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Course 4: STEAM & Design Thinking

Hosting Organisation: Akademie für Politische Bildung und demokratiefördernde Maßnahmen
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Course Introduction

Course focus

- STEAM as a framework for meaningful, interdisciplinary learning
- Design Thinking as a learner-centred problem-solving process
- Relevance for adult education, social work, psychology, and training

Learning outcomes

Participants will be able to:

- Design interdisciplinary STEAM learning activities
- Apply design thinking stages in adult education
- Facilitate creative problem-solving processes
- Transfer STEAM approaches to their own professional contexts

Why STEAM Adult Education

STEAM =
Science,
Technology,
Engineering,
Arts,
Mathematics

Focus on **real-world problems**, not isolated disciplines

STEAM for adults:
experiential learning
relevance to life and
work challenges

Reflection question How does STEAM differ from traditional subject-based learning?

Design Thinking in Adult Learning Contexts

Examples:

- Designing a community project
- Solving an educational or social problem
- Creating inclusive learning environments

Mini-task (pairs):

- Identify a real challenge from your professional practice
- Which Design Thinking stage do you usually skip?

Interdisciplinary Thinking

STEAM connects:

scientific thinking

digital tools

creativity

social impact

Exercise: “STEAM Mapping”

Choose one topic (e.g. mental health, inclusion, sustainability)

Identify how each STEAM component could contribute



MiniSTEAM Project Planning Phase

Task:

Participants design a **small STEAM learning activity:**

- Target group (adult learners)
- Real-life problem or question
- Learning objectives
- STEAM elements involved

Output: Short concept (1 slide or flipchart)

Feedback & Iteration

Peer feedback using “I like / I wonder / What if”

Focus on:

clarity of the problem

learner engagement

interdisciplinarity

Facilitator input:

Feedback as part of learning, not evaluation

Simulation RealWorld STEAM Challenge

Roles:
Facilitator
Learners
Observers

Scenario

Debrief questions:
What worked?
What was
challenging?
How did creativity
emerge?

Scenario “You are asked to design a STEAM-based learning activity that addresses a real social or educational issue.”

Shared Module (4): FutureLab Exploration Ability Enhancement Courses

Group Activity

Task at AEC:

Explore FutureLab exhibitions

Identify:

- interdisciplinary elements
- innovative learning approaches
- use of technology and creativity

Group output: 3 insights on how STEAM can be applied in adult education

ShareModule(5): Interactive Design Prototyping AEC

Hands-on Group Task

Participate in interactive AEC design activities

Create a **rough prototype** (conceptual or physical)

Reflection prompts:

How does prototyping support learning?

What emotions were involved in the process?

Developing Personal & TEAM Education Concept

Individual work

Participants design a STEAM concept relevant to their own context:

- Educational, social, psychological, or community-based
- Focus on adult learners



Elements to include:

- Problem/challenge
- Learning objectives
- Activities
- Expected impact

Planning & preparing for Outdoor STEAM Prototyping

Adapting STEAM to outdoor environments

Safety, logistics, facilitation

Using nature as:

- material
- inspiration
- learning space

Planning task:

Define roles and materials for outdoor work

Shared Module (9): Prototyping Nature

Outdoor Collaborative Activity

Group task:

Build or visualise a STEAM solution using natural elements

Apply design thinking stages in practice

Documentation:

Photos / sketches / short notes

Reflection on Outdoor **STEAM** Learning

What changed when learning moved outdoors?
How did collaboration evolve?
What learning moments were unexpected?
[Link to adult education practice](#)

Module 10: STEAM Showcases & Transfer

Final Group Activity

Presentation of STEAM ideas and prototypes

Peer feedback

Discussion on transfer to:

- training
- therapy
- community education
- social work

Wrap-up question: How will I use STEAM & Design Thinking in my work?