Leveraging Microcredentials in Problem-Based Learning: Experiences, Tools, and Future Perspectives

I-HE2023 4.-6. Oct









Center for Digitally Supported Learning (CDUL)

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Problem-Based Learning ?

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Problem-Based Learning

The PBL Principles

Project organisation creates the framework of problembased learning

Courses support the project work

Cooperation is a driving force in problem-based project work The problem-based project work of the groups must be exemplary

The students are responsible for their own learning achievements

The AAU Model Project- & Problem-Based Learning

• Start of semester

End of semester

Course Modules

Teaching, lectures, workshops etc.

Problem-Based Semester Project

Small research projects driven by a problem formulation

Group Exam Oral group examination

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Microcredentials

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Experiences

197

Strategy in 2022

Content

- 1. Facilitating and supporting the development of digital learning ressources (for on-demand online courses and learning designs)
- 2. Developing implementable models and concepts for the development of on-demand online courses and learning designs
- 3. Developing digital ressources and solutions that support CDULs core objectives and areas of focus

Beacons

- 1. Establishing a digital production unit for the development of digital learning ressources
- 2. Exploring the potential of on-demand online courses and learning designs that has an interdisciplinary scope
- Developing a competency development strategy to adress the area of focus as a "moving target"

End goals

- To be front-runners in the landscape of higher education in regard to developing digital learning ressources for on-demand online courses and learning designs
- To develop first-in-class higher education digital learning ressources (for on-demand online courses and learning designs)

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Results in 2023

Output

- 1. 20+ microcredentials /AAU Micros launching in the fall of 2023
- 2. A model for the production and implementation proces of AAU Micros
- 3. A landing page for AAU's microcredential concept AAU Micro with open access to all available courses

Horizons

- Rise in demand for the development of digital learning ressources from all faculties and other departments
- 2. Interdisciplinary project about generative AI and ChatGPT with the aim of developing one or more AAU Micros
- 3. A more selective and focused approach to new development projects for AAU Micros and other digital learning ressources



Recognition

- Disseminating our work, sharing our experiences and discussing our findings at conferences and network meetings
- 2. Getting approached by international universities interested in knowledge sharing, discussion and collaboration





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AAU Micro Examples



AAU Micro Examples











Hands-on AI Applications on Jetson Nano

🝈 1-2 hours



Badge – multiple choice

Sase knowledge about AI-programming on the Jetson platform

All students, but primarily in IT or engineering

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Emotional Intelligence in Leadership

5-6 hours



- Badge no testing
- Establishing a common base for participants prior to physical course

Industry leaders at all levels, through the AAU Executive Master's programme









Law and Legality in Engineering

0 2-3 hours



Badge – multiple choice

Preparing students for the legal procedures that are key in industry practice

All engineering students







Introduction to Generative AI

(3-5 hours



Badge – multiple choice

An introduction to G-AI, the technology, rules and regulations, and ethical considerations

All AAU students

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Tools

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TOOLS Course Formats

Slide-Driven



Artefact-Driven



Multi-Modal



Subject-Driven



Animated



Screen-Driven



TOOLS Development Guide



TOOLS Development Guide



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TOOLS Development Guide



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AVAILABLE AAU MICROS HOW IT IS MADE

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AAU MICRO

Experience learning at your own pace through micro courses, developed by the best teachers at AAU. AAU Micro is Aalborg University's take on microcredentials; compact, driven courses on specific subjects, meant to support group work as well as the regular curriculum. On this page, you will find a catalogue of the available AAU Micro courses.





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method to develop an electric equivalent circuit model of a lithium-ion battery..

SCIENTIFIC BACKGROUND ANALYSIS No matter the study or faculty, the foundation for any good problem based learning (PBL) project is a proper background...

> SCIENTIFIC BACKGROUND ANALYSIS

> > > View all available courses

ON NVIDIA JETSON NANO The Jetson Nano kit as borrowed from Aalborg University comes

inside a black... LITHIUM-ION BATTERY MODELING

MODERN AI APPLICATIONS ON NVIDIA JETSON NANO



THE DISCRETE LOGARITHM PROBLEM

The discrete logarithm problem is considered to be computationally intractable. That is, no efficient classical algorithm is known for..

DISCRETE LOGARITHM PROBLEM

PROJECT MANAGEMENT



POWER-2-X Power-2-X is a technological can be used and stored..

2-X

USER-INVOLVEMENT FOR invention, where surplus energy

USER-INVOLVEMENT FOR POWER-

Thoodle



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AAU MICRO	
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AVAILABLE AAU MICROS HOW IT IS MADE

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Meet & Greet

Introductory Meeting

Kicking off the process of developing your Micro, this short introductory meeting will introduce you to our team and the process as a whole. Besides getting a chance to know each other, this is also where you can ask clarifying questions on which standard to choose, and for us to inquire about the subject matter of the course.

At the end of this meeting, a date will be set for the next step; the **workshop**, and any preparations needed will be agreed upon.

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Additional reading

- <u>Ethics of Artificial Intelligence</u>, Internet Encylopedia of Philosophy. In particular sections 1, 2c, 2d, 2hii, and 2hiii.
- Krügel, Sebastian, Andreas Ostermaier, and Matthias Uhl. "<u>ChatGPT's inconsistent moral advice influences users' judgment</u>." *Scientific Reports* 13.1 (2023): 4569.
- Giovanni Spitale et al., <u>Al model GPT-3 (dis)informs us better than humans</u>. Sci. Adv. 9, eadh1850(2023).
- Yong Cao, Li Zhou, Seolhwa Lee, Laura Cabello, Min Chen, and Daniel Hershcovich. 2023. Assessing Cross-Cultural Alignment between ChatGPT and Human Societies: An Empirical <u>Study</u>. In Proceedings of the First Workshop on Cross-Cultural Considerations in NLP (C3NLP), pages 53–67, Dubrovnik, Croatia. Association for Computational Linguistics.

+ Add new

Introduction to Generative AI

Open ChatGPT understand the world?

Future Perspectives