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BIO-Save

Competence Catalogue

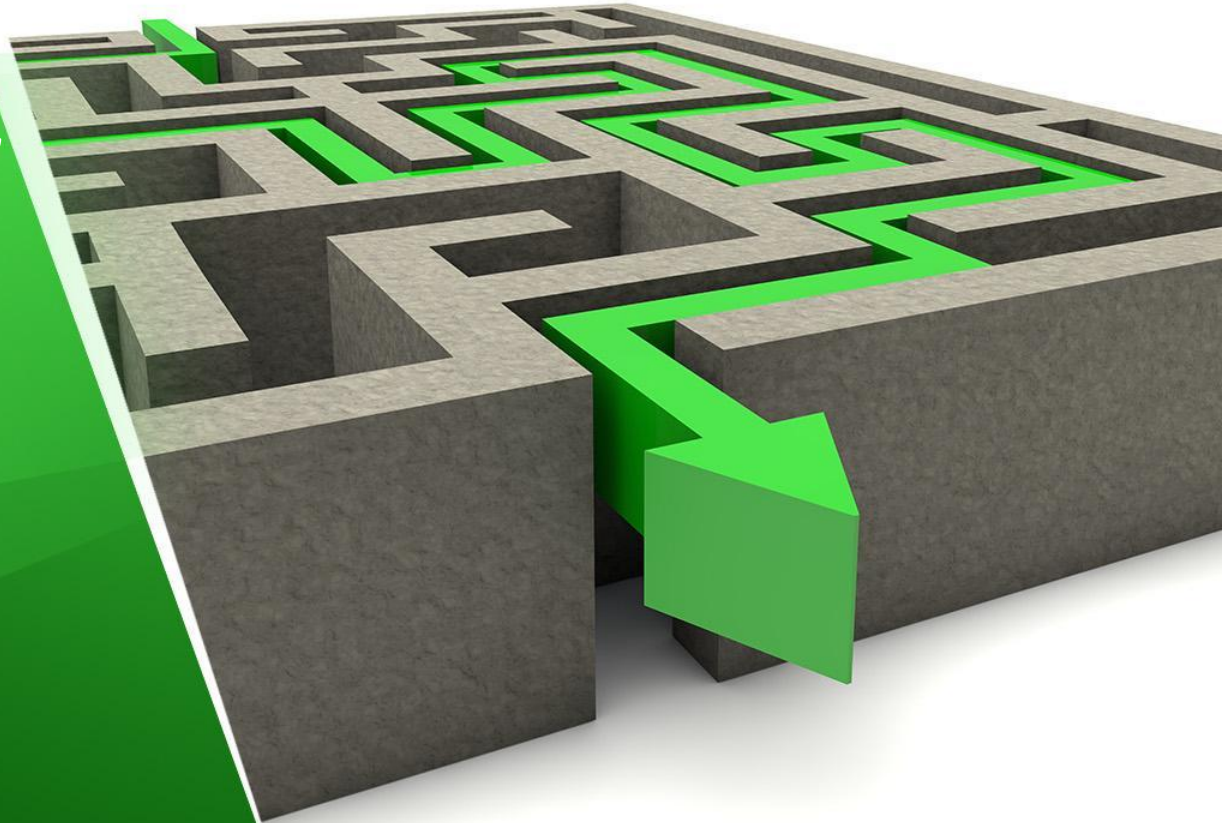
Part II

career profiles

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***BIO-Save career
profiles
in
Environmental
Engineering***





Qualification Dossier of

-
 - Owner's Name



General information about the owner of the dossier

- Full name:

.....

- Area of specialization:

-

.....

- **(Selected from BIO-Save project qualification list)**



Contact information

mail address

telephone

email address.....



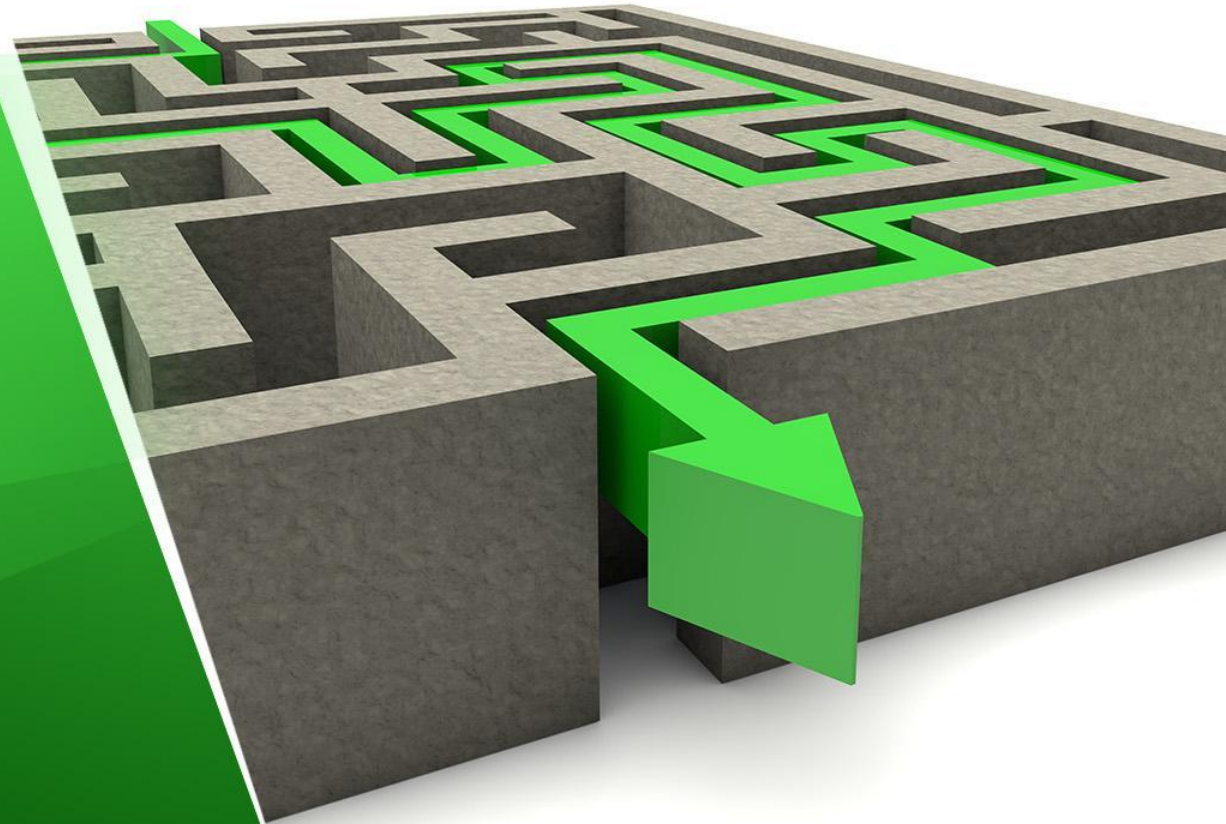
Professional CV EUROPASS

http://europass.cedefop.europa.eu/sites/default/files/cvtemplate_6.doc

Follow the instructions provided in the form above to provide information about your education completed, and work experience

BIO-Save
career profiles
In
Environmental
Engineering

For level EQF 6



BIO-Save Professional profiles

Environmental Engineering

EQF 6

Knowledge

Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles

Skills

Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study

Responsibility and autonomy

Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups



EQF 6

B.Sc. Degree Professional

Professional Profile for:	Ecologist - ESCO 2133.5
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Identify and develop solutions to environmental problems<input type="checkbox"/> Provide engineering and technical support to clean up air, water, and soil pollution<input type="checkbox"/> Inspect industrial and municipal facilities for operational effectiveness and ensure compliance<input type="checkbox"/> Gather data from a range of sources through site assessments, environmental monitoring and third party reports<input type="checkbox"/> Possess analytical mindset and good problem-solving skills<input type="checkbox"/> Collaborate and communicate with other disciplines, specialists and stakeholders<input type="checkbox"/> Provide assistance and job trainings<input type="checkbox"/> Perform outdoor studies
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Present technical knowledge and commitment to sustainable development<input type="checkbox"/> Develop more sustainable processes to prevent pollution<input type="checkbox"/> Highlight the link between energy and climate change, mitigation and adaptive strategies<input type="checkbox"/> Introduce technics for climate change mitigation and adaptation
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Work with information in a digital environment<input type="checkbox"/> Algorithmize and optimize environmental data<input type="checkbox"/> Understand the technical capabilities of modern digital devices and Internet technologies,<input type="checkbox"/> Work in office applications

EQF 6

Project manager

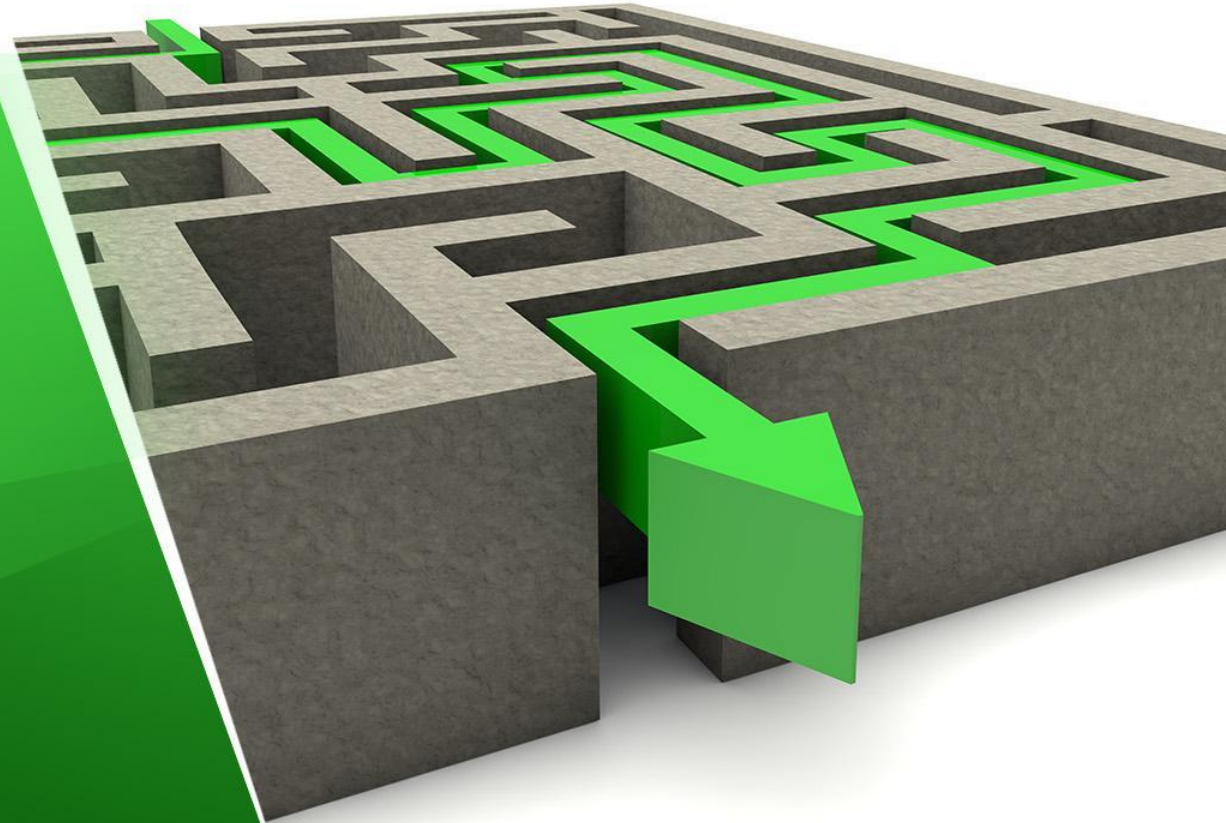
<i>Professional Profile for:</i>	Pipeline environmental project manager - ESCO 2133.10
General abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Present knowledge and skills in sustainability, environmental technology, biotechnology or related fields <input type="checkbox"/> Demonstrate experience in project development and management <input type="checkbox"/> Understand biotechnological techniques for bioremediation of land and water; waste treatment; soil conservation; reforestation; afforestation and land rehabilitation; GHG reduction technologies <input type="checkbox"/> Manage Climate Change Action Plan projects - from inception, co-ordination execution, monitoring, reporting and closure of projects <input type="checkbox"/> Lead (direct) multi-disciplinary professional teams, co-ordinate work and documentation, and engage with key stakeholders and partners <input type="checkbox"/> Analyze and manage project risk
Green abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Oversee the management of EU's climate targets to become carbon neutral by 2030 <input type="checkbox"/> Present in-depth knowledge of environmental and climate change related concepts, theories, policies and practices <input type="checkbox"/> Ensure that schemes are implemented in accordance with approved carbon reduction or environmental parameters
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Use various technologies as well as competency across the Google and Microsoft suites of software. <input type="checkbox"/> Demonstrate aptitude and willingness to quickly learn industry or project-specific software <input type="checkbox"/> Safely use of cloud-based collaboration tools like Google Drive, DropBox, and Microsoft Teams <input type="checkbox"/> Use of project management software and handle web-based management systems

Autonomy and responsibility

- ✓ Recognize, classify recall, and put in order
- ✓ Reflecting on the impacts of science and provide examples
- ✓ Determine, implement models
- ✓ Excellent observational skills specific skills
- ✓ Asking questions based on observation
- ✓ Accuracy in following procedures and keeping records
- ✓ Work with data
- ✓ Ability to manage time and prioritize tasks
- ✓ Interpersonal skills with ability to work well with others
- ✓ Ability to continually update knowledge in the specialist area

BIO-Save
career profiles
In
*Environmental
Engineering*

For level EQF 7



BIO-Save Professional profiles

Environmental Engineering

EQF 7

Knowledge

Highly specialized knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields

Skills

Specialized problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields

Responsibility and autonomy

Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams



EQF 7

M.Sc. Degree professional

Professional Profile for:	Bioengineer - ESCO 2149.5
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Recognize and assess the complex interrelationships between land/water/air<input type="checkbox"/> Evaluate the concepts of climate adaptation and mitigation (GHG reduction techniques)<input type="checkbox"/> Develop strategies and measures for environmental and climate protection<input type="checkbox"/> Understand the role of biological agents in main industrial and environmental biotechnology processes<input type="checkbox"/> Apply effectively innovative and sustainable environmental technologies<input type="checkbox"/> Work effectively in teams and in multi-disciplinary settings<input type="checkbox"/> Communicate with scientific stakeholders and practitioners
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Combine biology and engineering to develop and use processes for bioremediation of soil, water and sediments<input type="checkbox"/> Combine biology and engineering to develop and use processes for wastewater treatment<input type="checkbox"/> Apply biological processes to technology to create more sustainable ecosystems<input type="checkbox"/> Create cleaner industrial activities by replacing chemicals with biological processes<input type="checkbox"/> Design and adopt technologies, products, and processes to minimize carbon levels
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Practice scientific and technical skills such as modeling and interpreting climate change projections<input type="checkbox"/> Perform modelling using software-supported tools<input type="checkbox"/> Quickly learn industry or project-specific software

Environmental Health & Safety Professional

Professional Profile for:	Environmental expert - ESCO 2143.2
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Know and understand of health and safety issues associated with work in various environments<input type="checkbox"/> Ensure the health of the environment through biomonitoring, and genetic engineering<input type="checkbox"/> Stay up to date on environmental law<input type="checkbox"/> Enforce health and safety laws, regulations, laws and policies regarding health and safety inside and outside the facility.<input type="checkbox"/> Assess risks and identify hazards in the workplace to create a safe and healthy environment<input type="checkbox"/> Present time management skills, ability to multi-task and problem solve with ease<input type="checkbox"/> Run a reliable safety and health management program, ensuring good hygiene throughout the workplace
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Help to ensure climate change adaptation strategies, better anticipation, evaluation and control strategies of occupational hazards.<input type="checkbox"/> Tackle the complex work-related health challenges from climate change, environmental degradation, air pollution and extreme weather.
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Maintain records of the company's safe work procedures and events through digital technology.<input type="checkbox"/> Create and manage spreadsheets and online documents.<input type="checkbox"/> Use proficiently the of office IT applications

Biotech SME Manager

<i>Professional Profile for:</i>	Research and development product managers - ESCO 1223.1
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Show fundamental knowledge in Civil & Environmental Engineering, and Chemical and Environmental Biotechnology / Biomolecular Engineering<input type="checkbox"/> Demonstrate advanced experience in environmental biotechnology<input type="checkbox"/> Understand technically a biotechnological process combined with commercial and practical application<input type="checkbox"/> Present a multidisciplinary expertise on fundamentals of biotechnologies, bioprocess design and integral sustainability assessment<input type="checkbox"/> Develop and support collaborative and interdisciplinary research and enterprise opportunities<input type="checkbox"/> Perform excellent communication and demonstrate presentation and organizational skills
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Show awareness of using modern biotechnology to achieve better environmental protection and sustainability<input type="checkbox"/> Apply genomics, proteomics, bioinformatics, sequencing and imaging techniques to improve and protect climate chance<input type="checkbox"/> Develop microbial systems for environmental protection, bioremediation, and resource recovery<input type="checkbox"/> Develop new bio-based processes and materials<input type="checkbox"/> Offer green and sustainable alternatives to fossil fuels
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Know Microsoft Office Suite<input type="checkbox"/> Use proficiently office IT applications<input type="checkbox"/> Express willingness to quickly learn industry or project-specific software

In-company Training Professional

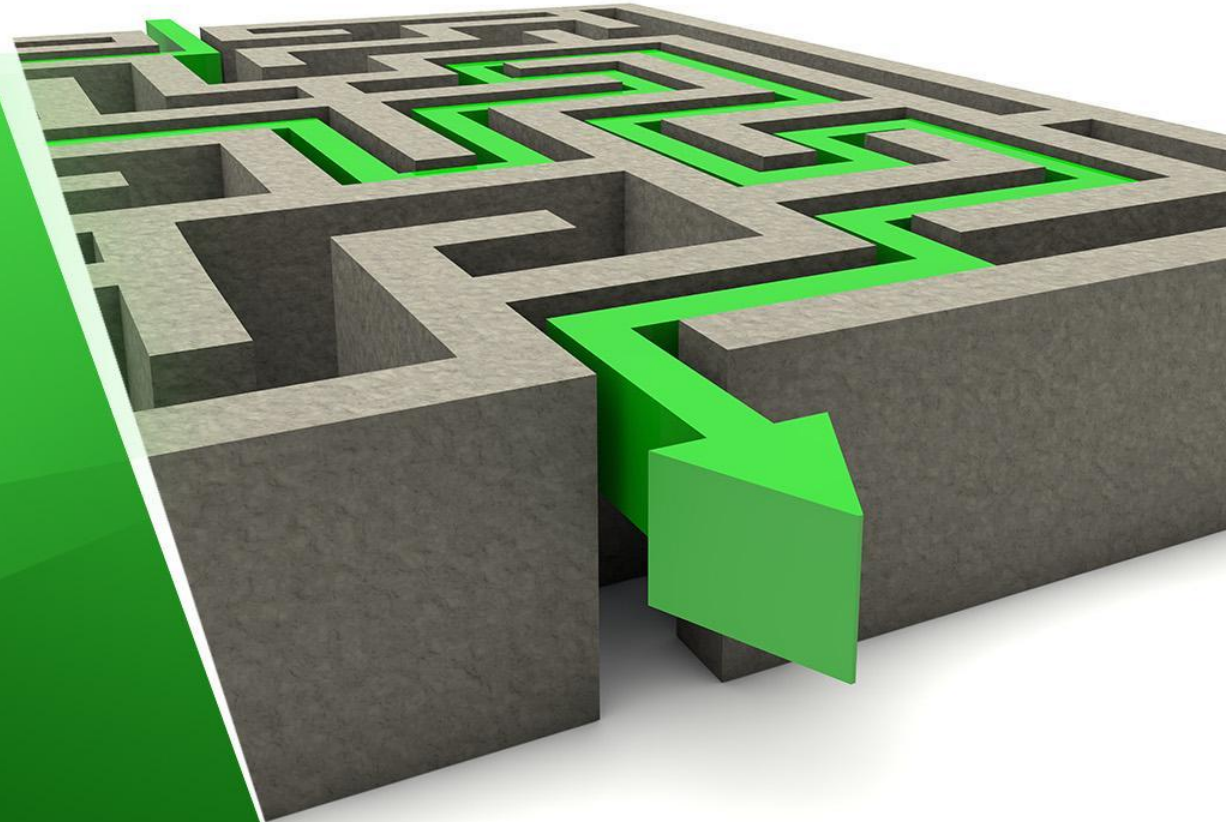
<i>Professional Profile for:</i>	Vocational Education Teachers - ESCO 2320
General abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate professional skills and fundamental knowledge on biotechnologies, bioprocess and sustainability assessment <input type="checkbox"/> Express qualified opinion in occupational and vocational education perspective <input type="checkbox"/> Select appropriate content, methods and material for training <input type="checkbox"/> Emphasize biochemical process engineering principles and state-of-the-art biotechnology production techniques <input type="checkbox"/> Provide opportunity to bring a more holistic approach to new and existing biotechnologies back to their companies
Green abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate basic science and technology awareness around issues like climate change, alternative energy, water risk and waste management and how this affects business decisions <input type="checkbox"/> Emphasize recent developments of biotechnology for harnessing microbial potential in environmental applications specific to company <input type="checkbox"/> Offer employees a broad sense of understanding on how modern biotechnology is developed to achieve better environmental protection and sustainability <input type="checkbox"/> Focus on case studies: Bioremediation, Carbon Storage and Capture, Bioenergy
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"> <input type="checkbox"/> Use software tools, such as word processing and spreadsheet programs <input type="checkbox"/> Apply web-based research and problem-solving skills <input type="checkbox"/> Perform data entry and handling <input type="checkbox"/> Express willingness to quickly learn industry or project-specific software

Autonomy and responsibility

- ✓ Compare/contrast, relate, and use models
- ✓ Compute, retrieve, measure
- ✓ Processing evaluating, interpret information, and explain
- ✓ Reasoning and argument/ Inquiring and Designing
- ✓ Generating evidence
- ✓ Intellectual energy and independent thinking to address questions through research
- ✓ Thorough attention to details
- ✓ Critical-thinking and analytical skills
- ✓ Problem-solving skills
- ✓ Skills and experience to work independently and manage own workload

BIO-Save
career profiles
In
*Environmental
Engineering*

For level EQF 8



BIO-Save Professional profiles

Environmental Engineering

EQF 8

Knowledge

Knowledge at the most advanced frontier of a field of work or study and at the interface between

Skills

The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice

Responsibility and autonomy

Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research



Ph.D.Degree professional

<i>Professional Profile for:</i>	Environmental engineer - ESCO 2143.10
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Develop more sustainable biotechnologies and bioprocesses<input type="checkbox"/> Use biotechnological methods for diagnosing and assessing environmental problems<input type="checkbox"/> Use biotechnological techniques for bioremediation of land and water and for waste treatment<input type="checkbox"/> Perform conceptual, mathematical, and computer-based system modelling<input type="checkbox"/> Implement Life-cycle Assessments (LCA) of biotechnological processes<input type="checkbox"/> Model and simulate selected biotechnological processes
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Implement sustainable production and zero emissions biotechnologies<input type="checkbox"/> Develop carbon-negative technologies<input type="checkbox"/> Develop of carbon capture and sequestration-based technologies<input type="checkbox"/> Enhance biofuel generation by genetic engineering<input type="checkbox"/> Perform techno-economic analysis (TEC) and Life Cycle Analysis (LCA) focused on biotechnology conversion of CO₂
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Work with information in a digital environment<input type="checkbox"/> Algorithmize and optimize environmental data<input type="checkbox"/> Use scientific and technical skills such as modeling and interpreting climate change projections<input type="checkbox"/> Perform modelling using software-supported tools

Academic professional

<i>Professional Profile for:</i>	University and Higher Education Teachers - ESCO 2310
General abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Demonstrate advanced knowledge in Civil Engineering, Environmental Engineering, Environmental Biotechnology or other relevant discipline<input type="checkbox"/> Apply strong academic background on biotechnological processes<input type="checkbox"/> Undertake independent research and have publications in high-quality international peer-review journals<input type="checkbox"/> Master excellence in undergraduate and/or postgraduate teaching in environmental biotechnology<input type="checkbox"/> Supervise BSc, MSc, EngD, and PhD students during their research projects and thesis
Green abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Possess experimental and/or computational research expertise in environmental biotechnology including synthetic biology, systems biology, and bioprocess engineering<input type="checkbox"/> Demonstrate specialized knowledge and skills on water treatment and reuse, emerging pollutant destruction, resource recovery, energy conversion and carbon capture<input type="checkbox"/> Make techno-economic analysis and life cycle analysis for the use of biotechnology for environmental purposes
Digital abilities (knowledge & skills)	<ul style="list-style-type: none"><input type="checkbox"/> Demonstrate digital literacy skills<input type="checkbox"/> Perform data analysis<input type="checkbox"/> Apply web-based research and problem-solving skills<input type="checkbox"/> Manage data entry and handling

Autonomy and responsibility

- ✓ Analyze, synthesize, formulate hypothesis
- ✓ Predict, design investigation, evaluate,
- ✓ Draw conclusions, generalize, justify
- ✓ Making an argument from evidence
- ✓ Answering research questions and investigating patterns
- ✓ Explain phenomena scientifically
- ✓ Evaluate and design scientific enquiry
- ✓ Creativity and initiative to develop new ideas
- ✓ Strong written and verbal communication skills
- ✓ Seeking to foster fruitful collaborations

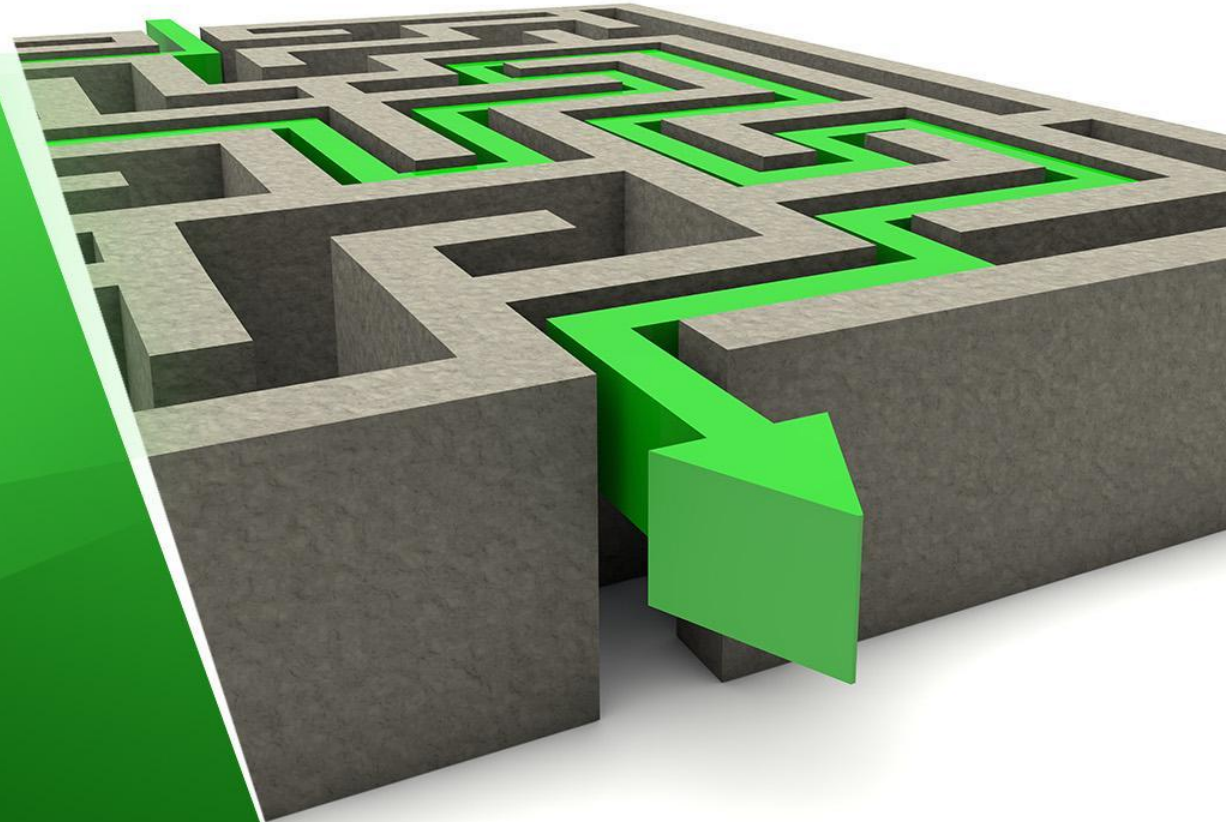
BIO-Save
Competence Catalogue

Part III

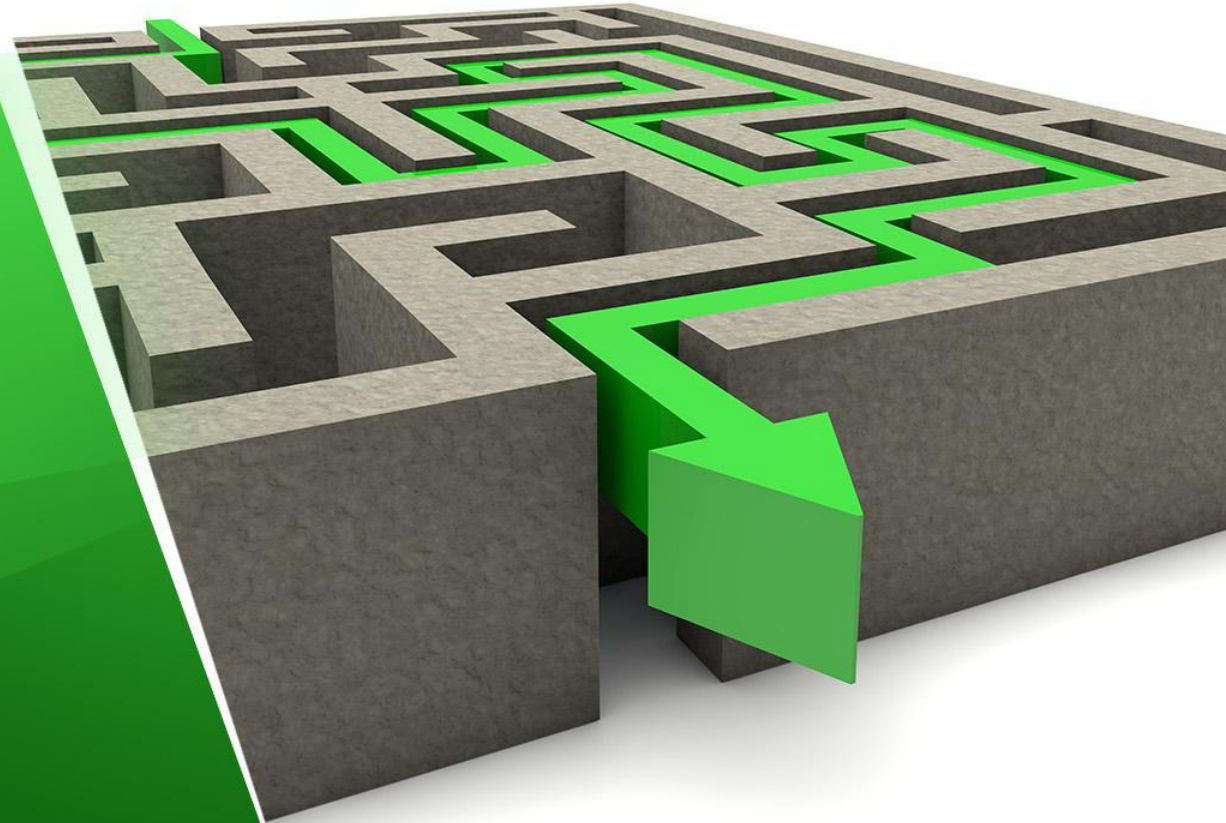
Competence records



*Environmental
Engineering*



**Knowledge & skills
gained through
BIO-Save learning
resources**



Carbon Sequestration

Upon completion of this course the graduate will be able to:

- To inform about the current situation of CO₂ emissions;
- To explain the term of carbon sequestration, biotic and abiotic processes of technological options of carbon sequestration;
- To give basic information about carbon capture and sequestration with biotechnology
- Emphasizing the importance of reducing the carbon footprint and pointing out the studies carried out in this framework;
- To support the educational concept and content with ppts, videos, and project work materials.

Reduction GHGs Emission

Upon completion of this course the graduate will be able to:

- To remind conventional and unconventional mitigation technologies;
- To discuss the need for new and innovative biotechnological applications for CC mitigation;
- To explain the basics/principles of biotechnological applications and methods used for GHGs reduction;
- To establish an introductory basement/ground for other LO;
- To support the educational concept and content with ppts, videos, and project work materials.

Addressing climate changes with ISO standards

Upon completion of this course the graduate will be able to:

- To introduce the ISO environment-related standards and how they address the climate change adaptation and mitigation;
- To explain how ISO standards are seen as essential to the greenhouse gas (GHG) markets, carbon neutrality, and low-carbon strategies and policies;
- To present the principles, requirements, and guidelines of *ISO14090 Adaptation to climate change* standard;
- To support the educational concept and content with ppts, videos, and project work materials.

**BIO-Save
Individual profile**

Create your Future here



Individual profile

✓ Skills in
.....
(BIO-Save Horizon)

✓ Competence in
.....
(BIO-Save Horizon)

✓ Experience in
.....
(BIO-Save Horizon)

- **Indicate**
the skills and competences
you have reached in the
current training

- **Present**
the Credit Points gained

Individual profile



Individual profile :

✓ *Experience in*

.....

(BIO-Save Horizon)

- *Provide any documents and evidence of experience in BIO-Save Horizon*
- *Provide a chronological list of any paid, volunteer, fieldwork, etc*

Individual profile



Individual profile :

- ✓ *Competence profile certificate (CPC)
(BIO-Save Horizon)*

Present the CPC you have been awarded on the basis of the individual profile(s) you have obtained upon completion of BIO-Save training programme

Digital Competence



- ✓ *Use the grid to assess your digital competence*
- ✓ *Describe your digital knowledge, skills and competence*
- ✓ *Provide Certificates that you have*

DIGCOMP self-assessment grid

<https://www.reactivatejob.eu/multimedia/uploads/documents/DigitalCompetences-en.pdf>

Language Competence



- ✓ *Use the grid to assess your linguistic competence*

Common European Framework of Reference for Languages – Self-assessment grid

[https://www.cedefop.europa.eu/files/europass - european language levels - self assessment grid.pdf](https://www.cedefop.europa.eu/files/europass_-_european_language_levels_-_self_assessment_grid.pdf)

- ✓ *Describe your language knowledge, skills and competence*
- ✓ *Provide Certificates that you have*

Individual profile



Other certificates:

- ✓ *Conferences*
- ✓ *Seminars*
- ✓ *Courses*

Provide: Honors or awards you received

Individual profile



Professional goals statement:

- ✓ *Describe your ideas for the tasks and mission realization and achievement of your goals*

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(max. one page or 500 words)