

Press release No 1- 2023
December 2023
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Empowering Europe's Energy Sector Leaders: nZEBRA's Cutting-Edge Education and Training Initiative

nZEBRA (Intensive blended course in Climate Neutral Buildings to address nZEB regulation and complex behaviour of buildings) is a 36-month project co-funded by the European Erasmus+ Programme with a budget of €400 000 and a consortium of six partners. The aim of nZEBRA is to create an intensive blended course focusing on Climate Neutral Buildings using micro-credentials. This course intends to boost the skills of Higher Education Institution (HEI) students in architecture, civil, and energy engineering for designing and maintaining nZEB structures meeting the market demand for skilled professionals, and supporting global efforts to combat climate change.

The construction sector accounts for significant energy consumption and CO₂ emissions, contributing to global environmental challenges. In the EU, construction and demolition generate a substantial portion of waste, of which only one third is reusable. To achieve greener building lifecycles—covering design, construction, operation, and maintenance—a shift towards sustainable solutions is essential.

The European Directive on Energy performance mandates nearly Zero Energy Buildings (nZEB) for new constructions by 2021, with the goal of achieving a decarbonised built environment by 2050. Educational programmes in architecture, civil engineering, and energy engineering must evolve to comprehensively address sustainability. While EU universities offer varied programmes covering building energy performance, smart innovation, and nZEB concepts, there is a pressing need to:

- Expand similar training across European universities.
- Develop multidisciplinary curricula tailored for future architecture, civil engineering, and energy engineering professionals.
- Offer practical training focused on using BIM & BEM software for analysis and decision-making.
- Meet the rising demand for nZEB construction professionals.

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To tackle these challenges, nZEBRA is developing a new educational course focused on Climate Neutral Buildings in the form of micro-credentials. The course covers critical topics such as nZEBs, circular economy in construction, climate change adaptation, building-integrated renewable energy systems, smart buildings, and environmental social governance strategies.

nZEBRA will focus on:

- Creating a curriculum for interdisciplinary, hands-on learning in Climate Neutral Building, utilising innovative digital methods and practical challenges for assessments.
- Developing interdisciplinary educational content in Climate Neutral Buildings that covers the entire life cycle of sustainable construction.
- Creating guidance and practical tools for teaching challenge-based learning scenarios in the project, along with a toolkit to train instructors in utilising BIM and BEM software for implementing sustainable building solutions.
- Implementing and evaluating the Climate Neutral Buildings blended course for its ability to deliver interdisciplinary, practical training that meets current educational demands and the market's needs in building performance.

If you want to stay up to date on nZEBRA's educational programme and news, follow our [X account](#) and [LinkedIn page](#).

About the nZEBRA project

The project is funded by the European Erasmus+ programme with a total budget of €400 000, action type KA220-HED - Cooperation partnerships in higher education under Grant Agreement number 000154329.

Partners: 4 universities and 2 SMEs

1. [Hogskolan I Halmstad](#) (Coordinator)
2. [Lunds Universitet](#)
3. [Three O'clock](#)
4. [Hep – Esco Doo Za Vodenje I Financiranje Projekata Energetske Ucinovitosti](#)
5. [Albert-Ludwigs-Universitaet Freiburg](#)
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