

**AALBORG CENTRE FOR PROBLEM BASED LEARNING  
IN ENGINEERING SCIENCE AND SUSTAINABILITY,  
UNDER THE AUSPICES OF UNESCO**

ACTIVITIES ON  
**STAFF DEVELOPMENT  
& TRAINING**



United Nations  
Educational, Scientific and  
Cultural Organization



**AALBORG UNIVERSITY**

Aalborg Centre for Problem Based Learning  
in Engineering Science and Sustainability  
under the auspices of UNESCO

FALL 2019

# TRAINING ACTIVITIES AND LEVELS OF DEVELOPMENT

KNOW TO BE

- MPBL
- Excellence for Educational Change

Mastering PBL theories, origins, and competence to plan, carry out, evaluate and renew PBL in various contexts.

KNOW HOW

- Aalborg UNESCO Certificate

Understand PBL diversity and competence to plan and carry out PBL practices.

KNOW WHAT

- Visitors' workshops
- Open access sources
- Webinar series
- Diverse videos

Understand practice and competence to create ideas for new PBL practice.

# THE AALBORG UNESCO CENTRE

## STAFF DEVELOPMENT AND TRAINING ACTIVITIES

The Aalborg UNESCO Centre offers a range of training and educational activities on variations and models of problem-based, project organised learning (PBL). The overall goal is to support higher education institutions and academic staff building up new pedagogical capacities for educational change.

All activities address the concurrent issues of change in higher education and the need for more student-centred learning environments. Especially, in engineering and science education, there has been demands for team-based project work for a long time. These trends are now combined with new societal requirements and call for new competences such as analysis and solutions to complex problems addressing Sustainable Development Goals (SDGs). Therefore, there is a need to establish collaborative learning environments and develop diversity in the curricula at the systemic level to facilitate the learning of these competences.

For academic staff, there is a need for knowledge at different levels of development according to participants' needs. Consequently, for the training and educational activities, the learning objectives, training strategies and formats, as well as participants' directedness, workload and support, differ in the various activities.



# MPBL

## MASTER PROGRAMME ON PBL FOR STAFF DEVELOPMENT

The Master in Problem Based Learning (MPBL) is a fully online, highly interactive and flexible e-Learning programme for faculty staff at institutions, which want to change to Problem Based Learning (PBL) – or for faculty staff who just are interested in learning more about PBL.

The overall aim MPBL program is to support participants in achieving competences that will allow them to act as change agents in the introduction of problem based and project organised learning in their teaching practices at different levels and within the context of engineering and science education, addressing diverse group of students.

The Aalborg UNESCO Centre offers the MPBL, and it is a problem based learning programme, exemplary for its own contents and delivered as on-line distance education.

## **OBJECTIVES:**

- › Understand and reflect on knowledge within the area of educational theory and practice of problem based and project organised learning; area of educational planning and implementation
- › Be able to design, implement, analyse and evaluate (part of) an engineering education curriculum applying PBL principles
- › Be able to manage educational change processes that are complex, unpredictable and require new models



Learn more at:  
[www.ucpbl.net/  
education-courses](http://www.ucpbl.net/education-courses)

## **DURATION, STRUCTURE AND ORGANIZATION:**

- › Two-year part-time (60 ECTS) organized in four semesters
- › Fully on-line, with variety of teaching formats

### **SEMESTER 1:**

**Development of teaching competences**

**Project: Teaching portfolio**

Course 1: Learning theories and curriculum development

Course 2: Collaborative problem design

### **SEMESTER 2:**

**PBL models**

**Project: Design and planning a PBL module**

Course 3: PBL models, facilitation and blended learning design

### **SEMESTER 3:**

**PBL implementation and evaluation**

**Project: Implementation of PBL**

Course 4: Educational evaluation and management of change

### **SEMESTER 4:**

**Management of change and change agency**

**Project: Management of change and change agency**

Master's project

## **PARTICIPANTS:**

Individual participants have the possibility to enrol in the entire programme, a semester or a course.



# EXCELLENCE FOR EDUCATIONAL CHANGE

A PROGRAMME FOR PBL  
AND PEDAGOGY INNOVATION

The Excellence for Educational Change program aims to support, enhance and promote the development of innovative ways of teaching and to educate groups of teachers to construct and implement suitable innovative student-centred learning models for their own classrooms, programs and institutions.

## OBJECTIVES:

- ▶ Develop understanding of university teaching and learning as well as innovative pedagogy in general and PBL in particular.
- ▶ Develop disciplinary and interdisciplinary teaching designs by applying PBL principles.
- ▶ Organise students' learning activities taking into account their institutional and cultural contexts as well as experience of PBL implementation;
- ▶ Plan and organise students' work around problem-based projects.
- ▶ Develop facilitation skills by; for example, support the students' learning, group processes and group dynamics.
- ▶ Develop different assessment procedures and tools in order to assess students' abilities and learning in a PBL environment.
- ▶ Critically reflect on one's own as well as peer teaching practices.



## **DURATION, STRUCTURE AND ORGANISATION:**

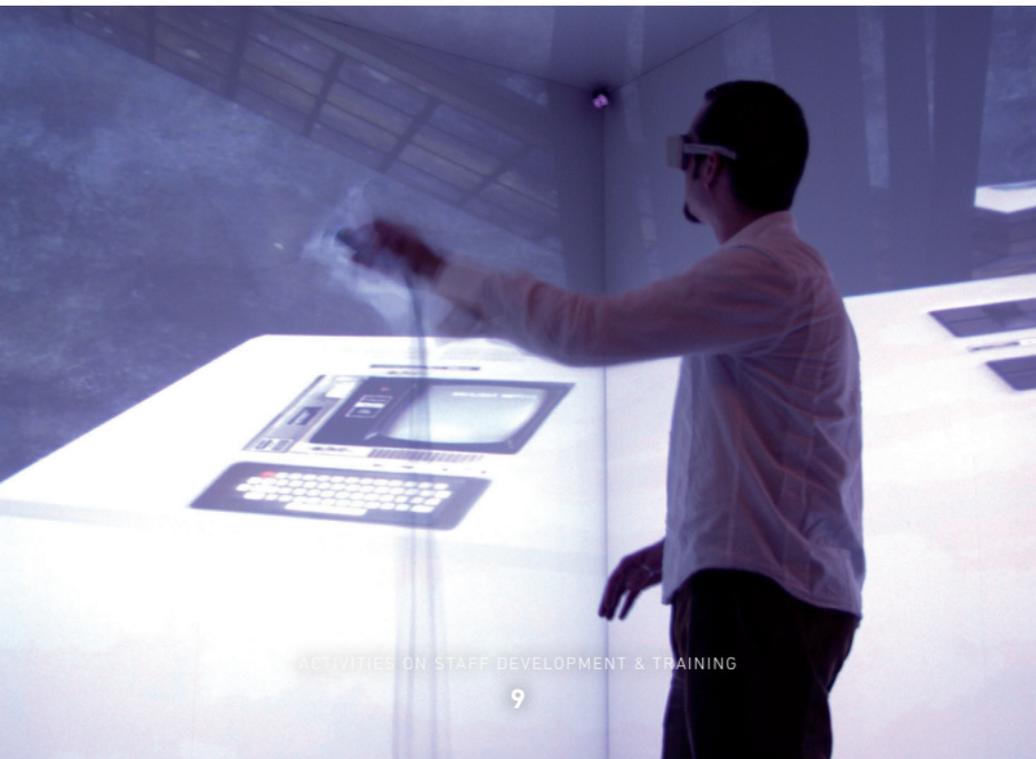
Program has a duration of six months, equivalent to 30 ECTS (European Credit Transfer System) of academic activities.

Educational activities include: 10 courses (in forms of workshops, lectures and assignments), guided classroom observations, team-based project work and individual work on teaching portfolio.

## **PARTICIPANTS:**

The programme is established upon agreement with the educational institution and organised for a minimum of 35 participants.

For more information, please contact the Aalborg UNESCO Centre.



# AALBORG UNESCO CERTIFICATE

ON BASICS OF PBL FOR CURRICULUM CHANGE



The Aalborg UNESCO Centre Certificate on Basics of PBL and Curriculum Change provides an overview of the basics of PBL and sets the stage for curriculum change and innovation.

The certificate takes a PBL approach and provides knowledge and exemplary hands-on activities facilitated by PBL experts.

Furthermore, the participants have the opportunity to develop new ways to make their programmes and classrooms more active, engaging and student-centred.

## OBJECTIVES:

- › Understand active learning methodologies, in particular problem- and project-based learning
- › Understand curriculum design and management
- › Design a PBL intervention for implementation in classroom
- › Understand and experience PBL as a learning process and the learning of PBL skills
- › Implement, or plan an implementation of the designed intervention
- › Document and reflect upon curriculum/ course change process

## DURATION, STRUCTURE AND ORGANISATION:

- › 5 ECTS course (150h) organised around four modules
- › Blended format, with face-to-face and online hands-on activities

<b>MODULE 1:</b> Introduction and preparation	Online, self-study activities Duration of two weeks
<b>MODULE 2:</b> Thematic workshops	Face-to-face Duration of four days
<b>MODULE 3:</b> Experimentation, reporting and evaluation	Self-study activity with online support Duration of five weeks
<b>MODULE 4:</b> Examination	Online Duration of two hours

## PARTICIPANTS:

The programme is established upon agreement with the educational institution and organised for a minimum of 10 participants and a maximum of 40 participants. The estimated cost per participant is 2200 EUR.

# VISITORS' WORKSHOP



Aalborg UNESCO Centre organises twice a year a two-day workshop for visitors: in the spring and in the fall.

The workshop includes an introduction to PBL learning principles and the Aalborg PBL model, visits to selected study programmes and selected groups of students.

## **OBJECTIVES:**

- › Understand PBL as a system and be able to recognize the various components of the system namely problems, projects, courses, learning objectives, assessment, process (transferable) skills.
- › Be able to address critical issues such as curriculum innovation and management of change, cooperation among teachers, and impact of assessment of learning outcomes.
- › Be able to identify relevant factors in preparing to implement PBL principles in their own environment.

## **PARTICIPANTS:**

Registration is already open. Participants should register in Aalborg UNESCO Centre website. The cost of workshop per participant is 550€.

## **SPECIAL WORKSHOPS FOR VISITORS:**

Aalborg Centre also welcomes visitors on other dates during the year – but in such cases, the visitors need to submit an application for visiting at least three months before the visit take place.

There is a fee for the administration and organisation of these visits. For more information, please contact the Aalborg UNESCO Centre.



Learn more at:  
[www.ucpbl.net/  
global-network/](http://www.ucpbl.net/global-network/)

# OPEN ACCESS RESOURCES

COURSES, WEBINARS, REPORTS AND VIDEOS



The Aalborg UNESCO Centre provides diverse open access resources for those who want to learn about PBL.

## ONLINE COURSES

- Online PBL – An introductory course on PBL in Higher Education
- Problem in PBL

Learn more at: [ucpbl.moodle.aau.dk](http://ucpbl.moodle.aau.dk)

## WEBINARS ON PBL HISTORY AND DIVERSITY

Learn more at: [www.ucpbl.net/global-network/webinars/](http://www.ucpbl.net/global-network/webinars/)

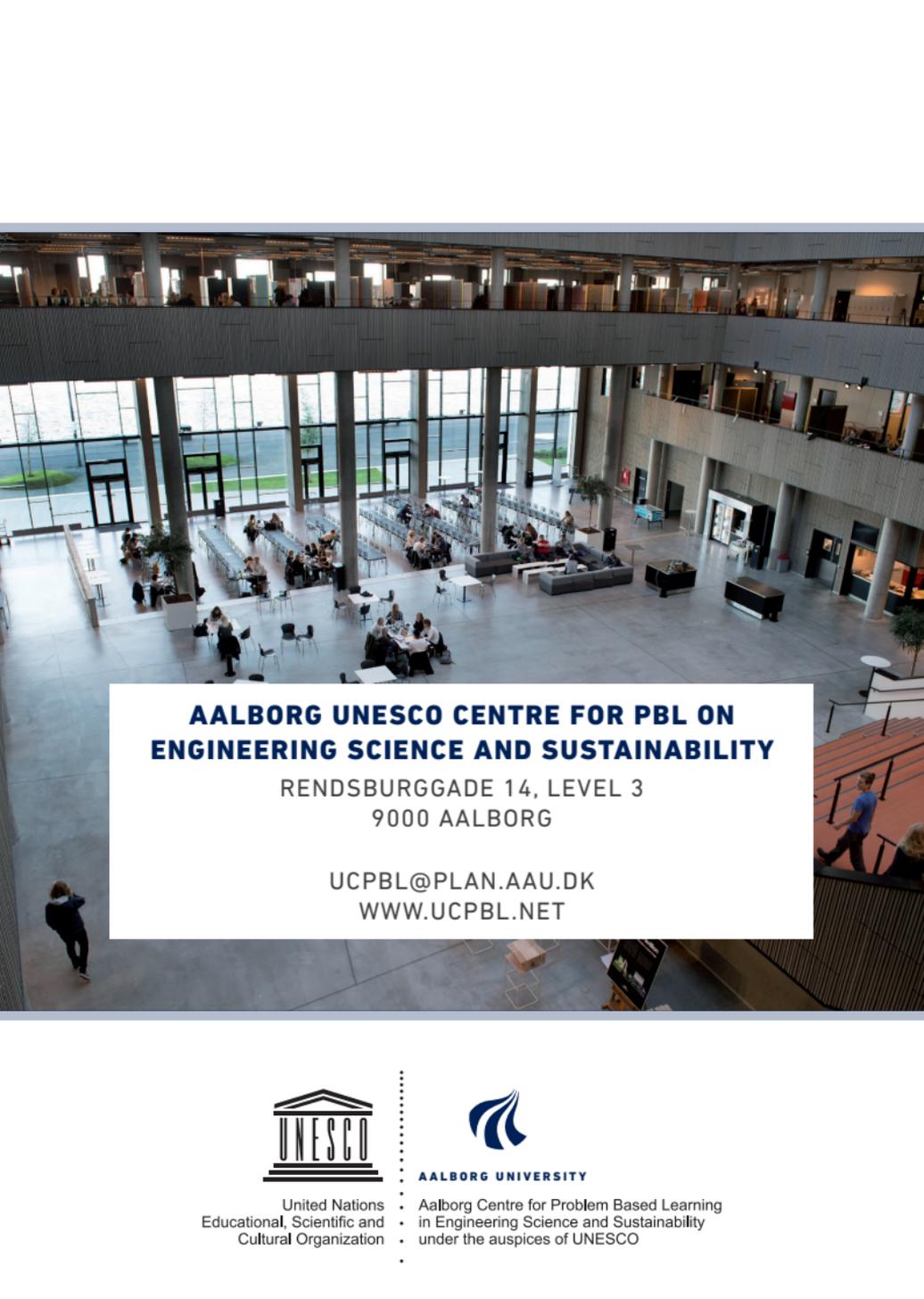
## WORKING PAPERS AND REPORTS

Learn more at: [www.ucpbl.net/global-network/working-papers-reports/](http://www.ucpbl.net/global-network/working-papers-reports/)

## PHD THESIS AND DEFENCES

Learn more at: [www.ucpbl.net/global-network/PhD+defense/](http://www.ucpbl.net/global-network/PhD+defense/)





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