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R2.3. BioS assessment and accreditation framework

WP2:Curricula Design

Responsible Partner: P6 University of Patras

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including Commission services and project reviewers)	
CO	Confidential, only for members of the consortium (including EACEA and Commission services and project reviewers)	

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1. Introduction

BioS aims at advancing the digital skills of medical doctors through the design, development and delivery of new modular vocational curricula on Computational Biology, as well as transversal skills, directly responding to skills needs identified by existing research evidence. Its ultimate purpose is to provide medical doctors with knowledge, skills and competencies, which will allow them to tackle effectively concurrent challenges in EU healthcare systems, services, and policies, in benefit of the health of EU citizens.

2. Project

Table 1: List of partners

P1	Steinbeis University Berlin (SHB)	Germany
P2	ENIOS APPLICATIONS IDIOTIKI KEFALAIOUCHIKI ETAIREIA (e-NIOS)	Greece
P3	OLYMPIC TRAINING AND CONSULTING LTD (OT)	Greece
P4	Skybridge Partners	Greece
P5	Bioinformatics Barcelona Association (BIB)	Spain
P6	University of Patras (UPAT)	Greece
P7	European Medical Association (EMA)	Belgium
P8	European Recreation and Health Valley (EUREHVA)	Germany
P9	BG Klinikum Murnau gGmbH (BGU Murnau)	Germany
P10	For SRL	Italy
P11	HiDucator Ltd (HiDucator)	Finland
P12	EPRALIMA_Vocational School of Alto Lima, C.I.P.R.L. (EPRALIMA)	Portugal
P13	German Oncology Centre (GOC)	Cyprus

3. Assessment, Grading and Accreditation

Assessment is the process of collecting information about learning and performance of learners in order to improve education. The BioS project assessment will show the level of the learners at the end of the training. Particularly through the assessment process training providers and supervisors will know if the objectives of the theoretical (asynchronous and synchronous e-learning) and WBL training have been fulfilled; whether the learning outcomes have been achieved. In order for the assessment to be valuable in BioS, it is going to be module oriented and based on a well-structured process, addressing all types of training. It should aid the refinement of the teaching practices and motivate the learners appropriately for their workplace. To define a well-organized BioS training framework, there must be an alignment between assessment procedures, learning objectives (i.e., gained learner knowledge - competence after training) and instructional strategies (i.e., activities reinforcing the learning objectives and preparing the learners for the assessments) so there is an interaction between one another. Assessment procedures should imprint highlight the training level of the learner and whether the learning target is achieved. Through the assessment process trainees are informed about their progress and gaps they have to fill in, while the training provider is informed about the necessary adjustments to be made.

Grading is the process of applying standardized measurements of varying levels of achievement in a course. Grades can be assigned as letters (for example A through F), as a range (for example 1 to 6), as a percentage of a total number of questions answered correctly, or as a number out of a possible total (for example out of 20 or 100).¹

Accreditation refers to “Certification of competence in a specified subject or areas of expertise, and of the integrity of an agency, firm, group, or person, awarded by a duly recognized and respected accrediting organization.”

3.1 What is the relationship between assessment and grading

Assessment and grading are showing dissimilarities. The general goal of grading is to evaluate the learner's training and performance and it includes different criteria which are often not directly related to the training results, such as attendance, participation, behaviour and consistency.

¹ https://en.wikipedia.org/wiki/Grading_in_education#cite_note-1

Assessment goes beyond grading by systematically examining patterns of student learning across courses and programs and using this information to improve educational practices.

3.2 What is the difference between formative and summative assessment

3.2.1 Formative assessment

Formative assessment is about monitoring student learning to provide feedback which will be used to improve teaching and learning. It helps learners find out the strengths and weaknesses and detect the units that need more work.

The types of formative assessment that are going to be used for BioS purposes are the following:

- Asynchronous e- learning, which can be carried out while the learner is offline. It involves coursework delivered via web, email and message boards. In such cases, learners are able to complete the course at their own pace, by using the internet merely as a support tool rather than volunteering exclusively for an e-learning software or online interactive classes.
- Synchronous e-learning, which involves online studies. It is a real time learning tool. This kind of learning tool is real-time. It allows learners to ask and get instant answers through instant messaging, which is why it is called synchronous. Learners can easily interact with other learners and trainers during the

3.2.2 Summative assessment

Summative assessment is a concept related to grading. It evaluates student learning at the end of a module, by comparing it against some standard. Summative assessments could be in forms of an exam, a project or a paper.

In BioS an a assessment activity will be uploaded on the e-learning platform and will be provided to the learners after the completion of each module.

After the completion of the theoretical training and WBL, the final assessment will take place in the form of one of two complex case studies. Through case studies the trainees will be asked to apply theoretical and practical knowledge acquired through all training modules and work based learning in an interactive and reflective manner.

To pass the assessment, the learner needs to reach a minimum of 70%. All trainees that conclude the course successfully, will be awarded with certificates.

The results of the assessment of the modules and the final case study will be documented and can be used as a personal portfolio of learning outcomes on behalf of the trainees.

3.3 How to Assess Learning and Performance in BioS project

The goal of assessment is to improve training results. It involves many aspects of learning that cannot be measured by grading.

Learning must be assessed through performance: Learners must show what they can do with what they have been trained. Assessing students' performance can involve assessments that are formal or informal, high- or low-stakes, anonymous or public, individual or collective.

Some suggestions and strategies for assessing learning through performance are:

- Concept maps. Graphic representations of learner's knowledge. Usually they consist of circles or boxes which include concepts indicated by a connecting line. It is a way to develop logical thinking and study skills by revealing connections and it can be a useful strategy for assessing both the knowledge learners have, coming into a program or course and their developing knowledge of course material.
- CATs (Classroom Assessment Techniques). Set of specific activities that can be used to assist learners' understanding. They can provide immediate feedback about the level of understanding. There are different types of CATs such as: minute paper, muddiest point, problem recognition tasks, student-generated test questions.
- Creating assignments. Specify what the learners have to know and what they could do that would show that they have learned it.
- Creating exams. Essay questions, multiple choice questions or problem sets could be an option for the exam format, depending on the target of learning.
- Concept texts. Short, informal, targeted tests during the class, which can show immediately if the learners understand key concepts.
- Using rubrics. A rubric is a scoring guide used to evaluate the quality of students. Rubrics can be used to provide feedback to students on diverse types of assignments, from papers, projects, and oral presentations to artistic performances and group projects.

This table presents examples of the kinds of activities that can be used to assess different types of learning objectives (adapted from the revised [Bloom's Taxonomy](#)²).

Table 2: Examples of activities

Type of Learning Objective	Examples of Appropriate Assessments	Learning Outcomes (Obtained skills)
Recall Recognize Identify	Objective test items such as fill-in-the-blank, matching, labeling, or multiple-choice questions that require students to: <ul style="list-style-type: none"> • recall or recognize terms, facts, and concepts 	Module 1 <ul style="list-style-type: none"> • Identify the active site of an HIV Serine protease (or of any other structurally characterized enzyme) Genome browsers and sources of gene expression data Module 2 <ul style="list-style-type: none"> • Choose appropriate statistical tests • Select appropriate genetic tests for a given clinical situation
Interpret Exemplify Classify Summarize Infer Compare Explain	Activities such as papers, exams, problem sets, class discussions, or concept maps that require students to: <ul style="list-style-type: none"> • summarize readings, films, or speeches • compare and contrast two or more theories, events, or processes • classify or categorize cases, elements, or events using established criteria • paraphrase documents or speeches • find or identify examples or illustrations of a concept or principle 	Module 2 <ul style="list-style-type: none"> • Interpret statistical graphs Module 3 <ul style="list-style-type: none"> • Select appropriate genetic tests for a given clinical situation • Interpret reports from different genomics services Module 4 <ul style="list-style-type: none"> • Communicate risk information to patients in understandable and compassionate ways

²<https://tips.uark.edu/using-blooms-taxonomy/>

		<ul style="list-style-type: none"> • Help patients make informed decisions of treatment or non-treatment of discovered diseases
Apply Execute Implement	<p>Activities such as problem sets, performances, labs, prototyping, or simulations that require students to:</p> <ul style="list-style-type: none"> • use procedures to solve or complete familiar or unfamiliar tasks • determine which procedure(s) are most appropriate for a given task 	<p>Module 2</p> <ul style="list-style-type: none"> • Install R, RStudio, and selected related statistical software packages and use them • Perform simple statistical analyses using software tools <p>Module 3</p> <ul style="list-style-type: none"> • Access and study genetic variant data from on-line databases; <p>Module 4</p> <ul style="list-style-type: none"> • Give genetic counseling
Analyze Differentiate Organize Attribute	<p>Activities such as case studies, critiques, labs, papers, projects, debates, or concept maps that require students to:</p> <ul style="list-style-type: none"> • discriminate or select relevant and irrelevant parts • determine how elements function together • determine bias, values, or underlying intent in presented material 	<p>Module 1</p> <ul style="list-style-type: none"> • Gather information on selected genes and proteins using tools such as BLAST, UniProt, and PDB • Compare biological sequences through multiple sequence alignment • Find information of known genome variants associated to desired genes • Visualize genomic data in a genome browser • Find and visualize functional genome annotations and metabolic pathway information <p>Module 2</p> <ul style="list-style-type: none"> • Organize and perform a data analysis project of biomedical data <p>Module 3</p> <ul style="list-style-type: none"> • Read reports of patient sequence variant analyses
Evaluate Check	<p>Activities such as journals, diaries, critiques, problem sets, product reviews, or studies that require students to:</p>	<p>Module 2</p> <ul style="list-style-type: none"> • Assess statistical significance

Critique Assess	<ul style="list-style-type: none"> test, monitor, judge, or critique readings, performances, or products against established criteria or standards 	<ul style="list-style-type: none"> Evaluate if appropriate statistical test is used in an analysis <p>Module 3</p> <ul style="list-style-type: none"> Assess the reliability of information sources used in different genomic services
Create Generate Plan Produce Design	<p>Activities such as research projects, , or set designs that require students to:</p> <ul style="list-style-type: none"> make, build, design or generate something new 	<p>Module 2</p> <ul style="list-style-type: none"> Create and handle graphs from an analysis

4. Knowledge, Skills and Competence Gained per Module

Module 1: Introduction to Bioinformatics

EQF Level: 5, Hours: 40, Credits: 4

Key technical outcomes:

- Retrieve information and data regarding specific genes and proteins which could be chosen as candidate genes for a disease.
- Visualize genomic features and perform simple analysis on them using Internet based tools.

Knowledge:

After completing this module, the learner will know and understand:

- The relevance of biological sequences for health and diseases
- Basic terms related to sequence handling
- Medical relevance of sequence annotation
- List of available databases and other Internet resources
- Functional Genome Annotation and Metabolic Pathways

Skills:

After completing this module, the learner should be able to:

- Gather information on selected genes and proteins using tools such as BLAST, UniProt, and PDB
- Compare biological sequences through multiple sequence alignment
- Identify the active site of an HIV Serine protease (or of any other structurally characterized enzyme) Genome browsers and sources of gene expression data
- Visualize genomic data in a genome browser

- Find information of known genome variants associated to desired genes
- Find and visualize functional genome annotations and metabolic pathway information

Competence:

After completing this module, the learner:

- Is aware of the power of modern high-throughput sequencing methods and applies sequencing data to improve diagnostics of diseases with a suspected genetic component
- Uses up-to-date knowledge from databases of genes and proteins to support their estimates of the significance of genes suggested as contributors in a genetic disease
- When needed, considers protein structure in the interpretation of variant data
- Uses genomic tools routinely to get a quick, integrated view of data related to any gene as necessary
- Gains a knowledge-based, data driven view of every new disease-related gene they encounter

Module 2: Computational Statistics for Clinical Doctors

EQF Level: 5, Hours: 40, Credits: 4

Key technical outcomes:

- Understanding key elements of modern statistical analysis.
- Using free software for statistical analysis of data from case studies.

Knowledge:

After completing this module, the learner will know and understand:

- Descriptive statistics, elements of probability, hypothesis testing, nonparametric methods, correlation analysis, and linear regression
- Elements of statistical reports
- Elements of the visualization of statistical data
- The role of R software in statistical analysis
- CRAN and Bioconductor

Skills:

After completing this module the learner should be able to:

- Choose appropriate statistical tests
- Perform simple statistical analyses using software tools
- Assess statistical significance
- Evaluate if appropriate statistical test is used in an analysis

- Interpret statistical graphs
- Install R, RStudio, and selected related statistical software packages and use them
- Organize and perform a data analysis project of biomedical data
- Create and handle graphs from an analysis

Competence:

After completing this module, the learner:

- Pays attention to statistical values associated with reports of sequencing data and its analysis reports
- Weights their decision-making in the light of the statistical uncertainty of each finding
- Is aware of the power and limitations of statistical analyses of biomedical data, especially of high-throughput sequencing data
- Requests custom-made analyses from professionals, knowing that efficient, simple, and free tools exist enabling almost any analysis they can think of, in an easy and cost-efficient way

Module 3: Commercial Personalized Genomics Services in Patient Care

EQF Level: 5, Hours: 40, Credits: 4

Key technical outcomes:

- Understanding the nature and role of single nucleotide polymorphisms (SNPs) and other genetic variants.
- Using variant analyses

Knowledge:

After completing this module, the learner will know and understand:

- Different levels of genetic and genomic variants
- Variant terminology
- Theoretical aspects of human genetics related to genomic variations
- Variant analyses within populations
- Diagnostic tools used for variant detection and analysis
- Types of available commercial personalized genomics services and other genetic tests
- Differences between their analysis methodology
- Principles of variant effect predictions

Skills:

After completing this module, the learner should be able to:

- Access and study genetic variant data from on-line databases

- Read reports of patient sequence variant analyses
- Select appropriate genetic tests for a given clinical situation
- Interpret reports from different genomics services
- Assess the reliability of information sources used in different genomic services

Competence:

After completing this module, the learner:

- Considers carefully the contribution of genetic variants for a given patient case
- Evaluates always if genetic variant analyses are needed and appropriate;
- Uses personal genomic reports to gain a better understanding of patient's health status;
- Applies available research knowledge for personalizing patient treatment and/or preventive measures.

Module 4: Quality Improvement in Healthcare

EQF Level: 5, Hours: 10, Credits: 2

Key technical outcome:

- More efficient communication of disease risks related to genetic testing

Knowledge:

After completing this module the learner will know and understand:

- Concepts related to disease risk assessment
- Ethical issues related to genetic testing
- Tools to support communication

Skills:

After completing this module the learner should be able to:

- Communicate risk information to patients in understandable and compassionate ways
- Help patients make informed decisions of treatment or non-treatment of discovered diseases
- Give genetic counseling

Competence:

After completing this module, the learner:

- Identifies and addresses the differences in patients' values, preferences and expressed needs
- Aims at a coaching culture that supports consistent exceptional care and service

5. Accreditation Framework

5.1 General

In many European countries the training of careers guidance practitioners is not formally established and based mostly on non-formal and informal learning; a comprehensive system of qualification is lacking; where existing, qualifications are not comparable between different countries. The development and implementation and adoption at European level of a framework for accrediting people delivering career guidance, could substantially contribute to the improving of the sector.

Accreditation is a third-party evaluation and demonstration of competence. It is the assessment of independence, objectivity and competence of an entity for the performance of defined activities. Accreditation means increased confidence in the observance of required level of quality of the provided services. Accreditation is a public authority activity and it is considered as the last level of public authority control. The purpose of accreditation is to provide an authoritative statement of the competence of a body to perform conformity assessment activities. Consumers, businesses, regulators and other organizations all over the world looking forward to be able to trust and have confidence in the goods and services they purchase and use. As a consequence, there has been a growth in specified national and international standards for products, processes and services. When applied correctly, these can make life safer, healthier and easier for everyone and can enable effective communication and trade, while allowing resources to be used more efficiently. Organizations that check conformity and compliance against standards must have the technical competence and integrity to carry out these assessment services.

5.2 BioS Approach

Accreditation for BioS can be a type of quality assurance process where operations will be evaluated by an external body in order to ensure the recognition of the validity of training in Computational Biology across the market and government structures against applicable standards in certain domains. If these are met, accredited status is granted by the appropriate authority. Whether BioS will be accredited at national level or at partner level or by a pan-European body, this is a clear decision of the consortium. It should be borne in mind, however, that the implementation of ECVET is also foreseen in BIOS. Any accreditation and certification scheme, if selected, should clearly show how ECVET will be applied in parallel or complementary. Below, indicative domains are depicted:

- Context of training and education

Education providers have organisational governance as well as operational governance structures related to training and education. These structures should be such that the education provider has adequate resources and autonomy to manage and deliver training and education functions. The structures responsible for designing and delivering the curricula of BioS program on Computational Biology should involve experts with related knowledge and expertise. Moreover, these structures should be aware about the local and national needs in health care delivery, the national health priorities and the regulatory requirements. The education provider regularly reviews its structures, its training and education functions to meet changing needs and evolving best practices.

While the education provider sets the educational requirements for completion of the BioS special program, trainees (medical specialists' in our case) are also part of the training and service delivery system of the health service that employs them. Effective management of specialists' programs requires education providers to understand the intersection of their policies and the requirements of the employer and the implications for specialists' medical training and education.

- Outcomes of training and education

The education provider develops and maintains a set of outcomes for the BioS special program taking into account medical and health practice and relates its training and education functions to the health care needs of the communities it serves. These outcomes are based on the field of specialty practice and the specialists' role in the delivery of health care and describe the attributes and competencies required by the specialists in this role. The education provider has a framework for the curriculum organised according to the defined program and its outcomes.

- Teaching and learning

The specialists' program employs a range of teaching and learning approaches, mapped to the curriculum content to meet the program and graduate outcomes. It is expected that, predominantly, training and education will be a balance of work-based experiential learning, independent self-directed learning and appropriate supplementary learning experiences. While much of the learning will be self-directed learning related to program and graduate outcomes, the trainee's supervisors will play key roles in the trainee's education.

- Assessment of learning

Assessment includes both summative assessment for judgements about progression, and formative assessment, for feedback and guidance. Formative assessment has an integral

role in the education of trainees as it enables the trainee to identify perceived deficiencies, and the supervisor to assist in timely and effective remediation. It also provides positive feedback to trainees regarding their attainment of knowledge, skills and professional qualities. Assessment should actively promote learning that will assist in achieving the educational outcomes.

- Monitoring and evaluation

The education provider regularly reviews its training and education programs. Its review processes address curriculum content, teaching and learning, supervision, assessment and trainee progress. The education provider develops standards against which its program and graduate outcomes are evaluated. The education provider reports the results of monitoring and evaluation through its governance and administrative structures.

- Trainees

The education provider has clear, documented selection policies and principles that can be implemented and sustained in practice accompanied with formal processes and structures that facilitate and support the involvement of trainees in the governance of their training. Education providers are expected to interact with their trainees in a timely, open and transparent way. To this end, they should have mechanisms to inform prospective and enrolled trainees of training policies and processes. The education provider promotes strategies to enable a supportive learning environment and support trainees in addressing problems with training supervision and requirements, and other professional issues.

- Delivery of program and training sites

The education provider ensures that there is an effective system of supervision to support trainees to achieve the program and graduate outcomes and has a clear process and criteria to assess, accredit and monitor facilities as training sites.

5.3 National accreditation framework

The accreditation process, on national level, for the countries participating in the BioS project is provided below:

Table 3: National accreditation framework

Country	Accreditation authorities	Current status of relevant certification and accreditation schemes and procedures	Alignment of the BioS training with NQF	Opportunities for the accreditation of the BioS training course	Recommended Actions for the accreditation of the BioS training course
Belgium	National Institute for Health and Disability Insurance (INAMI)	EQF/ECVET/EQAVET	NQF aligned with EQF	The accreditation of the BioS training course can be obtained through an application to the National Institute for Health and Disability Insurance.	<p>Online Request for accreditation for continuing education (before the date on which the training will take place)</p> <p>It will be submitted for evaluation to the "Ethics and Economics" working group or to a joint committee and then to the Accreditation Steering Group.</p> <p>The application should clearly describe:</p> <ul style="list-style-type: none"> the content of the training the speaker (s) and moderator (s) who will lead the continuing education activity the identity of the responsible physician. <p>Point of attention</p> <p>The independence of the organizer must also be guaranteed, and the objective of the training cannot be to serve commercial interests. Therefore, the training cannot be organized by commercial companies.</p>

<p>Cyprus</p>	<p>Cyprus Agency of Quality Assurance and Accreditation in Higher Education (CYQAA)</p>	<p>EQF/ECVET/EQAVET</p>	<p>NQF aligned with EQF</p>	<p>The accreditation of BioS training course can be obtained through the Cyprus Agency of Quality Assurance and Accreditation in Higher Education. The necessary forms must be filled and submitted to the agency. The BioS project must be described in a model that states its content, input, process, output and evaluation.</p>	<p>A step by step methodology must be described in a model prior to the accreditation procedure.</p> <p>BioS General Profile -PLANNING</p> <p>BioS Content – PROCEDURE</p> <p>Description of the training course - IMPLEMENTATION</p> <p>Modules description and final assessment -IMPLEMENTATION</p> <p>Quality assurance – RESULT</p> <p>Final evaluation of the project – RESULT</p> <p>Among this information, the necessary forms must be filled out and submitted to the agency. A certain cost comes with the type of qualification that this training course provides.</p>
<p>Germany</p>	<p>ACQUIN - Accreditation, Certification and Quality Assurance Institute</p>	<p>The BioS training course implements EQF/ECVET and EQAVET principles. The quality assurance of the delivery of the results of BioS training material is hence based on EQAVET.</p>	<p>NQF level 5</p>	<p>The accreditation could be obtained in Germany via the accreditation authority ACQUIN. The course can then be integrated at the Steinbeis Academy of the Steinbeis University Berlin as an advanced training course.</p>	<p>BioS consortium submits its certification application to ACQUIN</p> <p>BioS concludes a contract with ACQUIN</p> <p>ACQUIN checks self-documentation and forwards it to its expert committee</p> <p>ACQUIN appoints the expert group</p>

					<p>BioS has the possibility to object the appointment of individual experts in justified cases</p> <p>ACQUIN creates the evaluation schedule (documentation, on-site visit, telephone conference) and prepares the experts</p> <p>Expert group reviews the self-documentation, evaluation, draws up of the expert report with a certification recommendation</p> <p>ACQUIN finalises the expert report in consultation with the expert group and submits the report to BioS</p> <p>BioS has the possibility to comment on the expert report</p> <p>Expert committee gives a statement on the report and the comments received by BioS</p> <p>ACQUIN takes decision on the basis of the expert report, the comment of BioS and the expert committee whether to grant</p> <p>Certification without conditions, Certification with conditions or rejection of certification</p> <p>ACQUIN informs BioS about their decision.</p>
Greece	National Organization for the Certification of Qualifications and	Bioinformatics-related undergraduate and postgraduate courses which do not need further	NQF level 5: Training at a vocational upper-secondary school	An application should be submitted to EOPPEP in order the training course to be accredited	In order to achieve the accreditation of the BioS training course we should rely on the required professional qualifications, (as foreseen by the new law).

	Vocational Guidance (EOPPEP)	accreditation since they are provided by public universities.	(EPAL), followed by apprenticeship and accreditation Training at an Institute of Vocational Training (IEK), followed by accreditation Training at higher professional schools (non-university tertiary training)		According to the new law (4547/2018) all vocational training programmes should be accredited by EOPPEP, starting from 1/1/2019. The procedure to be followed will be announced.
Italy	Health Ministry - Ministero del la Salute National Council for continuous training (nominated by Health Ministry) Regional authorities	ECM (Educazione Continua in Medicina – Continuous Training in Medicine)	NQF level 5	GGallery Health	<ol style="list-style-type: none"> 1. Training contents and training mode details (duration, clarification of online/live training session) should be defined and clear to start the accreditation process. 2. Clarify potential involvement of new partner from Italy in the light of withdrawal of GOC as well as the potential budget lines 3. Settle a online call with GGallery to exploit limits and opportunities for their collaboration 4. Define training course features for ECM accreditation process with formal required documentation: need point 1 to be completed but it should be smooth as the documentation seems in line with EQF standards

<p>Portugal</p>	<p>Portuguese Medical Association (Ordem dos Médicos)</p> <p>Portuguese Nurses Association (Ordem dos Enfermeiros)</p> <p>National Agency for the Qualification and Vocational Training (Agência Nacional para a Qualificação e o Ensino Profissional) – is the legal institution in charge for VET. The accreditation authorities for VET providers are the General Direction of Education (Direção Geral de Educação) – and the Directorate-General for Employment and Industrial Relations (Direção Geral do Emprego e das Relações do Trabalho.)</p>	<p>The application for the accreditation of continuous training must be submitted directly to the Bastonary (chairman of the Portuguese Medical Association), containing all information about the training course. Training is usually accredited to higher education and research on health with highly specialized scientific knowledge.</p> <p>The process of accreditation of training by the Portuguese Nurses Association obeys to a specific Regulation of Accreditation and Allocation of Credits to Training Activities, which is applied to activities as well as to technical-scientific events.</p> <p>Considering that BioS training course is structured as modules of continuous training targeted to specific professionals, it doesn't make too much sense to request the accreditation to National Agency for the</p>	<p>The Portuguese system is currently aligned with EQF, ECVET and EQAVET systems.</p>	<p>According to what has already been exposed, the accreditation in Portugal will imply the request to Portuguese Medical Association and to Portuguese Nurses Association.</p>	<p>BioS training course is proposed to be credible and encourage openness and motivation to the medical community. Its accreditation could be requested to the entities that regulate the continuous training of physicians and related health professions.</p>
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		Qualification and Vocational Training.			
Spain	Department d'Educació of the Government of Catalonia	<p>The Spanish Ministry of Education and Vocational Education (http://www.educacionyfp.gob.es/en/portada.html) is responsible for non-university education policy, curriculum design, assessment of schools' performance, management of public and subsidized private schools.</p> <p>The Catalan Ministry of Education defines and adopts the regulated studies curricula.</p> <p>The Royal Decree 686/2010, of May 20, establishes the academic degree of "Senior Technician in Web Applications Development" and establishes the minimum curricula to acquire it.</p> <p>The BioS degree in Advanced VET studies is a curricular adaption of the degree called "Desenvolupament d'aplicacions web" (Web Applications Development) regulated by the Decree 199/2915, of September 15.</p>	NQF 5	<p>The Catalan Ministry of Education (Departament d'Educació) offers a general system in order to recognize degrees that students acquire in other countries. General information is provided here: http://queestudiar.gencat.cat/es/homologacio</p>	There is not a special way to accredit BioS training courses or degrees.

