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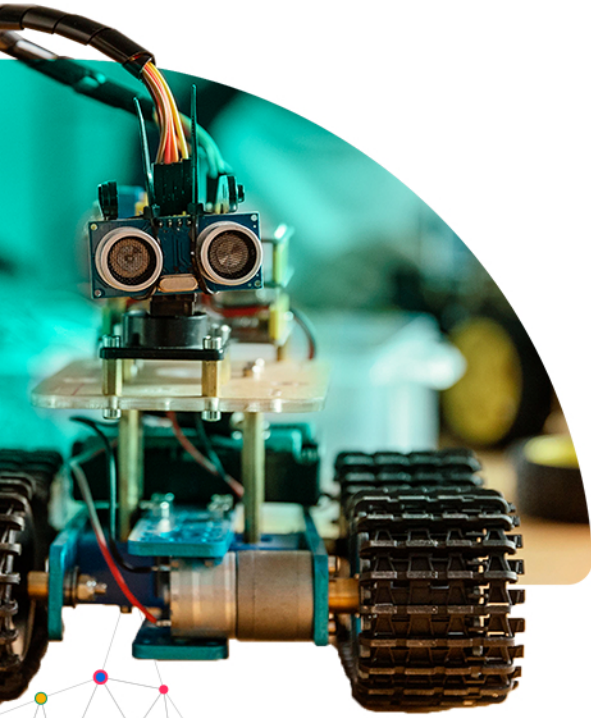


2020-1-TR01-KA227-ADU-098071  
INTERGENERATIONAL LEARNING FOR ADULT LEARNERS  
THROUGH STEAM: FROM THE POINT OF HOFSTEDE'S 6D MODEL  
(STEAM PLUS)

# STEAM Module

IO2:

STEAM Module for  
Intergenerational Learning



ERZURUM  
TECHNICAL UNIVERSITY  
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## IO2: STEAM Module for Intergenerational Learning

STEAM is by nature an interdisciplinary and informal working order. Therefore, the module has a three layer (school term/week/hour) structure and this structure allows the module to serve the same purpose with a different time management system in different countries. The activities that will make up the module are designed as a two-level structure. The first level of the module is for STEAM beneficiaries (as adult learners).

### **LEVEL 1:**

This phase is planned as a school term / 16 weeks / 88 hours. This stage consists of four levels (A1, A2, B1, B2).

**STAGE 1: DISCOVERING STEAM;** With the A1 and A2 courses to be given within the scope of this stage, participants will be provided with basic knowledge about all components of STEAM and gain the necessary skills.

#### **A1: Exploration (6 weeks / 36 hours)**

People will receive basic training on STEAM activities. Thanks to these activities, individuals will be able to discover the existence of new learning channels.

#### **A2: Capacity Building (6 weeks / 36 hours)**

At this stage, individuals will be interested in STEAM activities and develop their potential.

**STAGE 2: SPECIALIZING IN STEAM;** Persons who successfully complete the B1 and B2 levels that make up Stage 1, reach the level of detailed knowledge and skill related to the field they want (Science, Technology, Engineering, Art, Mathematics) from the disciplines that make up STEAM.

#### **B1: Development (2 weeks / 8 hours)**

At this stage, individuals will choose a letter they want to specialize in on STEAM and begin to receive content training about that letter.

#### **B2: Specialization (2 weeks / 8 hours)**

People who successfully complete the previous level gain this level of expertise by making high-level applications for the letter they want.

## LEVEL A

Level-Cirriculum		A1 - Discovering			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	6	Science Experiment	Science	Acids and Bases	3
		Technology And Innovation	Technology	Concept Definition	3
2	6	Science Experiment	Science	Blood Cells	3
		Introduction To Programming	Engineering	Introduction to Scratch Platform, 2D Animation	3
3	6	Introduction to Programming	Engineering	Football Animation, 2D Animation	3
		Introduction To Programming	Engineering	Fish Eating Game, 2D Game	3
4	6	Robot Programming	Engineering	Assembly M-Bot	3
		Robot Programming	Engineering	Code Block Application, M-Bot	3
5	6	Robot Programming	Engineering	Assembly Lego	3
		Robot Programming	Engineering	Use of Moving Blocks, Lego	3
6	6	Robot Programming	Engineering	Use of Medium Motor, Sound, Display Blocks, Lego	3
		Robot Programming	Engineering	Use of Ultrasonic Sensors, Lego	3
6 Week Total Hour					36

Level - Curriculum		A2 - Capacity Building			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (Hours)
1	6	Science Experiment	Science	Atmospheric Pressure	3
		Computer Game	Technology	3D Game Application	3
2	6	Science Experiment	Science	Adhesion, Cohesion Force	3
		Computer Game	Technology	3D Game Application	3
3	6	3D Design	Engineering	Online Cad, Tincercad	3
		3D Design	Engineering	Online Cad, Tincercad	3
4	6	Introduction To Electronic Circuits	Engineering	Basic Circuit Elements, Snap Circuit	3
		Introduction To Electronic Circuits	Engineering	Connection Circuits, Snap Circuit	3
5	6	Wood Machining	Engineering	Turning, Cutting, Drilling	3
		Wood Machining	Engineering	Pen Holder Manufacture	3
6	6	Maker	Science	Model Hydraulic Press Manufacture	3
		Virtual Reality	Technology	Science Simulations	3
6 Week / Total Hour					36

## LEVEL B

Level Curriculum		B1 - Enhancing			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	4	Science Experiment	Science	Understanding exothermic reactions and open air pressure	4
2	4	3D Modeling	Science	Solidworks Training	4
2 Week / Total Hour					8

Level Curriculum		B2 - Expertising			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	4	Science Experiment	Science	Cell Structures and Tissue Systems	4
2	4	Mechatronics	Engineering	Programming with Arduino	4
2 Week / Total Hour					8

## **LEVEL 2:**

For STEAM Instructor level. This level is planned as half teaching period / 8 weeks / 32 hours. This level also consists of four stages (C1, C2, D1, D2).

The levels and stages are planned in detail as follows:

C1: Problem Solving (2 weeks / 8 hours)

C2: Project Planning (2 weeks / 8 hours)

D1: Coaching (2 weeks / 8 hours)

D2: Mentoring (2 weeks / 8 hours)

**STAGE 1: PROJECT CYCLE MANAGEMENT:** At this level, individuals will be able to develop projects by taking design, budgeting, reporting and evaluation training under the headings.

Problem solving and project planning.

**STAGE 2: LEADERSHIP:** Candidates who have successfully completed all previous phases will learn how to teach STEAM as STEAM volunteers. Since STEAM training is a process that requires both coaching and mentoring, the mo

## LEVEL C

Level Curriculum		C1 - Problem Solving			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	4	Problem Solving Challenge	Science	Smart Agriculture for Food Security	4
2	4	Innovative Solutions Hackathon	Science	Reducing Plastic Waste in Communities	4
2 Week / Total Hour					8

Level Curriculum		C2 - Project Planning			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	3	Strategic Project Simulation	Science	Health Clinic Expansion	3
2	5	Budgeting and Resource Allocation Workshop	Technology	Education programme Implementation	3
		Effective Communication and Collaboration	Technology	Sustainable Urban Planning	2
2 Week / Total Hour					8



## LEVEL D

Level Curriculum		D1- Coaching			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	5	Interactive Learning Facilitation	All	STEAM Inquiry Clinics	2
			All	STEAM Challenge Showdown	3
		Adaptive Learning Strategies	All	STEAM Learning Profiles	3
2 Week/Total Hour					8

Level Curriculum		D2 - Mentoring			
Week	Hour	Workshop Title	STEAM Category	Content Title	Lecture Duration (hours)
1	4	Guided Mentorship Project	All	STEAM Career Exploration	4
2	4	Mentorship Showcase and Reflection	All	Technology for Social Change	4
2 Week/Total Hour					8