

Bio-FIT Qualification Passport (Bio-FIT QP)



ERASMUS+ PROGRAMME

**KEY ACTION 2: COOPERATION FOR INNOVATION AND
THE EXCHANGE OF GOOD PRACTICES**



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What is Qualification?

Qualification can be defined as capacity, knowledge, or skills that match or suit an occasion, or make someone eligible for a responsibility, position, privilege, or status.

Qualification denotes ‘fitness for purpose’ through fulfillment of necessary conditions such as attainment of a certain age, taking of an oath, completion of required education / training, or acquisition of a degree or a certificate. Qualification does not necessarily imply competence.

In Bio-FIT project, the definition for qualification complies with the requirement for completion of a certain training and acquisition of a relevant qualification document.

What is the function of qualification?

Qualifications and credits awarding

The interrelations between qualifications and the credits awarding are based on the assumption that qualifications and units can be recognized by awarding credits. Since each unit has a credit value and the credits can be transferred, the trainees have the ability to accumulate credits and get qualifications at their own pace. Additionally, each unit fits a definite EQF level (from Entry Level to Level 8). Using the academic context as a background, one credit roughly equals 10 learning hours, which allows the learners to evaluate how much time they will need to gain the desired qualification.

Bio-FIT project proposes Qualification Awarding System (Bio-FIT QAS) that envisages upon completion of Bio-FIT training programme, trainees to gain two types of qualifications:

- [Awards](#). To get an award a trainee has to have 1 to 13 credit points which equals 10 to 120 hours of learning.
- [Certificates](#). Certificates are given upon acquisition of 14 to 30 credits (130 to 300 hours).

The two types of qualification can be given at any level of difficulty, specified by the training programme (5, 6 or 7). This is due to the fact that these documents reveal the size of the qualification and not its difficulty level. The latter is indicated by the title of the qualification, which also reveals the size of the qualification and its subject.

The Bio-FIT training programme, offered as Learning Outcomes based Learning Pathways (LPs) encompasses the following framework of Credit points (Tables 1 and 2).

Table 1. Bio-FIT ULOs and their relevant Credit points in respect to knowledge and leaning approaches.

| Units of LOs | Arrangement | Credit Points | Total CP |
|--------------|---|------------------|-----------|
| ULO1 | LO1: Why biofertilizers? | 2 | 8 |
| | LO3: Common used bio-fertilizers | 3 | |
| | LO6: Quality control of biofertilizers | 3 | |
| ULO2 | LO2: Trends in biofertilizers production | 2 | 5 |
| | LO5: Production of biofertilizers | 3 | |
| ULO3 | LO4: Nano-fertilizers and genetically engineered microbes | 3 | 3 |
| ULO4 | LO8: Crop response to biofertilizers | 3 | 3 |
| ULO5 | LO7: Application of biofertilizers | 3 | 5 |
| | LO9: Bio-fertilizers application for sustainable economic development - advantages and constraints | 2 | |
| ULO6 | LO10: Bio-fertilizers technology – awareness, marketing and future perspectives for sustainable development | 2 | 4 |
| | LO12: Bio-fertilizers Market Size | 2 | |
| ULO7 | LO11: EU policies in organic farming | 2 | 2 |
| | | Total CP: | 30 |

Table 2. Bio-FIT LPs in respect to VET Occupational Profiles and types of qualification.

| VET Occupational Profiles | EQF | ULOs | LOs | Points | Type of qualification |
|--|----------|------|--|-----------|-----------------------|
| VET specialists in Agriculture, Forestry, and Fishery - Agronomy | 7 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 14 | Certificate |
| | | ULO3 | LO4: Nano-fertilizers | | |
| | | ULO4 | LO8: Crop response to biofertilizers | | |
| VET specialists in Biology, botany, zoology and related professions | 6 | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | 11 | Award |
| | | ULO3 | LO4: Nano-fertilizers | | |
| | | ULO4 | LO8: Crop response to biofertilizers | | |
| VET specialists in Chemistry | 7 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 15 | Certificate |
| | | ULO4 | LO8: Crop response to biofertilizers | | |
| | | ULO6 | LO10: Bio-fertilizers technology – awareness, marketing and future perspectives for sustainable development LO12: Bio-fertilizers Market Size | | |

| VET Occupational Profiles | EQF | ULOs | LOs | Points | Type of qualification |
|--|----------|-------|--|-----------|-----------------------|
| Agricultural technicians | 5 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 13 | Award |
| | | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | | |
| VET specialists in Environmental protection | 7 | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | 16 | Certificate |
| | | ULO5 | LO7: Application of biofertilizers LO9: Bio-fertilizers application for sustainable economic development - advantages and constraints | | |
| | | ULO 6 | LO10: Bio-fertilizers technology – awareness, marketing and future perspectives for sustainable development LO12: Bio-fertilizers Market Size | | |
| | | ULO 7 | LO11: EU policies in organic farming | | |
| Farming advisers | 6 | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | 13 | Certificate |
| | | ULO3 | LO4: Nano-fertilizers | | |
| | | ULO4 | LO8: Crop response to biofertilizers | | |

| VET Occupational Profiles | EQF | ULOs | LOs | Points | Type of qualification |
|--|----------|------|--|-----------|-----------------------|
| | | ULO7 | LO11: EU policies in organic farming | | |
| Agricultural inspectors | 6 | ULO3 | LO4: Nano-fertilizers | 13 | Award |
| | | ULO4 | LO8: Crop response to biofertilizers | | |
| | | ULO5 | LO7: Application of biofertilizers LO9: Bio-fertilizers application for sustainable economic development - advantages and constraints | | |
| | | ULO7 | LO11: EU policies in organic farming | | |
| Vocational education teachers | 7 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 15 | Certificate |
| | | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | | |
| | | ULO7 | LO11: EU policies in organic farming | | |
| Production managers in agriculture and forestry | 7 | ULO2 | LO2: Trends in biofertilizers production LO5: Production of biofertilizers | 16 | Certificate |
| | | ULO5 | LO7: Application of biofertilizers LO9: Bio-fertilizers application for sustainable economic development - advantages and constraints | | |
| | | ULO6 | LO10: Bio-fertilizers technology – awareness, marketing and future perspectives for sustainable | | |

| VET Occupational Profiles | EQF | ULOs | LOs | Points | Type of qualification |
|--------------------------------|----------|-------|--|-----------|-----------------------|
| | | | development LO12: Bio-fertilizers Market Size | | |
| | | ULO7 | LO11: EU policies in organic farming | | |
| Economists, agriculture | 5 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 12 | Award |
| | | ULO6 | LO10: Bio-fertilizers technology – awareness, marketing and future perspectives for sustainable development LO12: Bio-fertilizers Market Size | | |
| Carrier adviser | 5 | ULO1 | LO1: Why biofertilizers? LO3: Common used bio-fertilizers LO6: Quality control of biofertilizers | 13 | Award |
| | | ULO 5 | LO7: Application of biofertilizers LO9: Bio-fertilizers application for sustainable economic development - advantages and constraints | | |

How is quality of units and qualifications ensured?

In order to be eligible all awarded qualifications have to meet certain regulatory requirements. This means that the whole process: developing of units, developing and accrediting qualifications, and awarding credits and qualifications, has to comply with the regulations of EQF/NQFs and ECVET. To operate in a proper way this process has to be assured by a unit databank that is constantly maintained and monitored by the organization(s) awarding the qualifications: Bio-FIT partnership. This unit databank offers the possibility, besides the model LPs, shown in table 2, additional ULOs to be taken by trainees in order they to upgrade an already gained Award to a Certificate.

Compliance of Bio-FIT QAS to EQF

Bio-FIT QAS covers VET and is based on awarding credit points, which reveal the size of the qualification and the system of levels (reference levels 5, 6 and 7), which indicates qualification's difficulty. It assumes the EQF approach that one credit point roughly represents 10 hours of learning. Bio-FIT QAS is jointly managed by the project partnership under the supervision of the Project Management Board.

The pathway to obtain Bio-FIT Vocational Qualifications

Vocational Qualifications

Vocational qualifications refer to work-related qualifications. They are designed to enable the learner to acquire knowledge and skills that are required by the national occupational standards (NOS) to be able to perform a particular job. A vocational qualification gives the learner a proof that he or she is adequately trained for a particular workplace once the programme is completed, especially if holding an occupational vocational qualification. The latter guarantees that the held qualification complies to the national occupational standards (NOS) for a particular job or sector.

The accredited vocational qualifications are designed to help the learner acquire the necessary knowledge and skills for a particular job, progress in workplace or continue education. They allow the learners to pursue learning or be promoted in their workplace as well.

Vocational qualifications have different levels, which can be related to EQF reference levels.

Vocational qualifications consist of units, each of which has a credit value that allows the learner to roughly predict how long he or she will need to achieve the desired qualification considering that one credit equals 10 hours of learning.

In addition to allowing the learners to acquire the necessarily knowledge and skills for a particular job, vocational qualifications also allow the learners to choose from a wide range of subjects.

Although work-related qualifications are very similar to other qualifications, they distinguish themselves for giving the emphasis on knowledge and skills that are sought after the most by the industry and employers.

Credit Points – Accumulation and Transfer

Credit points are the core of both the Bio-FIT QAS and EQF/ECVET. Both frameworks are based on units with each unit having a credit value and a level. One credit point represents about 10 hours of learning and since qualifications are awarded on basis of the amount of accumulated credit points, the learner can quickly determine how much time it will take to gain the desired qualification.

Credit points indicate the size of learning but they do not indicate its difficulty. That is why, credit points are used with level descriptors, which in turn reveal the difficulty of the qualification.

Both frameworks basically work the same when it comes to credit point accumulation and transfer.

Just as EQF, Bio-FIT QAS is designed to allow the learners to transfer their credit points. For example, a learner who wants to continue education or start a new learning programme therefore may not need to start all over again and repeat the learning he or she has already undertaken but simply continue the learning. The ability of credit transfer, however, does not mean that the accumulated credit points are automatically accepted by another learning institution or awarding body. How many and if any credits at all will be accepted depends on individual education institutions and of course, the acquired qualification and subject content. The decision depends primarily on relevance of the completed learning for the new programme. The more the two programmes are related the higher the chance of the entry or credit transfer being approved.

Level Descriptors

Bio-FIT QAS foresees awarding qualifications on the basis of achievement rather than the time of study completed. Because of this, level descriptors play the key role in the assessment of achievements required to be awarded certain type of qualification.

The Bio-FIT QAS encompasses 3 levels – Level 5 to Level 7. It works by awarding credit points and when a certain amount of credit points is gathered, the learner is awarded certain type of qualification. For example to gain a certificate, it is necessary to have 13 to 30 credits. Qualifications – awards and certificates can be

awarded at any of the three difficulty levels and they merely reveal the amount and not the difficulty of the programme completed. To describe the difficulty of the acquired qualification, level descriptors are used.

The main purpose of level descriptors is to allow the learners, awarding organisations, employers and the public to understand the range of knowledge and skills required to complete a particular level, similarly to those that were used in the EQF. Level descriptors indicate the outcome of learning and do not deal with the process of learning. Despite that, they are used as a guideline in the development of units in order to make sure that the learners' knowledge and skills at completion of a particular level meet the stipulated standards. The level descriptors thus indicate the learner's achievement at a particular level. They do not, however, indicate the learner's performance within the level.

According to Bio-FIT QAS, the level descriptors are used to indicate the following four outcomes at particular level:

- knowledge and understanding in regard to the subject
- intellectual skills
- professional skills
- wider competence

Just like in the EQF, the descriptors in the Bio-FIT QAS allow general comparison between the outcomes of different levels. The descriptors, however, do not reveal precise requirements for individual qualifications.

Bio-FIT qualification passport

Bio-FIT qualification passport is build up on the basis on gathering of documents that indicate a mastery of a set of applied knowledge, skills and wider competences of an individual who have completed training and acquired competence. It is foreseen as a place to store as well as a visual representation of official papers related to individual "assets" in the form of training, work experience, contributions, and special accomplishments.

Bio-FIT OP includes:

✓ Competence Award/Certificate + supplement; Competence Award/Certificate is issued by the training organization and indicating the stage of competence development the trainee has reached at a certain point in the training process. The document includes document's owner name, the training provider name and the date it is issued.

- ✓ Curriculum Vitae: EUROPASS standard

- ✓ Digital Competence certificates
- ✓ EUROPASS mobility
- ✓ Language competence certificates
- ✓ Transversal skills description
- ✓ Professional goals statement
- ✓ Other relevant certificates

For more information please see Part B (ppt presentation “Create your future”).

Conclusion

Bio-FIT QP is designed to help trainees to demonstrate the competences they have attained upon completion of defined Training Path. The offered set of documents offer information that can be used by the competent authorities responsible for Bioinformatics education to assess TP’s effectiveness in providing trainees with the knowledge, skills and wider competence upgrading/up-skilling his/her professional proficiency.

Bio-FIT QP can help trainers to mainstream the training process and focus it on those knowledge, skills and wider competence that will fit a target qualification.

Bio-FIT QP is designed to be useful for potential employers, since it provides an organized and well-selected information for an employee professional development, skills and experience revealing her/his accomplishments and capabilities. Thus, an employer can evaluate nominations for a target job position.

At last, but not least, Bio-FIT QP demonstrates the TP a trainee has taken and serves as a means of self-assessment indicating how specific and wider competencies are achieved. In this way it assists the trainee to decide about future professional/career prospects.

Annex 1. Key terms to be considered

Competences

In abroad sense “competence” means cognitive competences (knowledge), functional competences (skills) as well as social competences (behavior). Competence consists of three basic elements:

- **KNOWLEDGE:** acquisition, understanding and memorizing of specific content (theoretical considerations, facts, phenomena, postulates, concepts, etc.). The knowledge ensures ‘knows what ...’ and ‘knows how to ...’, i.e. ability to understand objects, events, situations, processes, structures, and to know how to operate with them.
- **SKILLS:** profession- and subject-specific directly related to a defined professional role. The skills ‘show how to ...’. The former represent a basis for professional upgrading and define individual potential. The job-related skills are applied as an indicator for individual differentiation, necessary in certain specific operations, typical for a given profession.
- **WIDER COMPETENCE:** general skills and attitudes, individually related to the process of learning, thinking and self-training; presentation in social life and at job.

Competence areas

A competence area comprises various forms of competences necessary for completing core work tasks in a certain occupational field. Based on core work tasks, a varying number of competence areas can be defined, depending on the complexity, range of activities or job opportunities within a certain occupation.

The process of developing competences

For each competence area, 8-9 steps of the competence development process are described. The nature of the competence area determines whether it makes sense to differentiate more or fewer steps of competence development. Therefore, no concrete number of steps can be pre-determined. As a consequence, this means that the steps only make sense within one single competence area, and that the numbers of steps of

competence development for one different competence area does not necessarily correspond to the steps for any other area. This “flexibility” of the steps also makes it possible to integrate already-existing descriptions of steps for competence development.

Description of competences development

The competences depend on a variety of characteristics and may be localized in different dimensions (e.g. in the degree of independence or the assessment of the complexity of a task). Those dimensions have to be expressed in relation to core work tasks.

The following principles have to be taken into account:

- The description of a step of competence development includes not only the degree or specification of one or more dimensions, but must be related to the work context.
- The description should not be restricted to competences that can be formulated analytically (e.g. part-competences, isolated tasks), yet cannot be identified in the work context.
- Exemplary dimensions:
 - Ability to perform independent work tasks;
 - Ability to deal with a certain complexity;
 - Ability to deal with quality standard demands;
 - Ability to deal with dynamic situations;
 - Ability to deal with in transparency.

Style of language used to describe competences

Use of complete sentences (e.g. “He/she is able to”).