Implementing GreenComp within CALOHEE

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Teaching sustainable development: from a disciplinary to a learning outcome approach

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Global sustainability: challenge or opportunity for engineering?

Global sustainability: challenge and opportunity for engineering

- Engineers are the great problem solvers of the world
- Understanding the problem
- Climate, environment, resources, …
- United Nations 17 Sustainable Development Goals
- God created the World and engineers change it!

Structure

- Terms of reference for competences of engineers
-Upskilling of Engineers (CPD and LLL)
-Impact of engineers on Sustainable

Engineering Qualification Frameworks

- Tuning-AHELO framework;
- EUCEET framework;
- EUR-ACE framework;
- International Engineering Alliance (IEA) framework;
- ABET framework;
- Conceiving, Designing, Implementing, Operating (CDIO) Initiative framework;
- National Society of Professional Engineers framework;
- American Society of Civil Engineering (ASCE) framework.

CALOHEE (Tuning)

Comparing Achievement of Learning Outcomes in Higher Education

- Knowledge and understanding
- Analysis and problema solving
- Design
- Research
- Practice
- Decision Making
- Team working
- Communication
- Lifelong Learning

Reflections

- Area 1 Embodying sustainability values

Teacher Education may have connections with 1.3 - supporting fairness in the competence related to Inclusion.

- Area 2 System thinking and Critical thinking, Problem Framing

This may be transversal to many subject areas but the definition is different. Physics has the heading ‘Problem solving’.

Reflections (cont.)

Area 3 Futures literacy, Adaptability, Exploratory thinking

It can imply use of decision taking tools also on the basis of calculations on probability, multi-criteria approach. These are competences that very much depends also on the learning environment and also on experience of interdisciplinary studies.

Area 4 Acting for sustainability: Political agency, collective actions, individual initiative

CALHOEE as an example of collective action illustrated by the discussion in this group. But also it calls for individual responsibility and individual life-style changes.

Level 6 (Bachelor) Sub-Dimension 2.3
Safe, sustainable and of low impact solutions

KNOWLEDGEG

Define and describe key aspects of safety, sustainability and impact on society and environment related to civil engineering phenomena and to the ethical obligation and social responsibility of professional engineers.

Knows that sustainability problems must be tackled by combining different disciplines, knowledge cultures and divergent views to initiate systemic change.

Level 6 (Bachelor) Sub-Dimension 2.3
Safe, sustainable and of low impact solutions

SKILLS

Solve complex civil engineering problems that may involve non-technical – societal, health and safety, environmental, economic and industrial –implications by applying appropriate and relevant established solution methods and report the results of the solution process.

Can synthesise sustainability related information and data from different disciplines.

Level 6 (Bachelor) Sub-Dimension 2.3
Safe, sustainable and of low impact solutions

Attitudes

Identify appropriate and relevant established solution methods of complex civil engineering problems having awareness of non-technical – societal, health and safety, environmental, economic and industrial – implications in formulating recommendations for necessary measures.

Is committed to considering sustainability challenges and opportunities from different angles.

Thank You!