

# Curricula development workshop

## 20 May 2022



**CBHE PROJECT: 617695-EPP-1-2020-1-ES-EPPKA2-CBHE-JP**

*“Developing Interdisciplinary Postgraduate Programmes and Strengthening Research Networks in Geoinformation Technologies in Armenia and Kyrgyzstan”*

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Erasmus+ Programme  
of the European Union









## **Part 1, 09:00 - 10:00**

- Basic information on the Bologna Process, European Higher Education Area, Bologna tools (ESG, ECTS, Diploma Supplement etc.)
- Qualifications frameworks – general information and characteristics of EQF Level 8 and 3<sup>rd</sup> cycle Dublin Descriptors
- Learning outcomes – how to formulate them. Differentiating between the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> cycle learning outcomes
- Q&A

## **Part 2, 10:00 - 10:30**

- Learning outcomes in doctoral training – examples (with stress on generic skills)
- Q&A

## **BREAK 10:30 - 11:00**

## **Part 3, 11:00 - 12:30**

- Curriculum development - factors to be taken into account:
  - institutional capacities,
  - internationalization,
  - labour market needs etc.
- Description of doctoral course modules (introduction to “homework assignments” before the Ljubljana training)
  - template to be used
  - explanation of the template, “dos and dont's”
- Q&A



- Basic information on the Bologna Process, European Higher Education Area, Bologna tools (ESG, ECTS, Diploma Supplement etc.)
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- Q&A



# Bologna 1999: action lines

1. Adoption of a system of easily readable and comparable degrees
2. Adoption of a system essentially based on two cycles
3. Establishment of a system of credits
4. Promotion of mobility
5. Promotion of European co-operation in quality assurance
6. Promotion of the European dimension in higher education



- Bologna (1999)
- Prague (2001)
- Berlin (2003)
- Bergen (2005)
- London (2007)
- Leuven Louvain-la-Neuve (2009)
- Budapest-Vienna (2010)
- Bucharest (2012)
- Yerevan (2015)
- Paris (2018)
- Rome (2020)

# „Bologna Principles” (1)

- Diversity, democratic values
- HE as public good and public responsibility
- Institutional autonomy, academic freedom, academic values
- Accountability, responsiveness to the needs of society

# „Bologna Principles” (2)

- Innovation, competitiveness, employability, LLL
- Compatibility, comparability, common qualifications framework
- Recognition of qualifications, periods of study and prior learning
- Educational cooperation, mobility of students and staff
- Cooperation in QA, European Quality Assurance Register
- Working in partnership, HE stakeholders
- Linking HE and research, doctoral programmes, research capacity

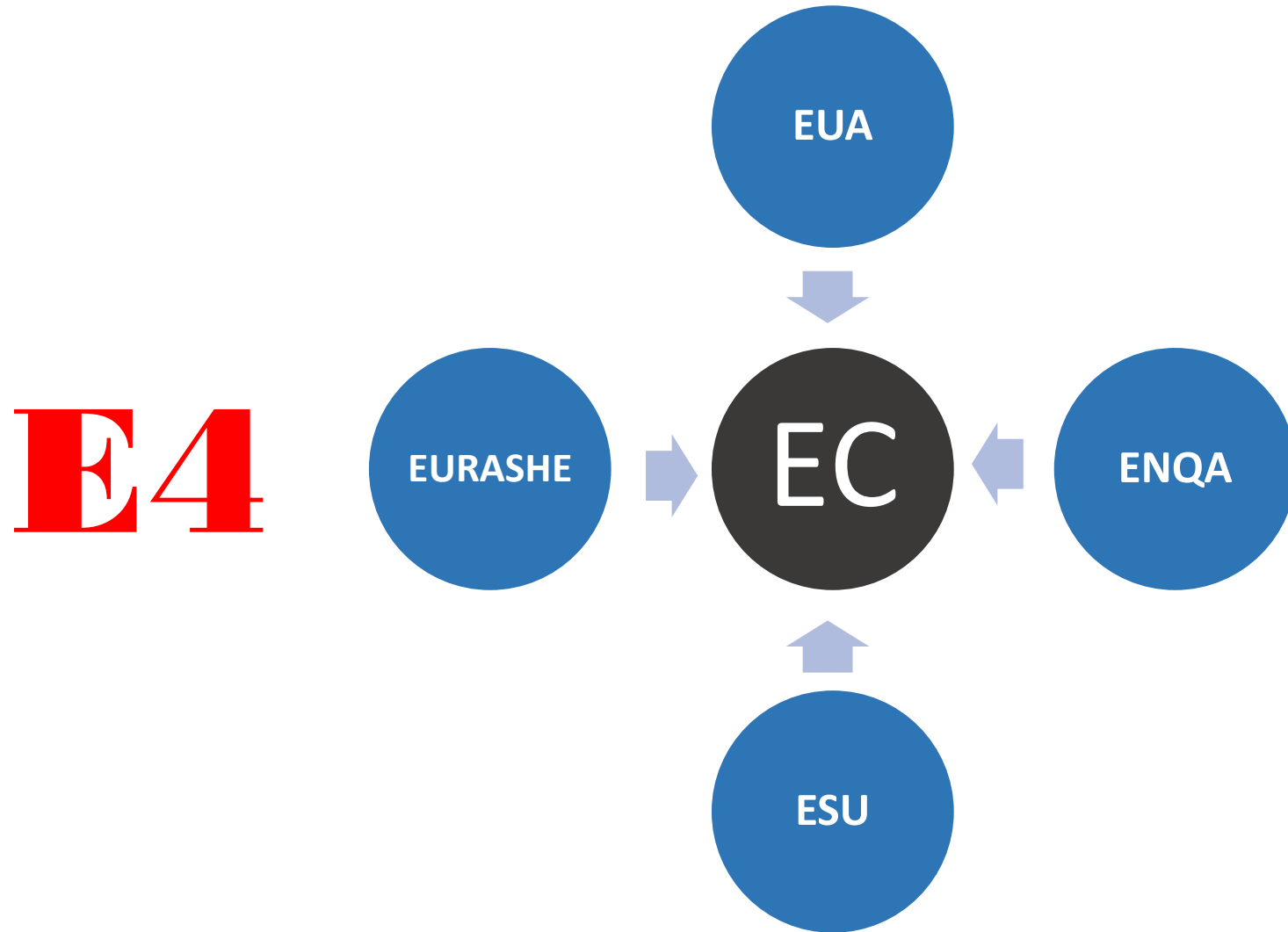


# „Bologna Principles” (3)

- ❖ Social dimension, reducing inequalities
- ❖ European dimension: joint programmes and degrees, etc.
- ❖ Global dimension: attractiveness, competitiveness, cooperation

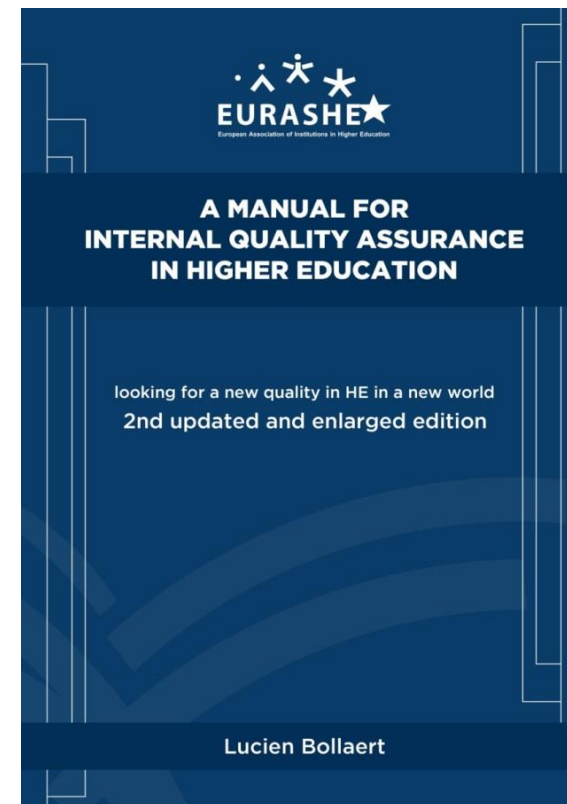
# Bologna in short

- The „golden triangle” of Bologna reforms
  - Three cycles (Bachelor-Master-Doctor)
  - ECTS
  - Quality Assurance
- Bologna Process is making an impact worldwide. Examples: Africa, Latin America, ASEAN countries...
- ERASMUS PLUS – a powerful tool to promote Bologna ideas





## ECTS Users' Guide



NATIONAL  
DEVELOPMENT  
PLAN 2020



**EUROPEAN UNION**  
European Social  
Fund

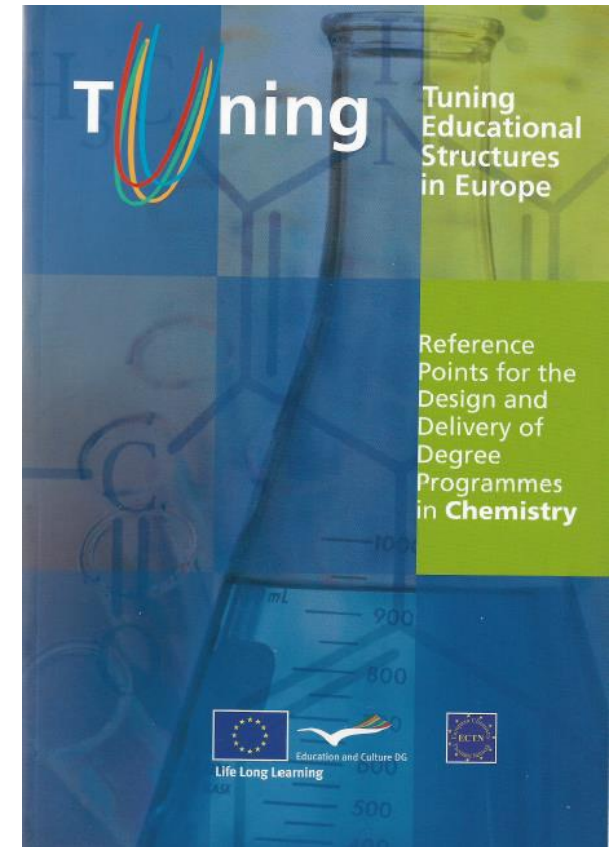
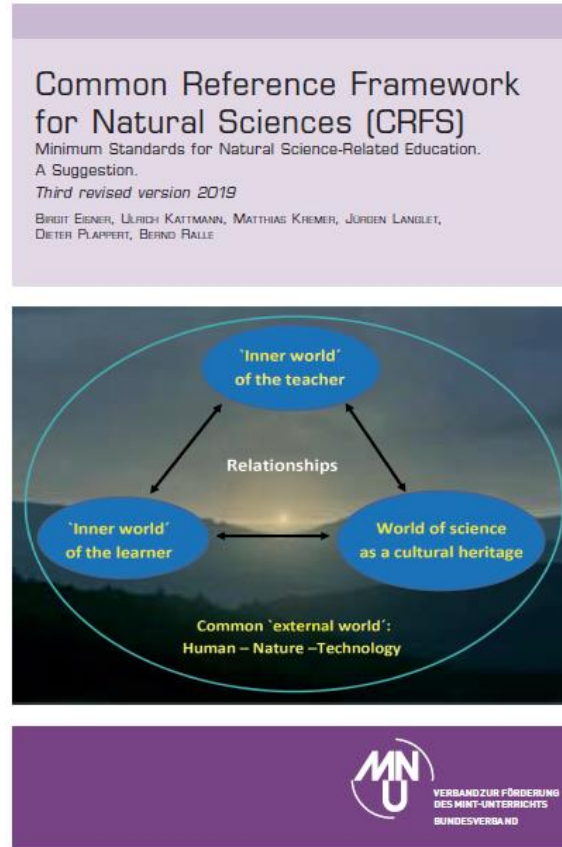
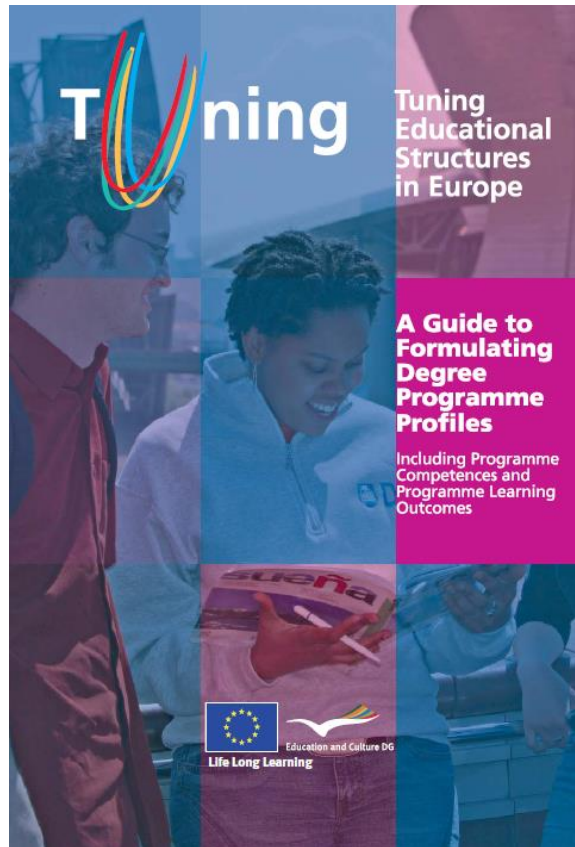
INVESTING IN YOUR FUTURE

The Training Program is implemented within the framework of the “Ensuring Better Governance at the University of Latvia” project (No 8.2.3.0/18/A/019), with co-financing of the European Social Fund.



**UNIVERSITY  
OF LATVIA**





NATIONAL DEVELOPMENT PLAN 2020



EUROPEAN UNION

European Social Fund

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# EQF

The **European Qualifications Framework (EQF)** is a common **European** reference **framework** whose purpose is to make **qualifications** more readable and understandable across different countries and systems.

## COUNCIL RECOMMENDATION

of 22 May 2017

on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning

(2017/C 189/03)

**qualification** means a formal outcome of an assessment and validation process which is obtained when a competent authority determines that an individual has achieved learning outcomes to given standards

**learning outcomes** means statements regarding what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and responsibility and autonomy

**knowledge** means 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 EQF, knowledge is described as theoretical and/or factual

**skills** means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the EQF, 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)

**responsibility and autonomy** means the ability of the learner to apply knowledge and skills autonomously and with responsibility

**competence** means 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;

**national qualifications system** means all aspects of a Member State's activity related to the recognition of learning and other mechanisms that link education and training to the labour market and civil society. That includes the development and implementation of institutional arrangements and processes relating to quality assurance, assessment and the award of qualifications. A national qualifications system may be composed of several subsystems and may include a national qualifications framework

**national qualifications framework** means an instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims at integrating and coordinating national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society;

**international qualification** means a qualification awarded by a legally established international body (association, organisation, sector or company) or by a national body acting on behalf of an international body that is used in more than one country and that includes learning outcomes assessed with reference to standards established by an international body;



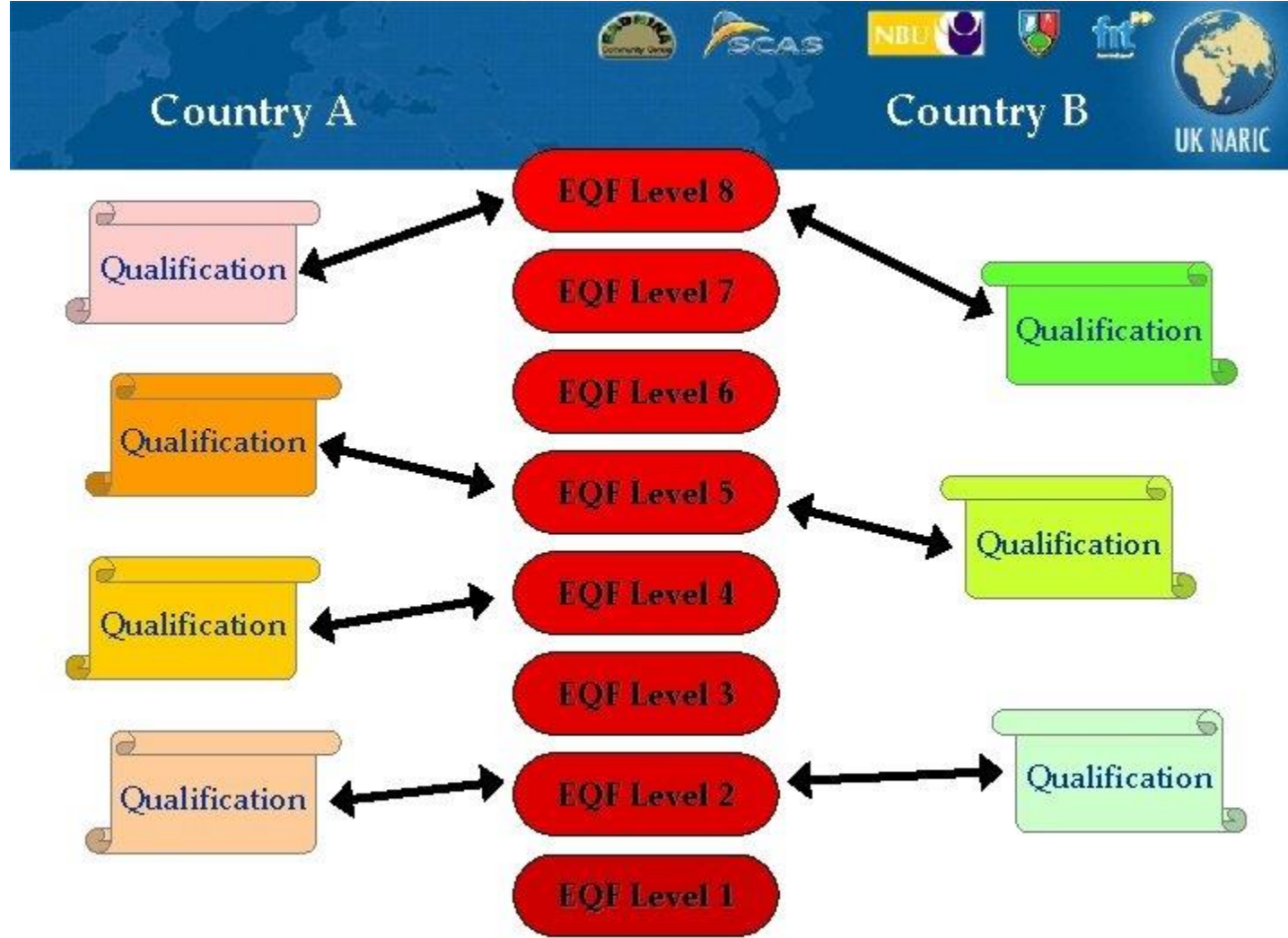
**validation of non-formal and informal learning** means the process of confirmation by a competent authority that an individual has acquired learning outcomes acquired in non-formal and informal learning settings measured against a relevant standard and consists of the following four distinct phases: identification through dialogue of particular experiences of an individual, documentation to make visible the individual's experiences, a formal assessment of those experiences and certification of the results of the assessment which may lead to a partial or full qualification;

**formal recognition of learning outcomes** means the process of granting official status by a competent authority to acquired learning outcomes for purposes of further studies or employment, through (i) the award of qualifications (certificates, diploma or titles); (ii) the validation of non-formal and informal learning; (iii) the grant of equivalence, credit or waivers;

**credit** means confirmation that a part of a qualification, consisting of a coherent set of learning outcomes has been assessed and validated by a competent authority, according to an agreed standard; credit is awarded by competent authorities when the individual has achieved the defined learning outcomes, evidenced by appropriate assessments and can be expressed in a quantitative value (e.g. credits or credit points) demonstrating the estimated workload an individual typically needs for achieving related learning outcomes;

**credit systems** means a transparency tool for facilitating the recognition of credit(s). These systems can comprise, inter alia, equivalences, exemptions, units/modules that can be accumulated and transferred, the autonomy of providers who can individualise pathways, and the validation of non-formal and informal learning;

**credit transfer** means the process of allowing individuals who have accumulated credit in one context to have it valued and recognised in another context.



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- ❖ **knowledge** at the most advanced frontier of a field of work or study and at the interface between fields
- ❖ 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
- ❖ 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





## **Qualifications that signify completion of the third cycle are awarded to students who:**

- have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;
- have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;
- have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication;
- are capable of critical analysis, evaluation and synthesis of new and complex ideas;
- can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;
- can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society;

## Knowledge and understanding:

1 (Bachelor) [Is] supported by advanced text books [with] some aspects informed by knowledge at the forefront of their field of study ..

2 (Master) provides a basis or opportunity for originality in developing or applying ideas often in a research context ..

3 (Doctorate) [includes] a systematic understanding of their field of study and mastery of the methods of research associated with that field..



## Applying knowledge and understanding:

1 (Bachelor) [through] devising and sustaining arguments

2 (Master) [through] problem solving abilities [applied] in new or unfamiliar environments within broader (or multidisciplinary) contexts ..

3 (Doctorate) [is demonstrated by the] ability to conceive, design, implement and adapt a substantial process of research\* with scholarly integrity .. [is in the context of] a contribution that extends the frontier of knowledge by developing a substantial body of work some of which merits national or international refereed publication ..



## Communication

1 (Bachelor) [of] information, ideas, problems and solutions ..

2 (Master) [of] their conclusions and the underpinning knowledge and rationale (restricted scope) to specialist and non-specialist audiences (monologue) ..

3 (Doctorate) with their peers, the larger scholarly community and with society in general (dialogue) about their areas of expertise (broad scope)..





## Making judgements:

1 (Bachelor) [involves] gathering and interpreting relevant data ..

2 (Master) [demonstrates] the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete data ..

3 (Doctorate) [requires being] capable of critical analysis, evaluation and synthesis of new and complex ideas

## Learning skills

1 (Bachelor) have developed those skills needed to study further with a high level of autonomy ..

2 (Master) study in a manner that may be largely self-directed or autonomous..

3 (Doctorate) expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement ..



- Learning outcomes in doctoral training – examples (with stress on generic skills)
- Q&A

# Definitions Competence/Competency

- the ability to do something successfully or efficiently (*Oxford Dictionary*)
- the ability to do something well (*Cambridge Dictionary*)
- the ability to do something well or effectively (*Collins Dictionary*)
- the quality or state of having sufficient knowledge, judgment, skill, or strength (as for a particular duty or in a particular respect) (*Merriam-Webster Dictionary*)
- the capability to apply or use a set of related knowledge, skills and abilities required to perform “critical work functions” or tasks in a defined work setting
- one’s ability or capacity to interact effectively with its environment and effectiveness in carrying out goals (White, 1959)

# Gallup survey (2010)

- Teamwork skills
- Sector-specific skills
- Communication skills
- Computer skills
- Ability to adapt and act in new situations
- Good reading/writing skills
- Analytical and problem-solving skills
- Decision-making skills
- Good with numbers
- Foreign language skills

# 8 Key competences (European reference framework)

1. Communication in the mother tongue
2. Communication in foreign languages
3. Mathematical competence and basic competences in science and technology
4. Digital competence
5. Learning to learn
6. Social and civic competences
7. Sense of initiative and entrepreneurship
8. Cultural awareness and expression



# OECD

- Come with new ideas/solutions
- Acquire new knowledge
- Willingness to question ideas
- Alertness to opportunities
- Present ideas in audience
- Analytical thinking
- Master of your own field
- Coordinate activities
- Write and speak a foreign language
- Use computers and Internet
- Make your meaning clear
- Use time efficiently
- Mobilize capacities of others
- Work productively with others
- Write reports or documents
- Perform under pressure
- Knowledge of other fields
- Negotiate
- Assert your authority

## Ulf-Daniel Ehlers *Future Skills* (2020): *Future Skills* for the World of Tomorrow

### **Competence Cluster I: Subject development-related competences**

*Future Skill* Profile #1: Learning literacy

*Future Skill* Profile #2: Self-efficacy

*Future Skill* Profile #3: Self-determination

*Future Skill* Profile #4: Self-competence

*Future Skill* Profile #5: Reflective competence

*Future Skill* Profile #6: Decision competence

*Future Skill* Profile #7: Initiative and performance competence

*Future Skill* Profile #8: Ambiguity competence

*Future Skill* Profile #9: Ethical competence

### **Competence Cluster II: Object-related competences**

*Future Skill* Profile #10: Design-thinking competence

*Future Skill* Profile #11: Innovation competence

*Future Skill* Profile #12: Systems competence

*Future Skill* Profile #13: Digital literacy

### **Competence Cluster III: Organisation-related competences**

*Future Skill* Profile #14: Sensemaking

*Future Skill* Profile #15: Future and design competence

*Future Skill* Profile #16: Cooperation competence

*Future Skill* Profile #17: Communication competence

# World Economic Forum Top 10 Skills

In 2015	In 2020
Complex Problem Solving	Complex Problem Solving
Coordinating with Others	Critical Thinking
People Management	Creativity
Critical Thinking	People Management
Negotiating	Coordinating with Others
Quality Control	Emotional Intelligence
Service Orientation	Judgement & Decision Making
Judgement & Decision Making	Service Orientation
Active Listening	Negotiating
Creativity	Cognitive Flexibility

# ESF List of Transferable Skills (2009)

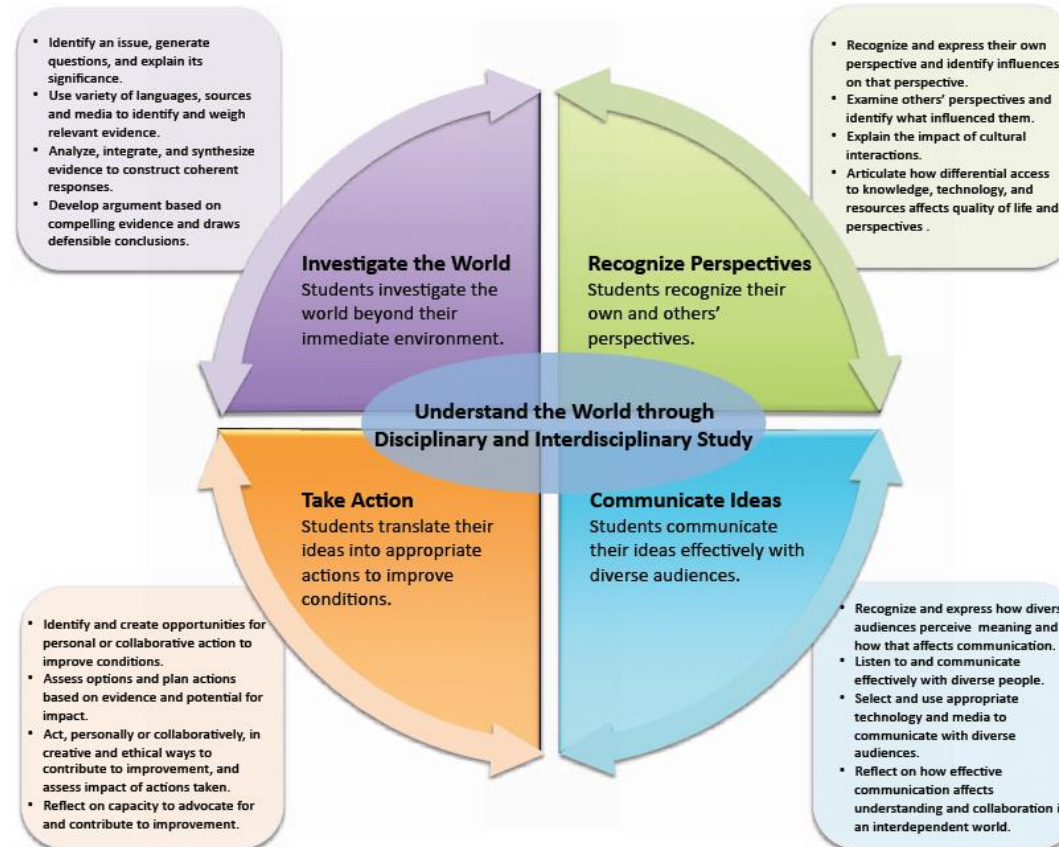
Transferable skills category	Skills included
Interpersonal skills	<ul style="list-style-type: none"> <li>Working with others/teamwork</li> <li>Mentoring and supervisory skills</li> <li>Negotiating skills</li> <li>Networking skills</li> </ul>
Organizational skills	<ul style="list-style-type: none"> <li>Project and time-management skills</li> <li>Career planning skills</li> </ul>
Research competencies	<ul style="list-style-type: none"> <li>Grant application writing skills</li> <li>Research management and leadership</li> <li>Knowledge of research methods and technologies beyond the PhD project</li> <li>Research ethics and integrity</li> </ul>
Cognitive abilities	<ul style="list-style-type: none"> <li>Creativity and ability for abstract thought</li> <li>Problem solving</li> </ul>
Communication skills	<ul style="list-style-type: none"> <li>Communication/presentation skills, written and oral</li> <li>Communication/dialogue with non-technical audience (public engagement)</li> <li>Teaching skills</li> <li>Use of science in policy making</li> </ul>
Enterprise skills	<ul style="list-style-type: none"> <li>Entrepreneurship</li> <li>Innovation</li> <li>Commercialization, patenting and knowledge transfer</li> </ul>

Engaged	Enterprising	Enquiry-Based	Effective	Expert
<ul style="list-style-type: none"> <li>• Socially responsible</li> <li>• Civically responsible</li> <li>• Curious</li> <li>• Motivated self-starters</li> <li>• Active team players</li> <li>• Reflective practitioners</li> <li>• Global citizens</li> </ul>	<ul style="list-style-type: none"> <li>• Independent thinkers</li> <li>• Creative</li> <li>• Career-educated</li> <li>• Self-starters</li> <li>• Innovators</li> <li>• Entrepreneurs</li> <li>• Well organised</li> </ul>	<ul style="list-style-type: none"> <li>• Critical thinkers</li> <li>• Digitally literate</li> <li>• Inquisitive</li> <li>• Problem solvers</li> <li>• Creators of new knowledge</li> <li>• Analytical</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent communicators</li> <li>• Information literate</li> <li>• Self managers</li> <li>• Decision makers</li> <li>• Resilient</li> <li>• Reflective practitioners</li> </ul>	<ul style="list-style-type: none"> <li>• Experiential learners</li> <li>• Discipline knowledge</li> <li>• Practice-based learners</li> <li>• Work-based learners</li> <li>• Ethical</li> <li>• Leaders</li> <li>• Project managers</li> </ul>



## ENHANCING EMPLOYABILITY

*from SUSDEV presentation in Krakow authored by colleagues from DUT, Ireland*





## Investigate the World

Students use science to investigate the world.

### Students:

- ❖ Identify issues and frame investigable questions of local, regional, or global significance that call for a scientific approach or emerge from science.
- ❖ Use a variety of domestic and international sources to identify and weigh relevant scientific evidence to address globally significant researchable questions.
- ❖ Design and conduct a scientific inquiry to collect and analyze data, construct plausible and coherent conclusions, and/or raise questions for further globally significant study.
- ❖ Interpret and apply the results of a scientific inquiry to develop and defend an argument that considers multiple perspectives about a globally significant issue.

## Recognize Perspectives

Students recognize their own and others' perspectives through the study of science.

### Students:

- ❖ Recognize and express their own perspective on situations, events, issues, or phenomena, and determine how that perspective along with their entire understanding of the world is influenced by science.
- ❖ Examine scientific ways of knowing and perspectives about science of other people, groups, and schools of thought, and identify the influences on those perspectives.
- ❖ Explain how cultural interactions influence the development of scientific knowledge.
- ❖ Explore and describe the consequences of differential access to scientific knowledge and to the potential benefits of that knowledge.

## Communicate Ideas

Students communicate about science effectively with diverse audiences around the world.

### Students:

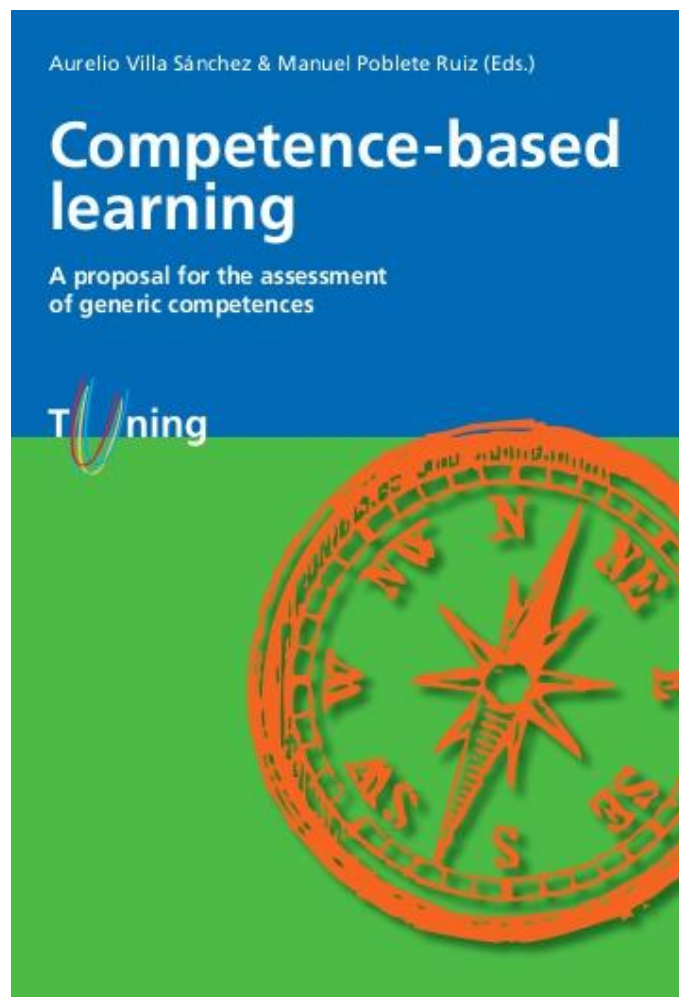
- ❖ Recognize and express how diverse audiences may interpret differently and/or make different assumptions about the same scientific information and how that affects communication and collaboration.
- ❖ Use varying scientific practices, behaviors, and strategies to verbally and non-verbally communicate scientific information effectively with diverse audiences, including the international scientific community.
- ❖ Select and use appropriate technology and media to communicate about science and share data with experts and peers around the world.
- ❖ Reflect on how effective communication affects scientific understanding and international collaboration in an interdependent world.

## Take Action

Students use their scientific knowledge and skills to translate their ideas and findings into actions that improve conditions.

### Students:

- ❖ Identify and create opportunities in which scientific analysis or inquiry can enable personal or collaborative action to improve conditions.
- ❖ Assess options, plan actions, and design solutions based on scientific evidence and the potential for impact, taking into account previous approaches, varied perspectives and potential consequences.
- ❖ Act, personally or collaboratively, in creative and ethical ways to implement scientifically-based solutions that contribute to sustainable improvements, and assess the impact of the action.
- ❖ Reflect on how scientific knowledge and skills contribute to their capacity to advocate for improvement locally, regionally, or globally.



### **Instrumental Generic Competences**

Analytical Thinking  
 Systemic Thinking  
 Critical Thinking  
 Creative Thinking  
 Reflective Thinking  
 Logical Thinking  
 Analogical Thinking  
 Practical Thinking  
 Deliberative Thinking  
 Team Thinking  
 Time Management  
 Problem Solving  
 Decision Making  
 Learning Orientation  
 Planning  
 Computer Skills  
 Database Management  
 Oral Communication

Writing Skills

Foreign Language Proficiency

### **Interpersonal Generic Competences**

Self-Motivation

Diversity and Interculturality

Adaptability

Ethical Sense

Interpersonal Communication

Teamwork

Conflict Management and Negotiation

### **Systemic General Competences**

Creativity

Enterprising Spirit

Innovation

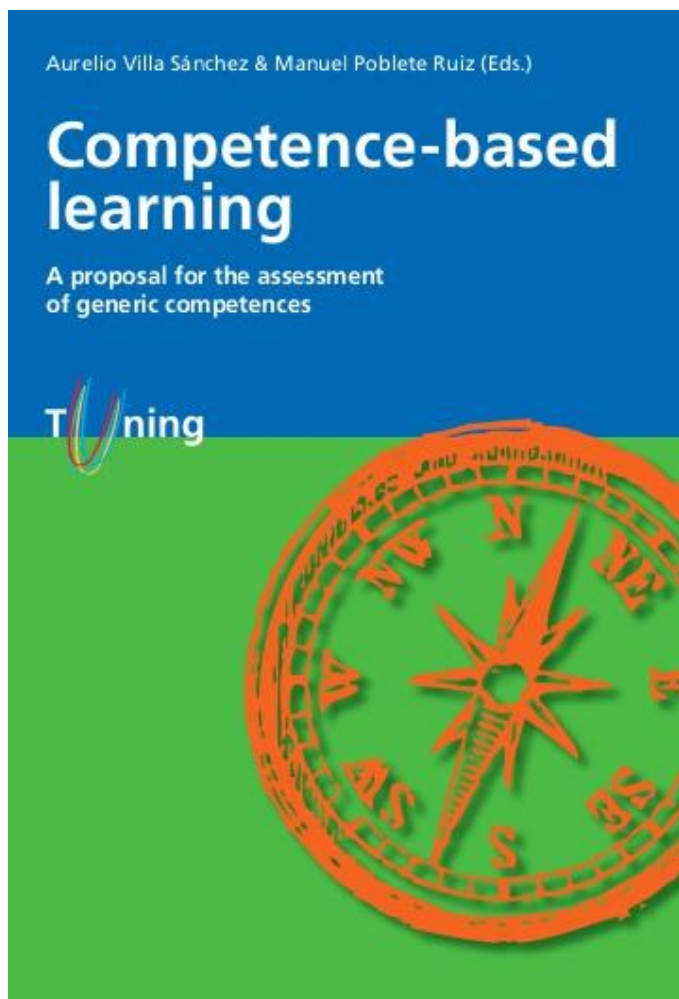
Objectives-Based Management

Project Management

Quality Orientation

Achievement Orientation

Leadership



### For each competence:

- ❖ Competence Name
  - ❖ Description
  - ❖ Interaction with other competences, attitudes, interests and values
  - ❖ Importance of this competence for academic and professional life
  - ❖ How to incorporate it into the academic curriculum
- ❖ Definition
- ❖ Levels of mastery (1, 2, 3)
  - ❖ Indicators (1, 2, 3, 4, 5)
  - ❖ Descriptors (1, 2, 3, 4, 5)

### For each level:

Indicator	Descriptor 1	Descriptor 2	Descriptor 3	Descriptor 4	Descriptor 5
1					
2					
3					
4					
5					



## Excellent performance

Highly developed critical approach to academic literature and other sources of information.

Recognition and discussion of the moral and ethical dimensions of issues and investigations and the need for professional codes of conduct.

Highly developed ability to describe and record materials in the field and laboratory.

Ability to interpret practical results with flair.

## Typical performance

Critical approach to academic literature and other sources of information.

Recognition of the moral and ethical dimensions of issues and investigations and the need for professional codes of conduct.

Ability to describe and record materials in the field and laboratory.

Ability to interpret practical results in a logical manner.

## Threshold performance

Basic approach to academic literature and other sources of information.

Ability to describe the moral and ethical dimensions of issues and investigations and the need for professional codes of conduct.

Basic ability to describe and record materials in the field and laboratory.

Basic ability to interpret practical results.



## Discipline specific skills

Thorough knowledge of one's own field of research and its social significance

Familiarity with the development and basic problems of one's own field of research

Knowledge of the general theory of science and of other disciplines relating to one's own field of research

## Communication skills

Academic writing and communication

Interaction competence

Language skills and international competence

Media skills

Presentation skills



## Research skills

Research ethics

Open Science

Research methodology

Scientific publishing

Research project management (planning, funding, data management, financial management)

## Other competence to support the construction of professional expertise

Pedagogical skills (teaching and guidance experience, qualifications)

Leadership skills

Quality and development activities



- ❖ LO are statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning (ECTS Guide)
- ❖ A LO is a written statement of what the successful student/learner is expected to be able to do at the end of the module/course unit or qualification (S. Adam)

# Bloom's Taxonomy: Cognitive Domain

## **Bloom**

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

## **Anderson et al.**

1. Remember
2. Understand
3. Apply
4. Analyse
5. Evaluate
6. Create

# Bloom's Taxonomy: Psychomotor Domain

## **Bloom**

1. Imitation
2. Manipulation
3. Precision
4. Articulation
5. Naturalisation

## **Dave, Ferris & Aziz**

1. Perception/Observing
2. Guided Response/ Imitation
3. Mechanism
4. Complex Response
5. Adaptation
6. Origination



# Bloom's Taxonomy: Affective Domain

1. Receiving
2. Responding
3. Valuing
4. Organisation & Conceptualisation
5. Characterisation by Value

# Writing LO: action words

## Examples:

Knowledge → define, describe, list

Comprehension → classify, **explain**, illustrate

Application → apply, prepare, use

Analysis → analyse, deduce, compare

Synthesis → design, **explain**, formulate

Evaluation → assess, criticise, justify

# Examples of LO

- **List** the criteria to be taken into account when caring for a patient with tuberculosis
- **Classify** reactions as exothermic and endothermic
- **Relate** energy changes to bond breaking and formation
- **Compare** classical and quantum harmonic oscillator
- **Organise** a patient education programme
- **Discuss** the role of Internet in physics teaching
- **Design** a poster presentation
- **Examine** a patient
- **Use** MS Office effectively and skilfully
- **Display a willingness** to communicate well with patients
- **Resolve** conflicting issues between personal beliefs and ethical considerations

# LO at the program level

- Describe what the learner can accomplish as a result of completing a program
- They should be aligned with the institution's mission
- They should focus on **broad conceptual knowledge** and **higher order skills**
- They represent the minimum requirements to complete a program

# LO at the module/course level

- Describe what the learner can accomplish as a result of completing a module/course
- They should be aligned with the program LO
- They represent the minimum requirements to complete a module

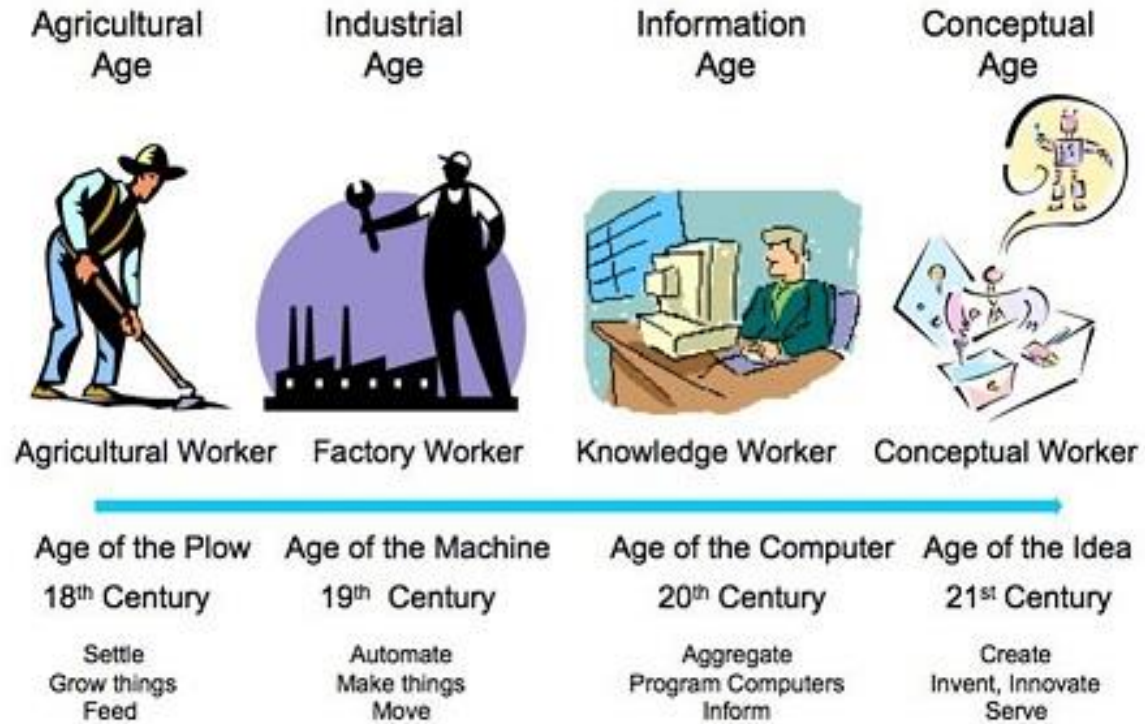
Action Word (performance)	Learning Statement (the “what”)	Criterion (which governs the “what” of performance)
Apply	water sterilization techniques	to purify the drinking water.
Differentiate	between clients needing short and long-term counselling	to determine a treatment plan.
Produce	MS Excel spreadsheet reports	for both profit and non-profit accounting situations.
1. Evaluate and synthesize	research materials	to identify relevant areas for specific research focus
1. Apply	an understanding of the characteristics of quantitative and qualitative research methodologies	in research design and practice
1. Identify	the overall process of designing a research study	from its inception to its reporting stage.
4. Demonstrate	a better understanding of the communication process by identifying, explaining, and applying current communication theories	as they relate to a variety of contexts (e.g. interpersonal, intercultural, group, public and professional communication

Inspiration: <http://www.humber.ca/centreforteachingandlearning/instructional-strategies/teaching-methods/course-development-tools/writing-learning-outcomes.html>



- Curriculum development - factors to be taken into account:
  - institutional capacities,
  - internationalization,
  - labour market needs etc.
- Description of doctoral course modules (introduction to “homework assignments” before the Ljubljana training)
  - template to be used
  - explanation of the template, "dos and dont's"
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## Triple Helix:

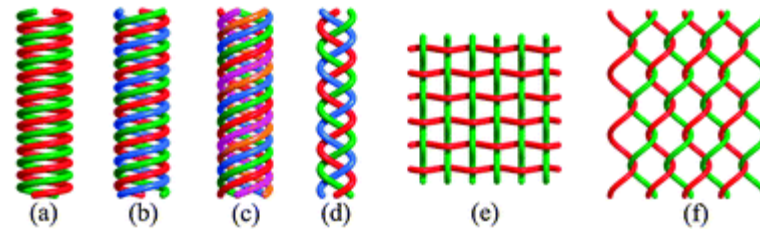
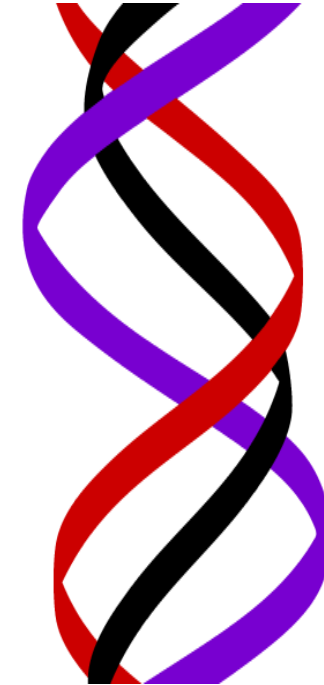
University + Industry + Government

## Quadruple Helix

...+ Public/Civil Society

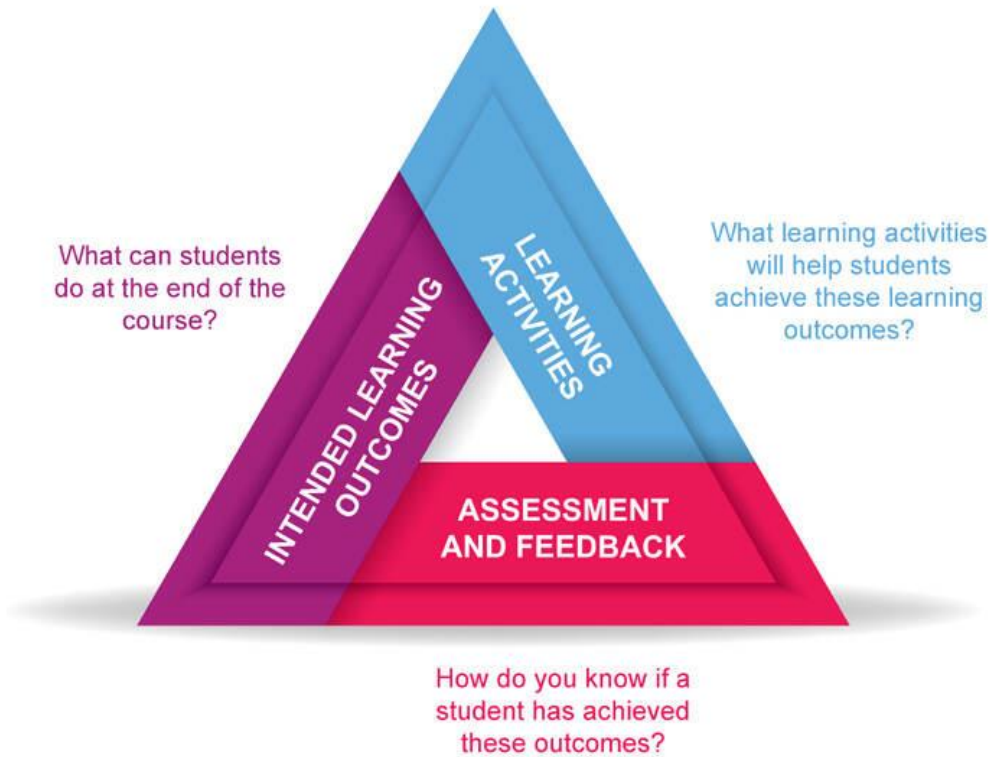
## Quintuple Helix

...+ Ecology/Natural Environment

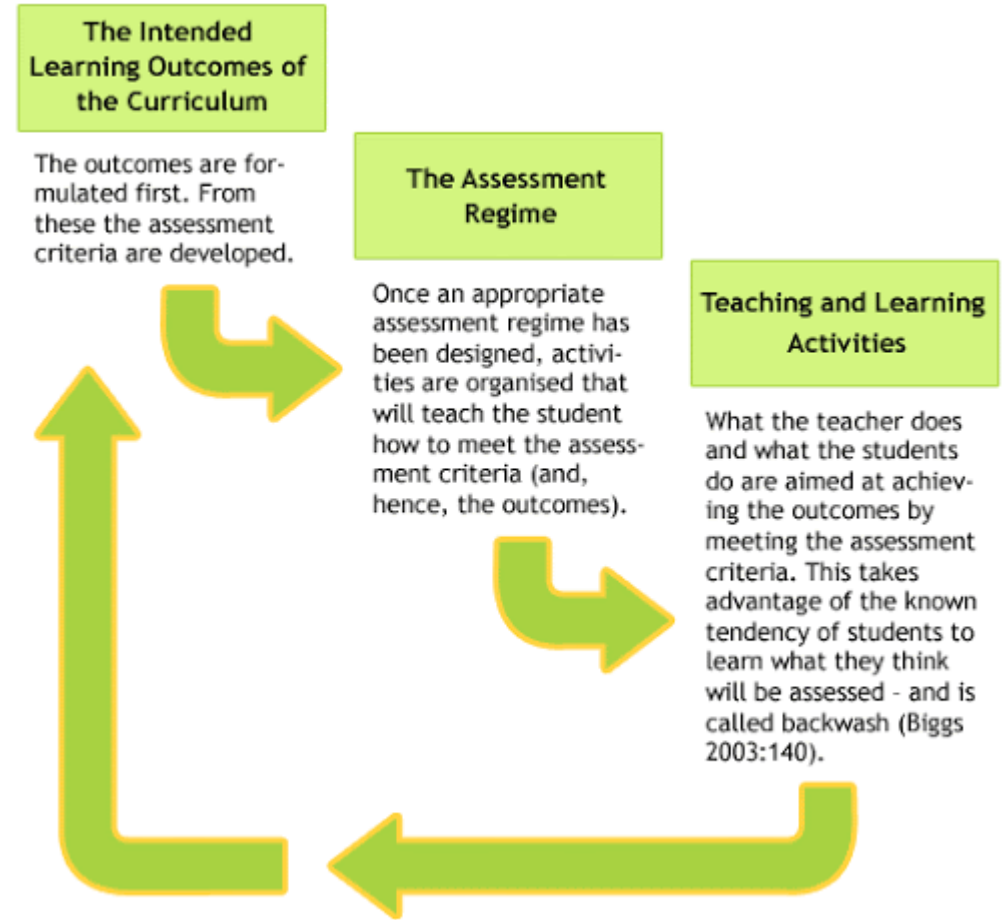


General	Subject specific
<p>European Qualifications Framework European Standards &amp; Guidelines for QA, ECTS Guide, TUNING materials</p>	<p>International standards International sectoral qualifications</p>
<p>National Qualifications Framework National regulations (HE Act etc.) Accreditation criteria</p>	<p>National sectoral qualifications Professional standards</p>
<p>Institutional regulations/strategies, Faculty/department regulations</p>	<p>Subject/domain institutional strategies and regulations</p>

General	Subject specific
<p>European Qualifications Framework European Standards &amp; Guidelines for QA, ECTS Guide, TUNING materials</p>	<p>Chemistry Eurolabels TUNING „Budapest descriptors” European Chemist designation</p>
<p>Polish Qualifications Framework Polish HE Act, ministerial regulations, accreditation criteria</p>	<p>Polish Sectoral Qualifications Framework – Chemistry Sector</p>
<p>Jagiellonian University Strategy</p>	<p>Jagiellonian University Strategy for Chemistry Area</p>



<https://www.google.com/url?sa=i&url=https%3A%2F%2Fotl.uoguelph.ca%2Fcourse-curricular-design%2Fcourse-design&psig=AOvVaw1KdlfvNDRZ62eP9gsnugbr&ust=1618917853724000&source=images&cd=vfe&ved=0CAIQjRqFwoTCJD9spCZivACFQAAAAAdAAAAABAD>



[https://lh3.googleusercontent.com/proxy/ZKm4zoLunXiBKZ96n4ruivu4197r7NKS4F68IZuovT05boe3X3xN5\\_yVBKOKtLz4r8kUJE9IA1SY7Ia5MHPB-nxM2qkXb63X4Du3AewTyObzO0BPEA](https://lh3.googleusercontent.com/proxy/ZKm4zoLunXiBKZ96n4ruivu4197r7NKS4F68IZuovT05boe3X3xN5_yVBKOKtLz4r8kUJE9IA1SY7Ia5MHPB-nxM2qkXb63X4Du3AewTyObzO0BPEA)



- ✓ **Identify the needs of stakeholders** (i.e., students)
- ✓ **Create a clear list of learning goals and outcomes.**
- ✓ **Identify constraints** that will impact your curriculum design.
- ✓ **Consider creating a curriculum map**
- ✓ **Identify the instructional methods**
- ✓ **Establish evaluation methods**
- ✓ **Remember that curriculum design is not a one-step process; continuous improvement is a necessity.**

*Schweitzer, Karen. "Curriculum Design: Definition, Purpose and Types." ThoughtCo, Oct. 29, 2020, [thoughtco.com/curriculum-design-definition-4154176](https://www.thoughtco.com/curriculum-design-definition-4154176).*



# Remarks on teaching and learning methods

*(after **Trainer's Handbook - A 14 days Teaching Methodology Course**  
by Asman Makokha with Michaela Ongwae, DED 1997)*



- Teacher-centred methods
- Learner centred methods
- Content focused methods
  
- ❖ Combination: Interactive/participative methods





- The lecture method
- The discussion method
- The programmed instruction method
- The study assignment method
- The tutorial method
- The seminar method
- The demonstration method
- The buzz group
- Brainstorming
- Role plays



**USES:** To orient students. To introduce a subject. To give directions on procedures. To present basic material. To introduce a demonstration, discussion, or performance. To illustrate application of rules, principles, or concepts. To review, clarify, emphasise or summarise.

**ADVANTAGES:** Saves time. Permits flexibility. Requires less rigid space requirements. Permits adaptability. Permits versatility. Permits better centre over contact and sequence.

**DISADVANTAGES:** Involves one way communication. Poses problems in skills teaching. Encourages student passiveness. Poses difficulty in gauging student reaction. Require highly skilled instructors.



**USES:** Discover new ideas, thoughts and responses very quickly

**ADVANTAGES:** Leads to a very animated and energising session. More reserved participants feel free to contribute.

**DISADVANTAGES:** It takes time particularly if it is a large group. May consume a lot of material e.g. flipcharts or writing materials. Requires high level facilitation skills.



Course provider (institution)

Course title

Target group

Type (compulsory/optional)

Number of ECTS credits allocated (if applicable); estimated workload

Mode of delivery (face-to-face/ distance learning etc.); number of contact hours

Language of instruction

Prerequisites and co-requisites (if applicable)

Course aims

Learning outcomes

Course content

Recommended or required reading and other learning resources/tools

Planned learning activities and teaching methods

Assessment methods and criteria

Additional information



- ❖ Curriculum development – analysis of the factors to be taken into account (institutional capacities, internationalization, labour market needs etc.) in particular institutional and national environment
- ❖ Practice: design of draft curricula and course modules for particular domains of Geoinformation technologies



## June 16

09h00-10h30 Curricula development workshop: Introduction, Invited lectures

10h30-11h00 **Coffee Break**

11h00-12h30 Curricula development workshop: Working in the groups – part 1

12h30-14h00 **Lunch**

14h00-17h00 Curricula development workshop: Presentations of the work from the first day. Discussion.  
Results/Summary of the work from the first day

## June 17

09h00-10h30 Curricula development workshop: Introduction, Working in the groups – part 2

10h30-11h00 **Coffee Break**

11h00-12h30 Curricula development workshop: Working in the groups – part 2 (continuation)

12h30-14h00 **Lunch**

14h00-17h00 Curricula development workshop: Presentations of the work from the second day. Discussion.  
Results/Summary of the work from the second day. - First conclusions

15h30-16h00 **Dinner**

## June 18

XXhXX-YYhYY Curricula development workshop: Discussion (presentation/results of the work). Preparation of final results

# Thanks!

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