



## Teaching Scenario, Demo Lesson and Lesson Plan

Project: Robo STEAM – Inclusive Technologies

Platform: StreamIT – Robotic Tele-Visiting Platform

Work Package: WP4 – Methodology and Teachers' Toolkit

Document Type: Teaching Scenario / Demo Lesson / Lesson Plan

Language: English

Location: Sofia, Bulgaria

Institution: Institute of Information And Communication Technologies (IICT), Sofia

Museum / Exhibition: "Sofia Ethnographic Museum"

### 1. Teaching Scenario Overview

This document provides an expanded framework for a specialized demo lesson facilitated by **IICT** using the StreamIT robotic telepresence platform. The primary goal is to provide students with a high-tech gateway to explore the cultural and historical exhibits of the **Sofia Ethnographic Museum** from a remote location. By integrating advanced robotics directly into the classroom environment, the lesson evolves from a traditional lecture into a highly interactive, teacher-led virtual expedition, allowing for a dynamic exploration of Bulgarian heritage.

### 2. Educational Context

**Target Group:** This scenario is specifically tailored for **secondary students in upper grades**, aligning with the advanced technical background of students associated with IICT.

**Learning Setting:** The lesson is classroom-based, utilizing a **smart screen** and **projector** for collective viewing, ensuring all students can see the robot's perspective simultaneously.

**Instructional Format:** Unlike non-guided tours, this session is designed as a **guided tour**. It features a specialized **museum tour guide** who provides expert commentary, while the teacher facilitates the journey using the robotic tools.

**Duration:** The total instructional time is set for 45 minutes

### 3. Key Learning Objectives

Upon finishing this specialized session, students from IICT will have achieved several key milestones:



- Deepened Cultural Awareness: Students will gain a sophisticated understanding of the historical legacy and traditional craftsmanship displayed at the Sofia Ethnographic Museum.
- Critical Perspective: Participants will learn to evaluate how ethnographic history remains relevant in a modern, digitized society by analyzing exhibit contexts.
- Technical Proficiency in Telepresence: By observing the StreamIT platform in action, students will explore the engineering and logic behind remote-controlled robotic systems and their role in making global education more inclusive.

#### 4. Curriculum Integration (STEAM)

This lesson plan integrates multiple academic pillars to provide a well-rounded learning experience for IICT students:

- Digital Heritage & History: An exploration of how cultural legacies are preserved and the specific history of the region's ethnographic evolution.
- Informatics & Robotics: A technical deep-dive into the operational mechanics of the StreamIT platform, focusing on the complexities of remote robotic navigation and real-time digital streaming.
- Social Narratives & Arts: An interpretive look at the human stories behind museum artifacts, bridging the gap between historical art and contemporary social values.

#### 5. Materials & Tools

To facilitate this lesson effectively, the following tools are required:

- StreamIT Infrastructure: A reliable network connection ensuring seamless interaction with the active robot stationed at the Sofia Ethnographic Museum.
- Multimedia Classroom Setup: Utilization of both a high-definition projector and a smart screen to broadcast the live feed to the entire class simultaneously.
- Curated Content: Access to specialized digital resources from the museum and pre-selected inquiry prompts to guide the student-led discussion.

#### 6. Lesson Plan Structure

##### I. Technical Briefing & Contextualization (10 Minutes)

The IICT instructor initiates the lesson by introducing the Sofia Ethnographic Museum's significance. A primary focus of this phase is the technical orientation, where the teacher demonstrates the software interface and explains how the telepresence robot serves as a physical proxy for the students within the museum halls.



## II. Interactive Guided Robotic Tour (25 Minutes)

This phase represents the core of the experience, where the teacher manages the robot's movement via StreamIT while collaborating with a professional museum tour guide.

- Expert Commentary: The museum guide provides live, detailed explanations of the artifacts as the robot navigates the exhibits.
- Dynamic Visuals: The robot is directed to pause at significant cultural items, streaming a high-definition view to the classroom's projector and smart screen.
- Two-Way Engagement: Students are encouraged to participate actively by asking the guide questions in real-time or requesting the teacher to adjust the robot's position for a more detailed look at specific craft details.

## III. Synthesis and Future Tech Discussion (10 Minutes)

The session wraps up with a reflective dialogue regarding the intersection of ICT, automation, and history. Students discuss how the technologies they study at IICT can be further developed to ensure cultural treasures are preserved and made accessible to everyone, regardless of their location.

## 7. Assessment and Feedback

By utilizing the StreamIT platform, IICT ensures that the museum's treasures are accessible to every student, regardless of their physical mobility or any external environmental constraints. This approach fosters a truly equal educational opportunity for all learners.

## 8. Demo Lesson Evidence

The following descriptions outline the visual components documenting the success of the IICT demo lesson: ([YouTube Link](#))

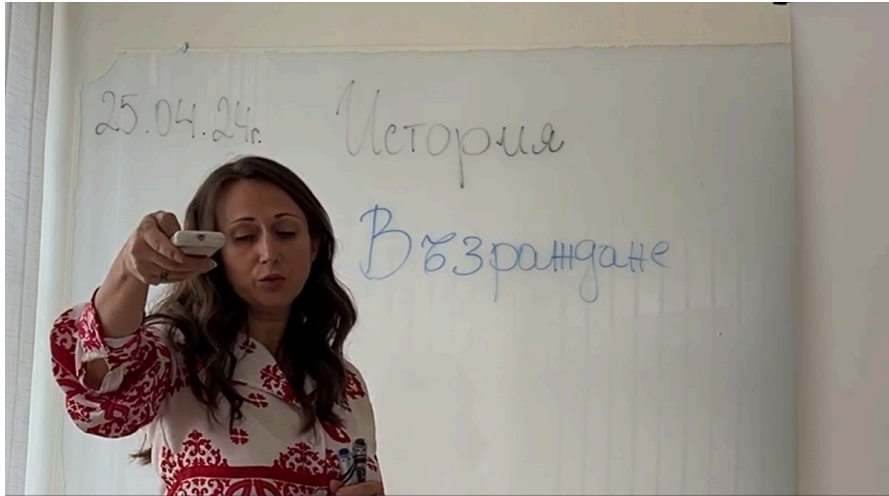


Figure 1: This image showcases the teacher explaining the StreamIT platform to the students, detailing the interface and the mechanics of remote robotic control.

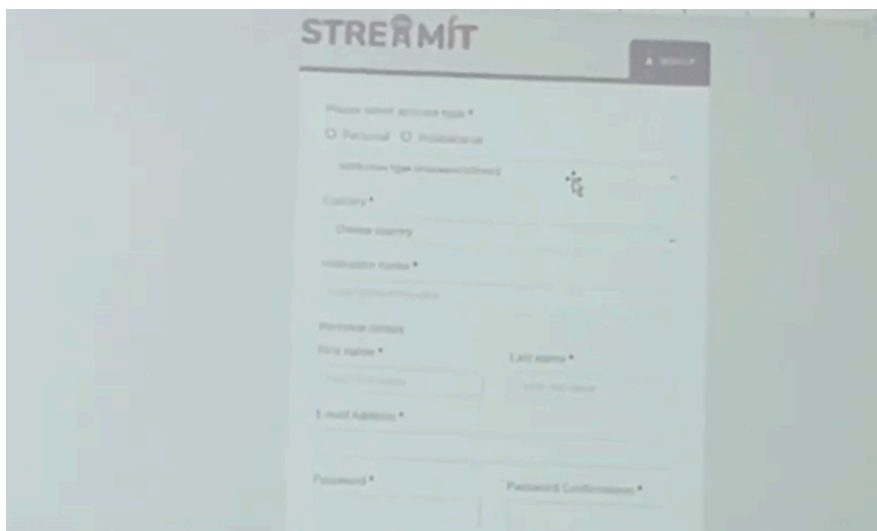


Figure 2: This visual captures the streaming of the platform on the classroom screen using a projector, demonstrating how the live feed from the museum is shared collectively with the students.



Figure 3: This image documents the tour guide from the Sofia Ethnographic Museum explaining the artifacts via the robot's audio-visual link, highlighting the interactive dialogue between the museum expert and the IICT students.

### 9. Scalability & Transferability

The methodology developed for this lesson is highly scalable. It serves as a blueprint that can be implemented by other technical schools or cultural institutions within the RoboSTEAM network to significantly enhance digital and inclusive learning initiatives.