Sinn?Voll!

SinnVoll presentation at Environmental Conference 2025:

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Project *Sinn?Voll!* is funded by *Stiftung Innovation in der Hochschullehre* (Foundation for Innovation in Higher Education Teaching) aiming at building and creating “meaningful learning environments” for students at HSRW.

Students find it easier to learn when they recognize the purpose of a learning module and experience it in a practical application context right from the start. Students and lecturers at the international Rhine-Waal University of Applied Sciences, therefore, want to work together with regional companies and strategic partners to develop project-based course formats where important, non-university learning and experimentation locations play a key role.

Meaningful environments [in this context] are any learning and application contexts that are relevant to the respective course. Some examples are subject-related teams in companies, workshops and construction sites as implementation sites, places of investigation in the environment, but also social groups such as clubs, community centres or schools. Target-group specific presentation becomes a new learning objective in this case. Students impart their knowledge in simplified do-it-yourself DIY workshops to school classes and thus deepen their knowledge. They become “role models” for the children and learn about the diversity of teaching and transfer. This freedom also enables personal growth. Project-based work in a motivating and “serious” environment outside the university deepens social bonds and team development. We want to expand and transfer this effective learning format.

Objectives

The following objectives have been prescribed within this project:

1. Further development of selected teaching modules together with students with the intent of intensifying the inclusion of “role models” and meaningful places in teaching.

2. Motivating the students by emphasizing the playful and meaningful relevance of the learning content by means of practical and experimental learning settings with companies, project partners and other external places.

3. Minimizing the effects of cultural reservations and language barriers, through real world encounters with relevant industry partners. The exchanges are meant to promote integration and understanding of the labor market.

4. Exploration of early practical experiences in professional fields for students.

5. Honing soft-skills through cooperative learning formats

6. Development of an open-source communication and cooperation platform “Learning Marketplace” to formalize and expand the “match making” between students and strategic partners, e.g. by providing student counselling by former interns and graduates acting as “mentors”.

7. Supra-regional promotion of the project to expand the network and dissemination within and outside the university.

8. Ensuring the transfer-ability of the process model to other learning contexts through provisions of documenting the evaluation and teaching material, as well as the online platform for training.

9. Asserting the sustainability of new learning formats in the further developed teaching modules.

Strategic Partners: Rf Frontend, LINEG, AI Land

Other collaborations: Jalasca, Frohnenbruch Bauernhof, Stockpiliert Stockert Radiotelescope, CPI Vertex Antennentechnik

Modules

The following modules, as part of the project, require (further) development and practical training concepts within the scope of innovative learning format implementation:

Core courses

1. Scientific Programming: Numerical Methods (1st Sem., Frank Zimmer, Infotronics Systems Engineering)

2. Geodata Management Systems (3rd Sem., Rolf Becker, Environment and Energy)

3. Innovative Ansätze der Informatik: Methoden und Werkzeuge der Astronomie (4th Sem., Frank Zimmer, E-Verwaltung/Medieninformatik)

4. Applied Measurement and Control (4th Sem., Rolf Becker, Environment and Energy)

Elective Interdisciplinary Projects

1. Development of learning concepts (part 1) and realization of “Learning tent(s)” *ColLab* House: Construction of a mobile, energy independent, tiny house for environmental analysis.

2. Conception of a communication platform, including match-making for internships to be defined alternatively *Synapse Online or OpenEOLab*: online platform with learning modules and training material developed throughout the semesters. Fortnightly podcast events with industry professionals and alumni for mentorship opportunities and talks on job market requirements for students.

3. Innovative IKT-Methoden am Beispiel der Astronomie Weather Balloon

4. Development of learning concepts (part 2): Reflection and Transferability ColLab House 2.0: Enhancing and utilizing the energy independent, mobile environmental lab for citizen science and

social awareness.

Activities

1. Analysing and designing further enhancements of modules

The Research Associate(s) (WiMi) observe and accompany the classes in the four specialist modules on a regular basis. The teachers and students are asked about perceived activity, practical relevance and motivation. In focus groups with the WiMi, student workers develop ideas for experimental learning formats involving inspiring locations and design new content.

2. Implementing, realizing and evaluating the improved modules

These activities, which build upon WP1, are carried out in two development cycles – WS2024-25 and SS2025. The respective significant locations are integrated and utilized. In addition, there is the development of an evaluation scheme to assess the impact achieved based on scientific methods in education and innovation research.

3. Learning Marketplace

The active expansion of the practice network is supported by the development of a communication platform, which also serves for match making between students and industry partners.

4. Learning Tent

The mobile learning tent serves to open up further special learning locations and is to be used in various additional core courses. Concept development and practical construction are to be carried out in an IP.

5. Project management, dissemination and PR

All deliverables and the support from the student workers are coordinated by the WiMi. The integration of external learning locations requires intensive communication with external partners, as well as time and mobility planning.

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