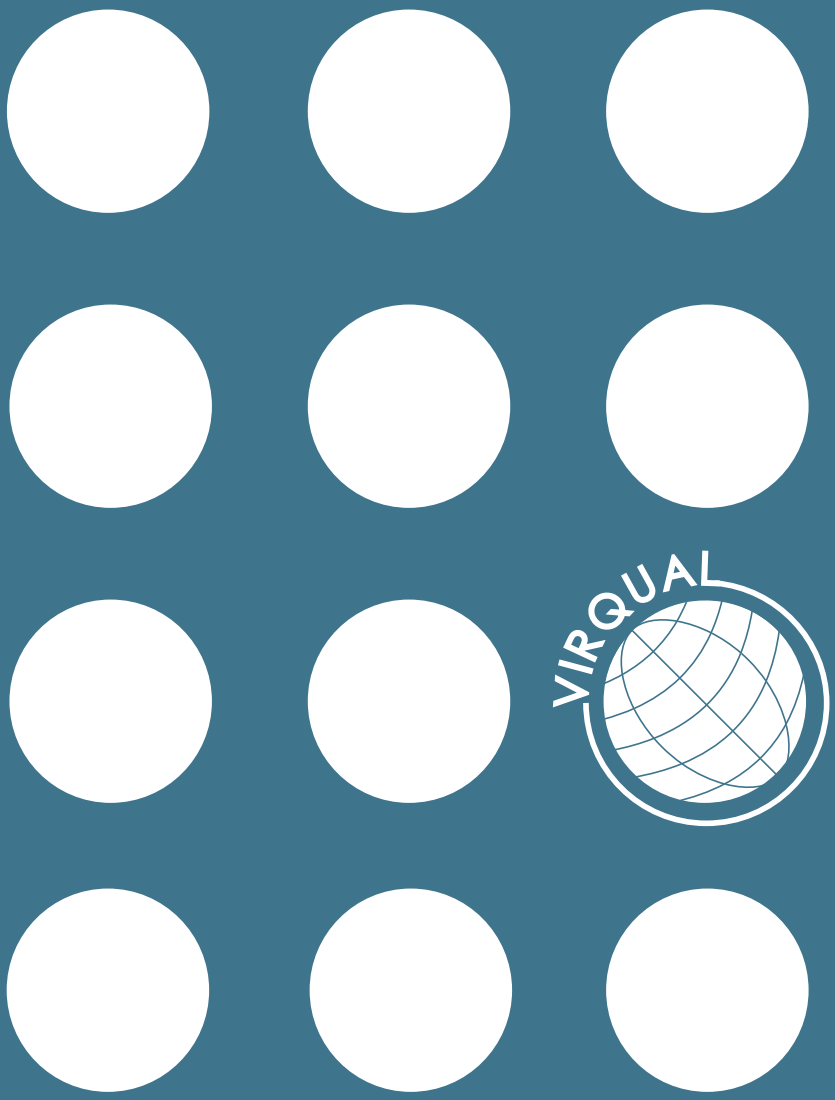


SIMPLE GUIDE FOR TEACHERS

VIRQUAL - SIMPLE GUIDE FOR TEACHERS

CONTENT

1. Target audience

Teachers and course designers from Higher and Continuing Education Institutions

2. Objective

Help teachers write learning outcomes (LOs) using the ILO database – Intended Learning Outcomes. LOs are very important for virtual mobility because they describe the skills and competences learners demonstrate at the end of a course. LO are the basis of academic mobility by making educational offers transparent.

3. Learning outcomes

After reading the manual, teachers will be able to:

- describe what LOs consist in;
- describe what QF are and why they are used in VM;
- develop LOs for one of their courses using the EQF or NQF;
- develop evaluation that is aligned with LOs;
- compare the LOs they have written with existing courses in the same field;
- revise the LOs for their course;
- evaluate the LOs developed for their course;
- take the responsibility of writing LOs for all their courses

4. Example of application

A teacher from a European Union (EU) Higher Education or Continuing Education institution wants to advertise his on-line course in order to attract new students from any EU country. S/he describes it using these four main elements:

- Course level in reference to EQF
- ECTS (European Credit Transfer System[1]) or ECVET (European Credit system for Vocation and Education Training[2]) credits
- Descriptions of LOs
- Description of assessment methods

The teacher offers an on-line course on project management, level 8 of the EQF. The course is worth 15 ECTS out of 180 ECTS for the entire curriculum.

LOs are described in four domains, knowledge and understanding, cognitive skills, practical and/or professional skills and key skills. These refer to the 3 domains of the EQF, knowledge, skill and competence. Assessment methods are also described. The LOs are described for the entire curriculum in this example (Annex 1).

[1] http://ec.europa.eu/education/lifelong-learning-policy/doc48_en.htm
[2] http://www.ecvet.net/c.php/ecvet/index.rsys

5. Defining key terms

Please refer to Annex 2 to find definitions of the following terms: Learning outcomes, EQF, EHEA, NQF, ILO database.

6. How to write LOs?

We recommend using the following guide: Kennedy, D, Hyland, A and Ryan, N. (2006). Writing and Using Learning Outcomes: a Practical Guide.

http://www.externarelationer.adm.gu.se/digitalAssets/1272/1272565_Writing_and_Using_Learning_Outcomes.pdf

7. How to choose the appropriate assessment method?

We recommend using the Virqual Matrix (Annex 3)

8. How to use the ILO database?

Access: www.learning-outcomes.org

Ask for a login to get a new account and be able to access the database. See Annex 4

Explanations of the different fields of the ILO database template are available (Annex 5).

9. Step by step procedure

Step 1 – Write Learning Outcomes (LO) for the course

Step 2 – Specify the course level according to EQF or NQF

Step 3 – Choose the assessment method for each LO using the Virqual Matrix

Step 4 – Specifiy the number of credits ECTS or ECVET

Step 5 – Use the ILO database to upload the detailed description of your course

Annex 1: Example of learning outcomes for a project management course

http://www3.open.ac.uk/study/postgraduate/qualification/learning-outcome/f43.htm

The learning outcomes are described in four areas.

Knowledge and understanding

When you have completed this degree, you will have knowledge and understanding of the processes within the discipline of project management that:

- define, plan and monitor the work and resources required to achieve an agreed outcome
- control project change
- ensure fit for purpose project outputs
- engage and motivate the stakeholders of the project
- the software development lifecycle
- the implications and consequences of having multiple software systems in places of work
- a systematic understanding of knowledge and a critical awareness of current problems in their field of study or area of professional practice
- a comprehensive understanding of research methods and techniques appropriate to defining, planning and carrying out a research project within your chosen specialist area within the management of software projects.

Specialist knowledge can be obtained from a range of options in computing, technology and business, to give you a broader perspective on software projects. Each option addresses the principles underpinning the particular topic area, relates them to practical applications and allows you the facility for applying the principles in the workplace.

Cognitive skills

On completion of this degree you will be able to:

- use and apply knowledge and understanding of the concepts, principles and theories of managing projects to your chosen problem domain, addressing familiar and unfamiliar situations with respect to software systems and their development
- critically evaluate proposed software projects using a number of proven methods
- critically evaluate the strengths and weaknesses of a particular software development method, software product or technology within a computing system application
- integrate knowledge and skills from various sources into a coherent whole, making the appropriate abstractions
- synthesise arguments from underlying premises to produce overarching conclusions
- deal with complex issues both systematically and creatively, making informed judgements in the absence of complete data
- demonstrate self-direction and originality in tackling and solving problems. Critically evaluate and reflect upon your own work.

Practical and/or professional skills

On completion of this degree you will be able to:

- bring order, structure and discipline to a unique and non-repeatable undertaking, reducing the risk of project failure
- create and lead a crossfunctional, multidisciplinary team focused on a an agreed goal that involves the development of software
- demonstrate knowledge of the legal and ethical issues associated with implementation of computing in the workplace
- analyse and report upon proposed change to an existing information system within an organisation
- identify new developments in software development techniques or process and assess applicability to a particular workplace scenario or area of academic or professional interest
- prepare cases advocating the appropriate use of software development techniques, methods or processes.

Key skills

On completion of this degree you will be able to:

- communicate clearly your knowledge, ideas and conclusions about software development techniques and processes using appropriate media, for specialist and non-specialist audiences
- advance your own knowledge and understanding through independent learning
- apply your problem-solving skills independently to professional or equivalent level tasks/projects/functions
- work with others to refine ideas leading to an improved understanding of key concepts within the context of software development and its management.

Teaching, learning and assessment methods

You will acquire knowledge and understanding mainly from the module texts, with supporting material provided via reference texts, commercially available computing environments, specially developed computing environments, computer conferencing and web-based resources. Formal assessment of the taught modules is by way of continuous assessment in the form of the tutor-marked assignments (TMAs), submitted at fixed points in the module, and an examination for each module. Some modules use case study-based assignments where you will choose a project from your personal experience.

Assessment of the final research project module is based on the production of a 10,000–15,000-word dissertation on a topic of your choice on the subject of software projects and their management. Support and advice is given at all stages of the dissertation module by University staff.

Cognitive skills are also assessed in the assignments and examinations of the various modules. Assignments are carefully designed, complex pieces of work that require the skills of analysis,

evaluation and integration. You will also be provided with practical activities to develop cognitive skills, using module software where appropriate. The M801 Research project and dissertation, mandatory for the award of MSc, provides an extended opportunity for you to further develop and be assessed on these skills.

Professional skills are covered specifically in some modules, implicitly as part of the continuous assessment on each taught module and are studied and assessed specifically in the research project and dissertation.

All teaching and assessment strategies will help you develop knowledge and skills that are transferable to your workplace, and the programme encourages a problem-solving approach to professional tasks in the assignments.

Key skills (many of which you will already have gained in your workplace) can be further demonstrated and developed by this programme through the interimassignments and the research project and dissertation.

Annex 2: Definitions

Learning outcomes	"**Learning outcomes (LOs)** describe what a student is expected to know, understand or be able to demonstrate at the end of a course in order to obtain a passing grade. They express a desired state and are often described in terms of knowledge, skills and attitudes" (http://www.lut.fi/fi/lut/studies/learningcentre/report/Documents/lo_en.html). **Skill**: In the context of EQF, skills are described as cognitive involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments). **Knowledge**: In the context of EQF, knowledge is described as theoretical and/or factual. **Competence**: In the context of EQF, competence is described in terms of responsibility and autonomy. **Attitude/Value**: Related to the affective domain, it is a "state of mind or a feeling, a disposition" (A behaviour we adopt under certain circumstances). To know more: http://www.lut.fi/fi/lut/studies/learningcentre/report/Documents/lo_en.html
EQF	**European Qualifications Framework** The EQF is a common European reference system which will link different countries' national qualifications systems and frameworks together. In practice, it will function as a translation device making qualifications more readable. This will help learners and workers wishing to move between countries or change jobs or move between educational institutions at home. To know more : http://ec.europa.eu/education/pub/pdf/general/eqf/leaflet_en.pdf http://ec.europa.eu/education/pub/pdf/general/eqf/broch_en.pdf
EHEA	**Framework for Qualifications of The European Higher Education Area** This overarching Framework finds its base on the conclusions of the Berlin conference (September 2003) of the ministers in charge of higher education that said: 'Ministers encourage the member states to elaborate a framework of comparable and compatible qualifications for their higher education systems, which should seek to describe qualifications in terms of workload, level, learning outcomes, competences and profile. They also undertake to elaborate an overarching framework of qualifications for the European Higher Education Area.' To know more: http://www.bologna-bergen2005.no/Docs/00-Main_doc/050218_QF_EHEA.pdf http://www.ond.vlaanderen.be/hogeronderwijs/bologna/qf/overarching.asp
NQF	**National Qualification Framework (NQF)** The EQF Recommendation formally sets 2010 as the recommended target date for countries to relate their national qualifications systems to the EQF, and 2012 for countries to ensure that individual qualification certificates bear

	a reference to the appropriate EQF level. The EQF will relate different countries' national qualifications systems and frameworks together around a common European reference. To know more : http://ec.europa.eu/education/lifelong-learning-policy/doc/eqf/criteria_en.pdf
ILO database	The **ILO database** consists of a Moodle database, accessible on www.learning-outcomes.org. It has been developed in the VIRQUAL LLL European project. Entering LO in this database offers the opportunity to Higher Education and Continuing Education institutions to publish intended learning outcomes of their curriculum, at a module level. It is also a way of adding some metadata, namely the position of the module in terms of EQF (European Qualifications Framework, http://ec.europa.eu/education/pub/pdf/general/eqf/leaflet_en.pdf) or EHEA (Framework for Qualifications of The European Higher Education Area, http://www.bologna-bergen2005.no/Docs/00-Main_doc/050218_QF_EHEA.pdf) Link to the database: www.learning-outcomes.org

Annex 3: EQF Competences and Assessment Methods

Assessment	Adaptable test	Chat room	CLOZE question	Collaborative assignments	Concept map	Discussion group	Drag and drop	Drop down	E-portfolio	Essay style	Game-Based	Gap-fill	Group assessment	Hotspot	Mathematical	Multiple choice	Numeric response	Peer assessment	Role-play	Sequence response	Short answer	Simulation	Text matching	True/false	Website or publication	Wiki
Level 5																										
(K) comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	x		x				x	x		x		x		x	x	x					x		x	x	x	x
(S) a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems					x					x	x		x				x		x	x		x			x	x
(C) exercise management and supervision in contexts of work or study activities where there is unpredictable change		x		x		x			x		x		x						x							

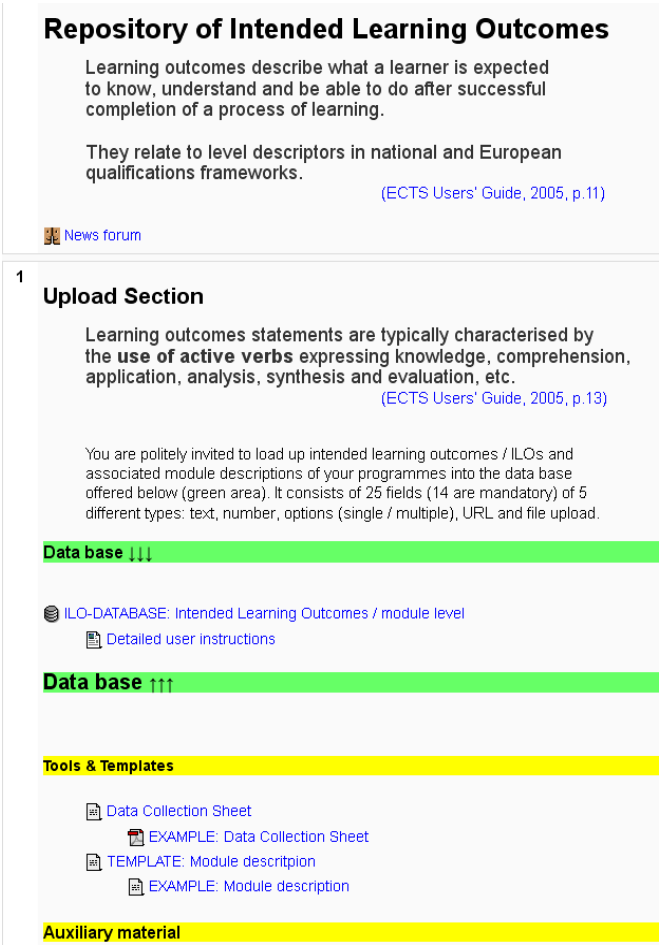
(C) review and develop performance of self and others		x		x		x			x				x					x							x	x
Level 6																										
(K) advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	x		x		x	x	x	x		x		x		x	x	x	x			x	x		x	x	x	x
(S) advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	x	x		x	x	x			x		x		x						x			x				
(C) manage complex technical or professional activities or projects, taking responsibility for decision making in unpredictable work or study contexts	x	x		x	x	x					x								x			x				
(C) take responsibility for managing professional development of individuals and groups				x	x	x					x		x					x	x			x				
Level 7																										
(K) highly specialised knowledge,	x		x		x				x	x					x	x	x	x	x	x		x			x	x

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																									
(K) critical awareness of knowledge issues in a field and at the interface between different fields					x				x		x						x				x			x	x
(S) specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	x			x	x	x			x		x						x	x						x	x
(C) manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches					x				x		x		x				x	x			x			x	x
(C) take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams		x				x			x		x		x				x	x			x			x	x

Level 8																										
(K) knowledge at the most frontier of a field of work or study and at the interface between fields				x	x	x			x	x	x		x					x							x	x
(S) 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				x	x	x			x	x			x		x			x				x			x	x

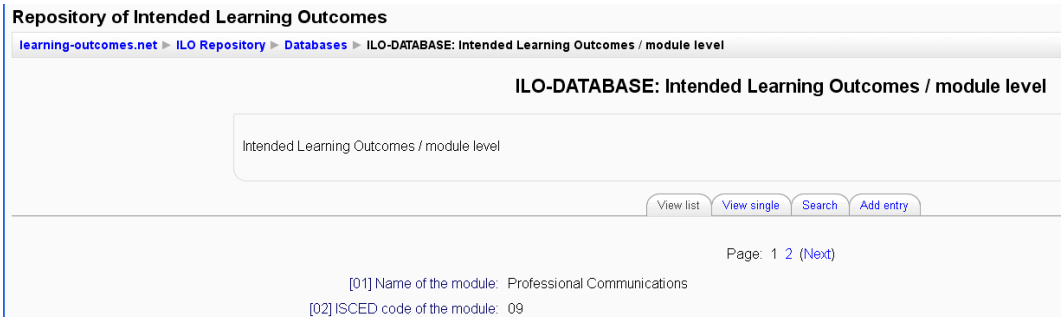
Annex 4: Accessing and using the ILO database

Once logged in, you will have access to the ILO database:

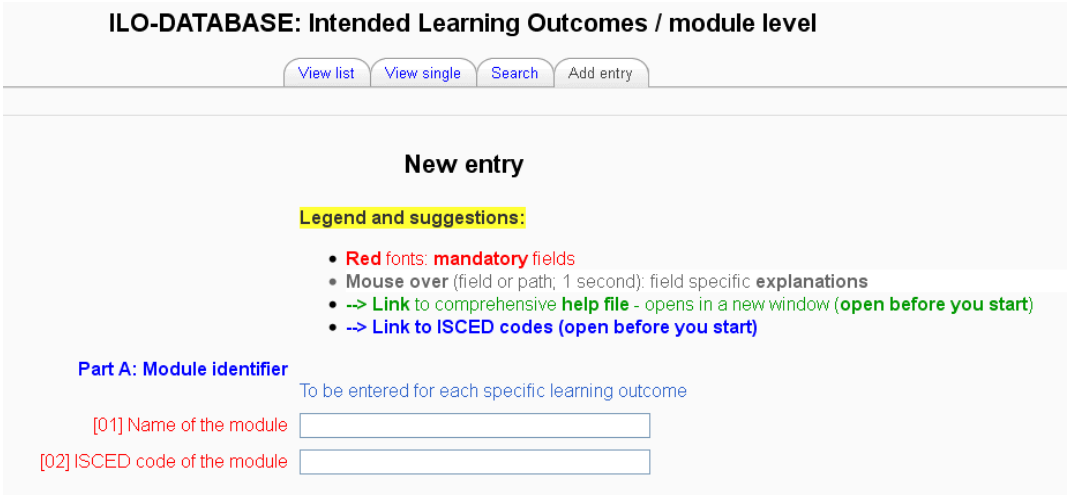


If you click on the ILO-DATABASE, within green lines, you will:

- have access to material already uploaded (view list, view single and search) and
- be able to upload new material (add entry).



If you decide to test the tool and want to add an entry, you will get the following screen:



Fill in the form, using the user guide and the example, available on the ILO homepage, or directly from: https://www.learning-outcomes.org/mod/resource/view.php?id=31

Annex 5: Explanation of the different fields of the ILO database template

Fields	Explanations
Part A: Module data	Short identification of the module the following ILO (intended learning outcome) is part of.
[01] Name of the module	[01] Name of module as used in corresponding curriculum
[02] ISCED code of the module	[02] The ISCED code (see "Erasmus Subject Code -- ISCED classification") classifies the subject of learning units (typically of complete programmes). Mostly the ISCED codes of a specific *module* and the superordinate *programme* will be the same. But in a significant number of cases there will be a difference, e.g. ▪ soft skills modules (09 = Personal Skills) in Engineering programmes (5 = Engineering, Manufacturing and Construction) ▪ mathematics modules (461 = Mathematics) in Business programmes (340 = Business and Administration).
Part B: Details of specific learning outcome	For comparison, development and individual use of specific ILOs it is necessary to be able to find and unambiguously identify them. Additional information will be asked referring to assessment methods.
[03] Fulltext [English]	[03] Fulltext [English]: Wording of the specific ILO as used in corresponding curriculum: in English – translation (from original language) or original text
[04] Fulltext [in original language - if not English]	[04] Fulltext [in original language - if not English]: Leave blank if original language is English
[05] Fulltext [further language/s]	[05] Fulltext [further language/s]: Here is space for translations into any other languages
[06] SICED code - classifying the learning outcome	[06] The ISCED code (see "Erasmus Subject Code -- ISCED classification") classifies the subject of learning units (typically of complete programmes). Mostly the ISCED codes of a specific *ILO* and the superordinate *module* will be the same. But in a number of cases there will be a difference (similar as with modules and programmes), e.g. ▪ mathematical ILOs (461 = Mathematics) in Engineering modules (5 = Engineering, Manufacturing and Construction) ▪ economic ILOS (314 = Economics) in Civil engineering modules (582 = Building and civil engineering)

[07] Domain	[07] Domain: For the purpose of clear identification of ILOs we apply a trinomial classification of the domain of learning outcomes: ▪ discipline specific: relevant only in the context of one specific subject – like medical, chemical or psychological knowledge / competences ▪ methodical: knowledge or competence overarching some or many disciplines like research methodology, documentation skills or statistics ▪ personal / social: all knowledge, skills, attitudes and competences necessary to enable and improve living and working in a social context. (The classification of the domain was adopted from: Tippelt, R. / Mandl, H. / Straka, G. (2003): Entwicklung und Erfassung von Kompetenz in der Wissensgesellschaft – Bildungs- und wissens-theoretische Perspektiven. In: Gogolin, I. / Tippelt, R. (Hrsg.): Innovation durch Bildung. Beiträge zum 18. Kongress der Deutschen Gesellschaft für Erziehungswissenschaft. Opladen, S. 349-369.)
[08] Ability	[08] Ability: For the purpose of clear identification of ILOs we use the EQF classification of learning outcomes – supplemented by attitudes (which still lack in the EQF model): ▪ Knowledge: the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual ▪ Skill: the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments) ▪ Attitude: "a relatively enduring organisation of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan 2005, p. 150); "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1) ▪ Competence: the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy. Sources: For knowledge, skill and competence: European Commission: The European Qualifications Framework for Lifelong Learning (EQF),

	Luxembourg: Office for Official Publications of the European Communities, 2008, ISBN 978-92-79-08474-4. For attitude: Hogg, Michael A. / Vaughan, Graham M. (2005; 4th edition). Social psychology. Harlow: Pearson. Eagly, A.H. / Chaiken, S. (1993). The Psychology of Attitudes, Fort Worth, TX: Harcourt Brace Jovanovich.
[09] EQF level	[09] EQF level: Relevant in our context are only the four academic levels of the EQF: 5 – short cycle 6 – bachelor 7 – master 8 – doctor, phd
[10] Level of performance	[10] Level of performance: With reference to competences the intended level of performance might be variable: comparative simple competences (e.g.: to develop software solving a simple, well defined problem) can be fully accomplished in a bachelor programme while complex competences (e.g.: to be able to construct a highway bridge) will be developed not further than advanced level in a master programme. 1 – Novices are characterised by "rigid adherence to taught rules or plans, little situational perception, no discretionary judgement" 2 – Advanced beginners are able to use "guidelines for action based on attributes or aspects (aspects are global characteristics of situations recognisable only after some prior experience)", their "situational perception is still limited", while "all attributes and aspects are treated separately and given equal importance" 3 – Competent persons are ready for "coping with crowdedness" and "conscious, deliberate planning", they are able to "see actions at least partially in terms of longer-term goals" and to apply "standardised and routinised procedures". Sources: Dreyfus, Stuart E. & Dreyfus, Hubert L. (1980), A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition.
[11] Assessment methods applicable	[11] Assessment methods applicable: Try to classify the methods you use for assessment of this specific learning outcome according to the following list provided by VIRQUAL. 1 – Adaptive Test 2 – Chat room 3 – CLOZE Question Type

	4 – Collaborative assignments 5 – Concept Map 6 – Discussion Group 7 – Drag-And-Drop Question Type 8 – Drop-Down question type 9 – E-Portfolio 10 – Essay Style Question Type 11 – Game-Based Learning 12 – Gap Fill Question Type 13 – Group Assessment 14 – Hotspot Question Type 15 – Mathematical Question Type 16 – Multiple Choice Question Type 17 – Numeric Response Question Type 18 – Peer Assessment 19 – Role-play 20 – Sequence Response Question Type 21 – Short Answer Question Type 22 – Simulation 23 – Text Matching Question Type 24 – True/false question type 25 – Website or publication 26 – Wiki
Part C: Module details	The following information provides details of the module. It has to be entered only once per module – preferably with the first of it's learning outcomes.
[12] Percentage of distance learning [0 - 100% of workload]	[12] Percentage of distance learning [0 - 100% of workload]: to which degree distance learning (e-leaning) is scheduled - in % of total workload of students.
[13] Percentage of distance assessment [0 - 100% of total assessment]	[13] Percentage of distance assessment [0 - 100% of total assessment]: to which degree distance assessment (e-assessment) is used - in % of total assessment
[14] Detailed description (rtf file)	[14] Detailed description (rtf file): The core information of the module collected by a template (https://www.learning-outcomes.org/mod/resource/view.php?id=15) with following fields: General Information / Module • Title in original language • Erasmus Subject code • ISCED code • Internal code • Web address

	• Institution: • Name | abbreviation • Erasmus ID code • Web address • Study Programme/s • using this module • Module Details • Teaching language/s • ECTS Credits • Total workload (in hours) • Contact hours • Pre-requisites • Module objective • Module content • Applicable Methods • % of distance learning • % distance assessment • Teaching methods • Assessment methods Learning Outcomes • #1: English / original language …. to …. • #x: English / original language
[15] URL (of module description)	[15] URL (of module description): If there is a module description available in the internet, please enter it here.
[16] Erasmus code – classifying the module	[16] Erasmus code – classifying the module (see "Erasmus Subject Code -- ISCED classification ") classifies the subject of learning units (typically of complete programmes). Mostly the Erasmus codes of a specific module and the superordinate programme will be the same. But in a significant number of cases there will be a difference, e.g. • soft skills modules (16.0 = Personal Skills) in Engineering programmes (06.0 = Engineering, Technology) • mathematics modules (11.1 = Mathematics) in Business programmes (04.0 = Business Studies, Management Sciences).
[17] Number of module within programme	[17] Number of module within programme: If there is a fixed sequence of modules within a programme – what is the number of this specific module?
Part D: Programme identifier	The following information provides details of the Programme. It has to be entered only once per module – preferably with the first of it's learning outcomes.
[18] Title / ISCED code / Erasmus code / URL of programme	[18] Title / ISCED code / Erasmus code / URL of programme: ILO is part of following study programme
[19] Qualification	[19] Qualification profile of programme: Qualification profile of study

profile of programme	programme above
[20] Title(s) / ISCED code(s) / Erasmus code(s) / URL(s) of further programme(s)	[20] Title(s) / ISCED code(s) / Erasmus code(s) / URL(s) of further programme(s): ILO is part of following further study programme/s
Part E: Information about authors	To be able to understand all entries an modifications / additions it will be valuable to know something about the authoring process.
[21] Date of entry, comments, e-mail address of author(s)	[21] Date of entry, comments, e-mail address of author(s): Who did what, why and when?

VIRQUAL

Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions

Reference: 143748-PT-KA3NW
Duration: 3 years
Key Activity 3 : ICT / network

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Education and Training

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