On-line documentation for quality assurance of study programmes: DoQuP approach

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Abstract

In the first three sections, the paper establishes what is meant for quality and quality assurance of study programmes and presents the Tuning approach to the design of study programmes and the standards and guidelines for quality assurance in the European Higher Education Area.
The fourth section describes the DOQUP approach to the definition of the documentation for the quality assurance of study programmes: the standards for the quality assurance of study programmes according to the DoQuP approach are established, the fundamental processes for a management for quality of a study programme are identified and the quality requirements associated to the identified fundamental processes are established, with the expected activities for their accomplishment. Finally, the information and data that study programmes should document to provide evidence of the quality of the educational service offered and therefore to assure their quality are established. The whole of standards and guidelines - i.e. quality requirements, with the associated expected activities for their accomplishment, and information and data to be documented - constitute the 'DoQuP Model' for the quality assurance of study programmes.
The fifth section introduces the 'DoQuP Software' for the on-line documentation of the information and data for the quality assurance of study programmes.

Keywords: Quality Assurance of Study Programmes, Internal Quality Assurance of Study Programmes, Documentation for Quality Assurance of Study Programmes

1. Introduction

The quality of study programmes (SPs) is the level of fulfilment of the objectives or, in other words, the level of accomplishment of the quality requirements established coherently with the needs and expectations of all those who are interested in the educational service provided, i.e. the 'interested parties' (IPs).

Quality Assurance (QA) is the instrument to make SPs quality transparent and trustworthy for all the IPs.
For QA of a SP it is intended the whole of the activities (processes) for the management of the educational service aimed at achieving the established educational objectives and then at 'ensuring trust' in meeting the quality requirements to all the IPs.

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Therefore, the definition of the QA system of a SP requires the identification of all the processes for the management of the SP and the establishment of the needs or expectations for quality associated to each identified process.

The DoQuP project[6] is a Tempus project (Tempus Project n. 517340-TEMPUS-1-2011-1-IT-TEMPUS-SMGR) the wider objective of which is the definition and on-line implementation of a documentation system of the QA of SPs in partner countries (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan), consistent with the *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (ESG)[7].

Why a clear and complete documentation of the learning objectives, educational process, learning context, programme results and management system is an essential and necessary aspect of the QA of SPs?

Because this is a requirement established by the ESG, which in 'Part 1: European standards and guidelines for internal quality assurance within higher education institutions - 1.7 Public information' establishes that "Institutions should regularly publish up to date, impartial and objective information, both quantitative and qualitative, about the programmes and awards they are offering".

Because the availability of information and data on the characteristics and results of SPs is essential for their transparency, one of the most important objective of the Bologna process, and in order to 'ensure trust' in the SP capacity to meet the requirements for quality. In one word, it is essential to guarantee the SP quality, making possible the formulation of an informed judgment on the SPs' quality by all the IPs, students and employers above all.

Because the availability of information and data on the characteristics and results of SPs is also essential for their comparability at national and international level, another important objective of the Bologna process.

Furthermore, the availability of information and data on the characteristics and results of SPs constitutes a powerful incentive to the improvement of SP quality (as a matter of fact, when a SP is required to document its quality, in case of bad quality it is also stimulated to adopt the opportune actions for its improvement).

Without taking into account that their availability is necessary in every quality assessment and accreditation process.

2. Tuning Approach to the Design of Study Programmes

The Bologna process, with the introduction of a three-cycle system, has implied a drastic change in the design of SPs.
In a cycle system, each cycle should be seen as an entity in itself. In particular, the first two cycles should not only give access to the following cycle, but also to the labour market.
The 'old' SPs, not based on the concept of cycles, were designed on the basis of tradition and the resources already available. They can be considered as 'input-based' or 'teacher/staff oriented/centred'. In such SPs, the emphasis is placed on the individual interests of academic staff or on the existing organisation of studies.

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[6] http://tempus-doqup.unige.it/

[7] ENQA, *Standards and Guidelines for Quality Assurance in the European Higher Education Area*, http://www.enqa.eu/wp-content/uploads/2013/06/ESG_3edition-2.pdf

Although the importance of making maximum use of the available expertise of the staff in the design of SPs is out of doubt, this aspect should not dominate the design of 'new' SPs, based on the concept of cycles.

At present Higher Education Institutions (HEIs) are undergoing a transformation process. The traditional approach is slowly giving way to an 'output-based', 'student-oriented/centred' approach, which takes the student as the centre of the teaching and learning process.

The aim of student-centred SPs is to make students as competent as is feasible in a given timeframe for their future role in society. In these SPs, the focus is no more on what a student has been taught, but on what a student has learned and is able to do. Therefore, SPs leading to a bachelor or master degree are no longer to be described and planned solely according to their content, but mainly according to the 'competences'[8] expected in the graduates at the end of the educational process and the 'learning outcomes'[9] to be achieved by students during the educational process.

The methodology for design educational programmes consistent with the Bologna process principles has been developed within the framework of the *Tuning Educational Structures in Europe*[10]. Tuning is a university driven initiative originally set up to offer a concrete approach to implement the European Bologna process at the level of HEIs and subject areas, and has become the leading approach within the common European education space.

The quintessence of the Tuning approach[11] resides in the so called 'degree profile'. The degree profile must clearly define the aims and purposes of the SP, describe in terms of competences and learning outcomes what graduates will know, understand and be able to do by the time they have successfully completed the SP, spell out what can be expected of the graduates in terms of the kinds of tasks they are equipped to undertake, their level of expertise and the responsibilities they can assume.

In particular, the Tuning approach to SPs design in the framework of a QA system comprises the following steps:

- confirm the existing social need for the SP and define the SP profile,
- describe the SP objectives and identify the key competences (subject-specific and generic) it should develop,
- identify and formulate measurable learning outcomes of the SP, expressed in term of competences, the achievement of which should demonstrate that the graduate has developed the identified competences,
- design and describe the SP structure and contents (the set of modules or course units for the award of the degree and for each module the credits and learning outcomes to be achieved in order to obtain the specified credits),

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[8] According to the Tuning approach, 'competences' represent a dynamic combination of knowledge, understanding, skills (that is 'learned capacities', according to the Tuning glossary) and abilities ('acquired or natural capacities'). This definition is in line with the international ISO 9000 norm that defines competences as "demonstrated ability to apply knowledge and skills".

They should correspond to the competences necessary to carry out the role expected for the graduates in the labour market. Fostering competences is the object of all educational programmes.

[9] 'Learning outcomes' are statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning.

According to Tuning, learning outcomes have to be expressed in terms of (the level of) competence (knowledge, understanding, skills and abilities) to be obtained by the learner. Consequently, the programme learning outcomes should align with the programme competences, not necessarily on a one to one basis, but overall. Learning outcomes specify the requirements for award of credits.

[10] http://www.unideusto.org/tuningeu/

[11] TUNING, *Universities' contribution to the Bologna Process. An introduction*, 2nd edition, http://www.unideusto.org/tuningeu/publications.html

- check the correspondence among the structure and contents of the SP and the programme learning outcomes,
- select approaches to teaching and learning as well as methods of assessment in line with the competences to be developed.

3. <u>Standards and Guidelines for Quality Assurance in the European Higher Education Area</u>

Today the definition of suitable academic strategies in order to promote SP quality can rely on the standards and guidelines for quality assurance of higher education (HE) established in the ESG[7]. This document was proposed by the *European Association for Quality Assurance in Higher Education* (ENQA) and adopted by the Ministers of HE of 45 countries in the meeting in Bergen (Norway) on 19-20 May 2005. It has found a generalised acceptance in the European context. Currently it is under revision.

In the ESG, the term 'quality assurance' is used to describe all activities within the continuous improvement cycle (i.e. assurance and enhancement activities).

The 'standards' set out agreed and accepted practice for QA in HE in the European Higher Education Area (EHEA).

The 'guidelines' explain why the standard is important and describe how standards might be implemented and set out good practices in the relevant area for consideration by the actors involved in QA. Although the guidelines are not part of the standards themselves, the standards should be considered in conjunction with them.

It is important to note that the purpose of these standards and guidelines is to provide a source of assistance and guidance to HEIs in developing their own QA system, as well as to contribute to a common frame of reference, which can be used by institutions. It is not the intention that these standards and guidelines should dictate practice or be interpreted as prescriptive or unchangeable.

The document has also introduced the concepts of internal and external QA. With reference to SPs, 'internal quality assurance' regards the activities of QA in the responsibility of the SP or of the structure the SP belongs to. 'External quality assurance' regards the activities of the QA agencies and can include assessment and/or accreditation of SPs.

The standards and guidelines for internal QA within HEIs are set out in Part 1 of the ESG[12].

4. <u>Process of identification of the documentation for the quality assurance of study programmes</u>

Consistently with the Tuning approach to SP design[11], the ESG[7] and with the models for the quality assessment and accreditation of SPs adopted by the European agencies[13], the DOQUP approach to QA of SPs assumes that a SP may be said 'of quality' when it complies with the national standards and requirements and:

- it establishes educational objectives[14] consistent with the mission of the institution the SP belongs to and the educational needs of the labour market of reference, and learning outcomes consistent with the educational objectives;

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[12] The standards are in three parts covering internal QA (Part 1), external QA (Part 2) and QA agencies (Part 3). The standards for QA agencies regard the characteristics that should be fulfilled by QA agencies.

[13] In particular, with the 'Guidelines for the Criteria and Requirements of Programme Assessment' established in the document *EUR-ACE Framework Standards for the Accreditation of Engineering Programmes*, recently replaced by the document *EUR-ACE Framework Standards and Guidelines* (http://www.enaee.eu/publications/european-framework-standards).

[14] Educational objectives: professional profiles and/or functions/roles/activities students are to be prepared for and competences to be developed during the learning process by the students.

- it designs and implements an educational process adequate to achieve the learning outcomes, keeps under control its development, assures a correct assessment of students' learning and establishes appropriate criteria for students' progression in their studies;
- teaching staff, facilities, financial resources, student support services and partnerships with businesses, research institutions and other HEIs are adequate to accomplish the learning outcomes and are taken under control;
- it monitors the results of the educational process;
- it adopts an adequate and effective management system able to assure the SP quality and its continual improvement, and guarantees public access to the information on the SP.

These principles must inspire the design, development and control of a SP.

Correspondingly, the DOQUP approach defines the five 'DOQUP standards' for the QA of SPs:

Standard A - Needs and Objectives

Standard B - Educational Process

Standard C - Resources

Standard D - Monitoring and Results

Standard E - Management System

The established standards are reported in Table 2.

As already said, the definition of the QA system of a SP requires the identification of all the processes for the management of the SP and the establishment of the needs or expectations for quality associated to each identified process.

The processes associated to each DOQUP standard to be considered fundamental for a management for quality of SPs have been identified again consistently with the Tuning approach to SP design[11], the ESG[7] and the models for the quality assessment and accreditation of SPs adopted by the European agencies. They are reported in Table 1.

Table 1 - Fundamental processes for a management for quality of study programmes according to the DoQuP approach

Standard	Fundamental processes
A Needs and Objectives	A1 - Identification of the educational needs of the labour market A2 - Definition of the educational objectives A3 - Definition of the learning outcomes
B Educational Process	B1 - Definition of the admission qualifications and requirements B2 - Design and planning of the educational process B3 - Realization of the educational process
C Resources	C1 - Identification and put at disposal of the teaching staff C2 - Identification and put at disposal of facilities (in particular: lesson rooms, laboratories, libraries) C3 - Identification of the needs and put at disposal of financial resources C4 - Organisation and management of student support (orienteering, tutoring and assistance) services C5 - Establishment of partnerships with national and international businesses, research institutions and other Higher Education Institutions for carrying out students' external education and mobility
D Monitoring and Results	D1 - Monitoring of the entrance students D2 - Monitoring of the students' learning D3 - Monitoring of the students' progression in their studies D4 - Monitoring of the students' opinion on the educational process

	D5 - Monitoring of the graduates' placement
E Management System for Quality	E1 - Definition of the policy and organization for quality assurance E2 - Definition of the management system of the study programme E3 - Revision E4 - Publicizing of information on the study programme

Then the 'DOQUP requirements for quality', i.e. the needs or expectations for quality, associated to each identified process have been established according to the ESG [1], with the activities to be managed for their accomplishment. The established quality requirements are reported in Table 2. Furthermore, for each identified quality requirement the information and data to be documented by the SPs in order to provide evidence of the quality of the educational service offered, and therefore to assure their quality, have been established, again according to the ESG[7].

The requirements for quality associated to each DoQuP standard and the information and data to be documented associated to each quality requirements are reported in Table 2.
The whole of standards for QA, quality requirements - with the associated expected activities for their accomplishment - and documentation for QA - with a description of the information and data to be documented – constitute the *DoQuP Standards and Guidelines for the internal quality assurance of study programmes in partner countries (DoQuP Model)*[15].

It is important to note that the DoQuP Model assumes that the SP is the only structure in charge of the management of the processes associated to the quality requirements. In some cases, the structures in charge might be others, in particular the structure the SP belongs to. This does not imply any change as for both the quality requirements and the expected activities for their fulfilment.

Table 2 - <u>Standards, Requirements for Quality and Documentation for Quality Assurance of Study programmes according to the DoQuP approach</u>

Quality Requirements	Documentation
Standard A - Needs and Objectives The study programme should identify the educational needs of the labour market of reference, establish educational objectives coherent with the mission of the institution the study programme belongs to and the educational needs of the labour market of reference, and learning outcomes coherent with the established educational objectives.	
A1 - Educational needs of the labour market The study programme should identify the educational needs of the labour market of reference. The educational needs should be identified in terms of professional profiles and/or functions/roles/activities expected for the graduates and associated required competences.	Organisations consulted and Methods and schedule of consultation Identified educational needs of the labour market
A2 - Educational objectives The study programme should define educational objectives in terms of professional profiles of the graduates and/or functions/roles/activities students are to be prepared for and associated key competences to be developed and obtained by the students during the learning process consistent with the mission of the institution the study programme belongs to and the educational needs of the labour market of reference.	Educational objectives

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[15] http://tempus-doqup.unige.it/sites/tempus-doqup.unige.it/files/files/S%26G%20-%20Final.pdf

A3 - Learning outcomes The study programme should define learning outcomes in terms of what students are expected to know, understand and/or be able to demonstrate after completion of the educational process consistent with the national qualification framework, if any, and with the established educational objectives.	Learning outcomes Comparison with learning outcomes of other study programmes of the same typology
Standard B - Educational Process The study programme should assure students educational activities able to accomplish the established learning outcomes through contents, methods and times adequately designed and planned, take under control their development, assure a correct assessment of students' learning through suitable assessment methods and criteria, and establish appropriate criteria for students' progression in their studies.	
B1 - Admission qualifications and requirements The study programme or the competent authority should define qualifications and requirements for the admission to the study programme adequate for a profitable participation of the students to the established educational activities, in particular of the first course year.	Admission to the study programme *(Qualifications and requirements for the admission to the study programme, Assessment of the mastery of the admission requirements and Criteria of admission)*
B2 - Design and planning of the educational process The study programme should design a curriculum and characteristics of the didactic units consistent with the established learning outcomes. The study programme should also establish appropriate criteria for students' progression in their studies. Furthermore, the study programme should plan the development of the educational process in such a way that students are able to achieve the learning outcomes in the expected time, according to a gradual process and activities coherent and coordinated with each other.	Curriculum Characteristics of the didactic units Characteristics of the graduation exam Suitability of the curriculum to the achievement of the learning outcomes Criteria for students' progression in their studies Calendar and timetable of didactic units and exams
B3 - Realization of the educational process The study programme should implement the educational process coherently with the designed and planned development. The study programme should also control the development of the educational process, in order to check its correspondence with the designed and planned development, and the adequacy of the assessment tests to the learning outcomes and the correctness of the evaluation of the students' learning.	Correspondence with the designed and planned development Control of the assessment tests and of the evaluation of the students' learning
Standard C - Resources The study programme should have at disposal teaching staff, facilities, financial resources, student support services and partnerships with businesses, research institutions and other Higher Education Institutions adequate for the accomplishment of the learning outcomes and able to make easier the students' progression in their studies.	
C1 - Teaching staff The study programme should have at disposal teaching staff, including teaching support staff, adequate for the achievement of the established learning outcomes.	Teaching staff Teaching support staff
C2 - Facilities The study programme should have at disposal facilities, with the associated equipment, quantitatively and qualitatively adequate for the	Classrooms Rooms for individual study

development of the established educational activities and able to allow the application of the established didactic methods.	Laboratories
	Libraries
	Other resources and special initiatives
C3 - Financial resources *(optional)* The study programme should have at disposal financial resources adequate for the development of the educational process according to the designed and planned activities.	Needs of financial resources
	Availability of financial resources
C4 - Student support services The study programme should have at disposal student support (orienteering, tutoring and assistance) services relevant to the educational process and able to make easier students' learning and progression in their studies.	Student administrative office
	Orienteering service for students in entrance
	Tutoring service
	Service for carrying out training periods outside University
	Service for students' international mobility
	Job placement service
C5 - Partnerships The study programme should have at disposal partnerships with national and international businesses, research institutions and other Higher Education Institutions quantitatively and qualitatively adequate for carrying out students' external education and mobility.	Partnerships for carrying out training periods outside University
	Partnerships for carrying out international mobility periods

Standard D - Monitoring and Results

The study programme should monitor the results of the educational process at least with respect to entrance students, students' learning, students' progression in their studies, students' opinion on the educational process, graduates' placement, in order to check the adequacy and effectiveness of the educational service provided.

D1 - Entrance students The study programme should monitor the entrance students in order to check its attractiveness.	Assessment of the mastery of the admission requirements *(only for first cycle and integrated programmes)*
	Enrolments in the first course year
D2 - Students' learning The study programme should monitor the students' learning in order to check the effectiveness of the didactic units.	Students' learning
	Further monitoring
D3 - Students' progression in their studies The study programme should monitor the students' progression in their studies (in particular: dropouts, number of credits acquired at the end of each course year, time to graduation) in order to check the effectiveness of the educational process.	Enrolments in the different course years
	Dropouts
	Credits acquired by the students
	Graduation time
D4 - Students' opinion on the educational process The study programme should monitor the students' opinion on the educational process in order to check the perceived adequacy and effectiveness.	Students' opinion on the didactic units
	Students' opinion on the training periods outside University
	Students' opinion on the periods of international mobility
	Opinion of the final year students on

	educational process and support services
D5 - Graduates' placement The study programme should monitor the graduates' placement in order to check the qualification spendability, the correspondence of the study programme educational objectives to and the adequacy of the study programme learning outcomes for the educational needs of the labour market.	Graduates' job placement Prosecution of the studies in the second cycle programmes *(only for first cycle programmes)* Employed graduates' opinions on the education received Employers' opinion on the graduates' education *(optional)*
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Standard E - Management System for Quality

The institution the study programme belongs to should have a public quality assurance policy and an effective organization for the quality assurance of study programmes. The policy should be put into practice through the definition and adoption of an adequate and effective management system for quality of the study programmes, able to promote and assure their quality and the improvement of the effectiveness of the processes for the study programme management and of the associated results, and should assure its continual adequacy and effectiveness.

Furthermore, the study programme should guarantee the publicity of the information on its characteristics and results.

E1 - Policy and organization for quality assurance The institution the study programmes belongs to should have a public quality assurance policy and an effective organization for the quality assurance of study programmes.	Policy for quality assurance Organization for quality assurance
E2 - Management system of the study programme The study programme should adopt an adequate and effective management system, through the identification of the processes for a management for quality of the study programme and the definition of an adequate organisational structure.	Management system of the study programme
E3 - Revision The study programme should periodically revise needs and objectives, educational process, resources, results and management system, in order to guarantee their constant adequacy and effectiveness and promote the improvement of the effectiveness of the processes for the study programme management and of the associated results.	Management modalities of the revision process Results of the revision process
E4 - Publicity of information The study programme should make public full, up to date, easily acquired information, both quantitative and qualitative, on programme objectives, educational process, resources, results and management system.	Publicity of the documentation for the quality assurance of the study programme

5. On-line documentation for quality assurance of study programmes

Information and data to be documented in order assure the quality of SPs have to fulfil specific characteristics directly connected with the specific objectives of the DoQuP project.

In order to increase the transparency of SPs and promote the modernisation of HEIs, the documentation should be easily accessible on the net, have a simple structure and be drawn up in a short and essential form, which shall optimize all aspects related to the interaction with all the stakeholders.

Furthermore, in order to promote the comparability of SPs and enhance mutual trust in their quality, the documentation have to be prepared according to drawing-up modes (extension, language, reading format) homogeneous at national (and international) level.

To this end, an important output of the DoQuP project is the 'DoQuP Software' for the on-line documentation of the information and data for the QA of SPs required by the DoQuP Model. The DoQuP Software is available on-line[16] and was used by the partner Universities for the implementation of the DoQuP Model for some of their SPs.
In any case, a good example of documentation of a SP implemented on the DoQuP Software is available at http://doqup.cineca.it/#ContentPlaces:study-program-detail&year=2015&spid=58.
Furthermore, the DoQuP Model suggests what information and data for the QA of the SPs should be documented in the documentation file by making them available directly on the file or by indicating the web site where they can be found or in attachment to the documentation file.
Finally, when considered useful the Model suggests the use of some tables for the documentation of the required information and data. Of course, the organisation of the tables may be changed, but the new tables have to make available all the information and data required by the tables proposed in the Model.

6. Conclusions

We hope that DoQuP project will be able to:

- bring the current documentation process in the Partner Countries (PCs) into line with the ESG;

- enhance the quality and to increase the comparability of SPs in PCs, in order to allow all the IPs to formulate an informed assessment of the educational process offered by SPs and to enhance mutual trust in the quality of SPs;

- promote modernisation of HE and to increase transparency of SPs in PCs, through an on-line management of information and data necessary to assure quality of SPs;

- promote the adoption of the on-line documentation system to be implemented by the competent national authorities, in order to guarantee its dissemination among all the universities of the PCs and its sustainability.

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[16] http://doqup.cineca.it/.