table above and analyse the way in which the programme key learning outcomes have been used to create specific module level learning outcomes. You will notice that sometimes more than one programme key learning outcomes has been assigned to an individual module learning outcome. Remember key programme learning outcomes will normally appear in more than one module and will be linked to a different module learning outcome.

Step 5: Module level learning outcomes alignment (LOLA)

If all the steps above have been undertaken correctly it is now possible to concentrate on how the module learning outcomes will be achieved by the students and how the assessment will be designed to ensure that the learning outcomes have been met. This process is called constructive alignment after the work by Biggs[10]. For ease of remembering the process the acronym LOLA will be adopted.

Learning

Outcomes are achieved through

Learning and their achievement is determined through

Assessment

Taking as an example one of the module learning outcomes from above;

3. Create a critical review of relevant international literature.

This learning outcome requires the student to identify or be given relevant international literature and then critically review that literature. The following paragraph is an example statement that would be given to students at the start of the module in order for them to understand what is required in order to achieve this learning outcome.

> Students are required to research the international literature to find articles relating to programme and module design. They should concentrate on peer reviewed academic literature and policy/guidance literature generated by Institutions, National Authorities, and International bodies such as the European Universities Association (EUA). Students should read and précis the articles they find. From their set of précis, the students should write a 5000 word article on a theme they decide. The article should not only report on the literature they have found but also provide an in-depth critical review.

This statement expands the module learning outcome to give it more clarity and also indicates the broad learning the student will undertake and what written work they must produce. A further statement should be provided that give more depth to the learning process. For example, a statement of the learning process might be;

> This module will run in the first semester. The module is a 7.5 ECTS credit module and therefore students should aim to undertake 187.5 workload hours (25/ECTS credit) in total taking into account all lectures, seminars, individual work, and assessments. At the first lecture students will be introduced to the varied research tools available to them such as the online databases available in on the intranet. A short questionnaire will be completed online by students. This questionnaire will provide a score regarding readiness to

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[10] Biggs, J. (2003a) Teaching for Quality Learning at University (2003). Wiltshire: Open University Press

undertake independent research and critical analysis. The results of the questionnaires are only provided to the individual student. The result will indicate what action the student should take to raise their skills to the level assumed to undertake the module. Support will be provided through two weekly seminars with the module tutor. Through the semester the students will produce libraries of articles which they will store in an online document repository. The module tutor will have access to these libraries and will provide guidance regarding the relevance of the material being accumulated. A further document repository will be used to store précis. Again, the module tutor will provide feedback on these précis. The précis themselves are not assessed. Students should aim to produce an outline of their final critical review article by the 10th week of the semester. This outline will be reviewed by the module tutor and feedback provided. For the remainder of the semester the students should work on their critical review article submitting the final version to the online submission server by the deadline which is Friday 12noon of the last week of the semester.

The final statement that is required to be given to students at the start of the module is the statement regarding the assessment criteria. This statement can take many forms but it should give a clear indication of how the student will be assessed in order to meet the learning outcomes. Remember that the learning outcome was, "a critical review of relevant international literature". Table 4 is an example of an assessment criteria table.

Table 4: An example assessment criteria table

Attribute	Grade A	Grade B	Grade C	Grade D	Fail
Critical content (70%)	The critical content of the article was at the standard required for publication in an International peer reviewed Journal	The critical content was of a high standard but with some weaknesses regarding evidence.	The critical content was of a good standard but with several weaknesses regarding evidence and/or some lack of clarity.	The critical content was of a passing grade but with a weak evidence base and/or a wide lack of clarity.	The critical content fell short of that required to pass due to a lack of evidence base and/or very poor clarity.
Standard of literature library (20%)	The literature library assembled by the student was outstanding with no serious missing articles.	The literature library assembled was very good with only a few missing key articles.	The literature library assembled had a number of missing key articles and lacked breadth.	The literature review lacked breadth to a great degree and was missing many key articles	The literature library was lacking in breadth and key articles to an extent that fell short of a passing grade.
Report quality (10%)	The style and clarity of the report was excellent	The style and/or clarity of the report were very good.	The style and/or clarity of the report were good.	The style and/ or the clarity were adequate.	The style and/or clarity of the report fell short of a passing grade.

Exercise 5

Study the statements above provided to the students.

1. Do you think they clearly express the requirements in order for a student to meet the learning outcome?
2. Could other learning outcomes be associated with the assessment and if so would further attributes be required?
3. Is the balance of the weighting appropriate to the learning outcome?