# UniverCity Action Lab

## Step 1: Understanding Project-Based Learning

UNIVER**CITY** ACTION **LAB**

Co-funded by the
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of the European Union

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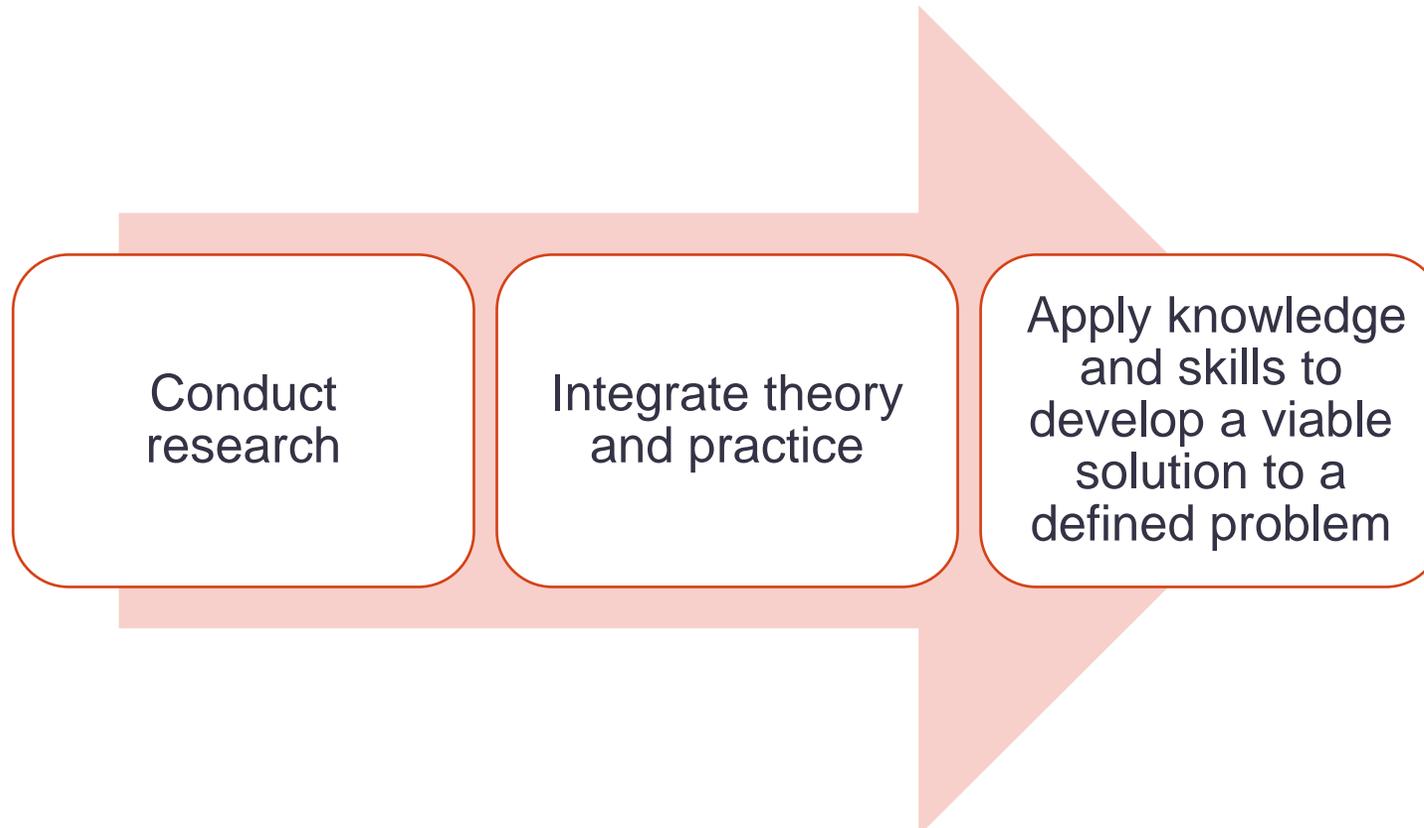Erasmus+ Programme
of the European Union

# 1. LEARNING AND TEACHING METHODS

The City Challenge Programme blends two closely related approaches to learning and teaching. Two teaching methods that are relevant here are:

| Problem-Based Learning | Project-Based Learning |
|---|---|
| Uses complex real-world problems to promote student learning of concepts and principles | Students acquire knowledge and skills by working over an extended period of time in investigating and responding to a complex question, problem or challenge |
| Tends to focus on a single subject | Often multi-subject |
| Need to develop specific steps for every case | Follows general steps |
| Uses cases studies or fictitious scenarios as "ill-structured problems" | Often involves real-world tasks and settings |

Problem-Based Learning is one of the most established, widely used and researched *learner-centred approaches*. It empowers learners to:

Conduct research

Integrate theory and practice

Apply knowledge and skills to develop a viable solution to a defined problem

*(Savery 2006: 12)*

# 2. PROBLEM-BASED LEARNING

Characteristics of Problem-Based Learning:

1. Learners are *responsible* for their own learning

2. Problem simulations should be ill-structured to *allow free inquiry*

3. Learning *integrates* a number of disciplines

4. **Collaboration** *is essential*, it reflects the common reality of work, research, or development teams

5. The tutor is primarily a *facilitator of the learning process*, instead of a traditional transmitter of knowledge
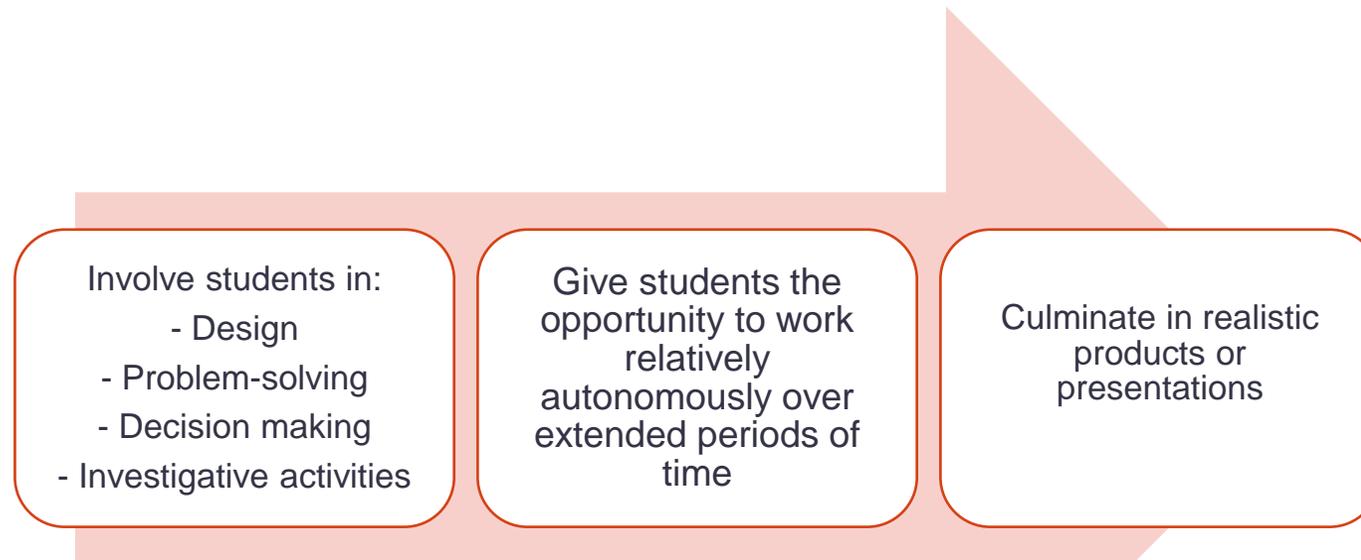
Example of full integration of Problem-Based Learning into the university curriculum:
Aalborg University – Problem-Based Learning

# 3. PROJECT-BASED LEARNING

Project-Based Learning organises learning around projects and project work. It may be used in conjunction with Problem-Based Learning, but may not involve working on a specific "problem".

Projects are here understood as complex tasks, based on challenging questions, that:

Involve students in:
- Design
- Problem-solving
- Decision making
- Investigative activities

Give students the opportunity to work relatively autonomously over extended periods of time

Culminate in realistic products or presentations

# 4. THE UCITYLAB APPROACH

**UCITYLAB blends the two approaches in order to get students working on specific urban challenges:**

Teamwork carried out in the form of a project→ Identification and definition of the challenge→ Research plan development→ Project management→ Reporting

Real (not simulated) ill-structured problems based on everyday experiences of the city inhabitants, which address student competencies in:
- Problem formulation
- Self-reflection
- Meta-cognition
- Collaboration

UCITYLAB blends the two approaches in order to get students working on specific urban challenges:

**Teamwork being carried out in the form of a project:**

- Identification and definition of the challenge
- Research plan development
- Project management
- Reporting

**Real (not simulated) ill-structured problems based on everyday experiences of the city inhabitants**

**Addressing student competencies in:**

- Problem formulation
- Self-reflection
- Meta-cognition
- Collaboration

# 4. THE UCITYLAB APPROACH

Incomplete list of approaches that may be used:

| Teaching and learning method | Description | How and when to use |
|---|---|---|
| **Lectures** | Traditional form of teaching, content is provided by the programme instructor(s), mostly one-directional. | • Should be kept to the necessary minimum, as an introduction to a new topic, e.g. urban sustainability overview. |
| **Invited lectures** | Traditional form of teaching, but the content is presented by invited external experts. | • Brings experts into the classroom<br>• Makes the programme more diverse and interesting<br>• To provide expert knowledge on certain topics that is unavailable within own faculty. |
| **Workshops** | Can involve one-directional flow of information, but engages students in active participation and hands-on activities. | • To be used often<br>• Blending new content with experimentation, creative tasks, using the knowledge or skills<br>• Lead by programme instructor or invited external experts. |
| **Feedback** | Continuous verbal assessment of the students' work to support the learning process and as part of the learning process. | • Incorporated throughout programme curriculum<br>• Should be positive and encouraging<br>• Directs and stimulates the student towards learning objectives |
| **Peer-to-peer feedback** | Students assess each other's work in a verbal or written format. | • Incorporated throughout programme<br>• Guided by programme mentor, providing guidelines for constructive feedback and meaningful discussion<br>• In-person or through use of online tools. |

# 4. THE UCITYLAB APPROACH

Incomplete list of approaches that may be used:

| Teaching and learning method | Description | How and when to use |
|---|---|---|
| **Self-assessment** | Encouraging students to deliver self-assessment and reflection as a form of learning. | • Encourages students' responsibility for own progress<br>• Used in certain team or individual assignments, preliminary interviews, or post-programme evaluation<br>• Teaches to critically assess progress, potential shortcomings, and identify routes for improvement. |
| **Teamwork** | Students work in teams, managing their projects, completion of tasks, team communication, division of work etc. | • An essential part of the programme<br>• Used both in allocating specific tasks to teams, and in allowing teams to develop and work on their specific team projects<br>• In-person and virtual team communication should be supported<br>• Development of a comprehensive set of competences and skills. |
| **Supervision of project work** | Role of the programme instructor in guiding and supporting the team projects. | • Integral component of teamwork and Project-Based Learning<br>• Continuous supervision and support of teams in managing their projects should be integrated into classroom activity throughout. |

Further references:

- Problem-Based Learning vs. Project-Based Learning

Some case studies:

- RUARDI: Developing alternative solutions for degraded industrial environment – City Airport
- Creative Design Semester & UniStartApp
- Matosinhos Living Lab