DigitEdu 2025

Development of Virtual Reality Scenarios for the "GREENENTRE4DEAF" Project

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Co-funded by the European Union

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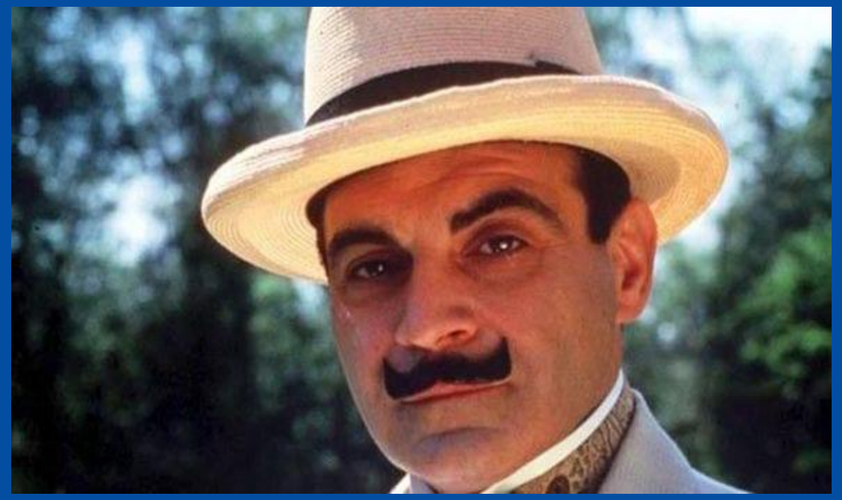


Of course I listen to what you say.

But I hear what you mean.

GREENENTRE 4DEAF

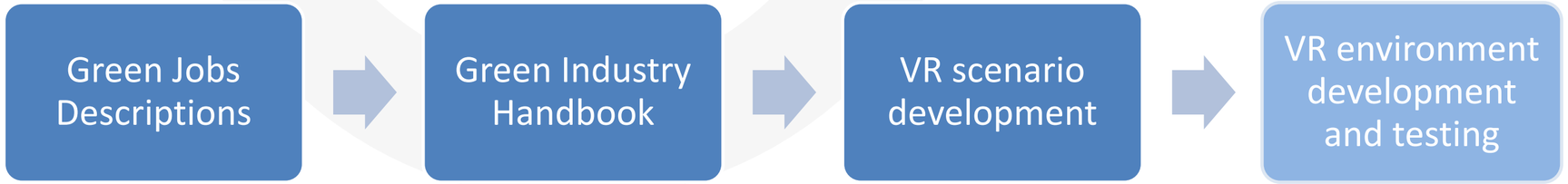
Project «Stimulating innovative-inclusive teaching and validated life-long learning on green entrepreneurship via VR simulations for deaf and hard of hearing people (DHH)»

ABOUT THE PROJECT

- GreenEntre4Deaf is a European initiative that aims to stimulate innovative and inclusive teaching practices within Higher Education Institutions (HEIs).
- The project focuses on promoting life-long learning opportunities in the field of green entrepreneurship, specifically tailored to meet the needs of Deaf and Hard of Hearing (DHH) individuals.


DHH STUDENTS AND LEARNERS
Deaf and Hard-of-Hearing (DHH) students and educators in HEIs but also other learners with DHH including adults, employees, professionals, unemployed, NEETs, marginalised etc. And other HE students.
EDUCATORS AND TRAINERS
HE Academics, trainers, and sign language interpreters enhancing their skills with professional development, VR Simulations, and a Mobile App for green entrepreneurship.
DEAF ORGANIZATIONS
Deaf associations, NGOs, and public authorities exploiting and sustaining project outcomes to promote inclusivity.
LABOUR MARKET STAKEHOLDERS
SMEs and enterprises fostering inclusive workplaces and supporting green entrepreneurship for DHH individuals.
TARGET GROUPS
Co-funded by the European Union
GREENENTRE 4DEAF

VR SIMULATION DEVELOPMENT



GREEN JOBS DESCRIPTION [1]

1. Renewable Energy Engineers
2. Solar Energy Technicians
3. Onshore wind farm technician
4. Environmental engineer
5. Sustainability Manager
6. Recycling Worker
7. ICT Environmental Manager
8. Vehicle technicians / Electric Vehicle Technician
9. Mixed crop growers / Urban Farmers
10. Urban planner

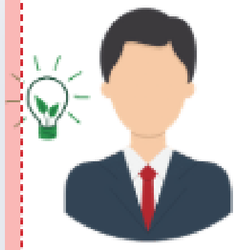
GREEN JOBS DESCRIPTION [2]

No.	Job Title	ESCO Code	Description	Skills/Competence	Qualification
1	Renewable Energy Engineers	2149.9.7	Renewable energy engineers research alternative sources of energy in order to design systems for renewable energy production. They strive to optimise energy production from renewable sources, and reduce production expenses and environmental strain. They design systems which focus on energy sustainability and efficiency	Renewable Energy Engineers require a blend of technical, environmental, and entrepreneurial skills. They must possess expertise in designing and managing renewable energy systems, analyzing data for efficiency, and ensuring compliance with environmental regulations. Additionally, sustainable thinking and eco-innovation are crucial, as these professionals integrate climate-conscious solutions and circular economy principles into their work. Beyond technical know-how, they need strategic and financial acumen to recognize business opportunities, secure funding, and lead interdisciplinary teams. By combining engineering excellence with green and entrepreneurial competences, they drive the global transition toward cleaner energy solutions. More Specifically: ESCO Guidelines Technical Expertise: Knowledge of renewable energy systems (solar, wind, hydro, biomass). Engineering Design: Ability to develop and optimize energy-efficient solutions. Data Analysis: Proficiency in energy modeling and performance evaluation. Regulatory Compliance: Understanding of environmental laws and energy policies. Project Management: Planning, budgeting, and execution of renewable energy projects. GreenComp Guidelines (Green Competences) Sustainable Thinking: Ability to integrate environmental considerations into engineering solutions. Circular Economy Awareness: Knowledge of resource efficiency and waste reduction. Climate Change Mitigation: Understanding of carbon footprint reduction strategies. Eco-innovation: Developing new technologies for sustainable energy. EntreComp Guidelines (Entrepreneurial Competences) Opportunity Recognition: Identifying market trends in renewable energy. Strategic Thinking: Business planning for sustainable energy ventures. Financial Literacy: Understanding funding mechanisms for green projects. Leadership & Collaboration: Working with multidisciplinary teams to drive innovation.	Renewable Energy Engineers typically hold a Bachelor's or Master's degree in Renewable Energy Engineering, Environmental Engineering, or related fields, equipping them with the technical expertise necessary for sustainable energy solutions. Certifications in energy auditing, green technology, or sustainability management further enhance their professional credibility. Practical experience in designing, implementing, and managing renewable energy projects is highly valuable, as it provides hands-on knowledge of industry challenges and innovations. These qualifications ensure that engineers can effectively contribute to the advancement of clean energy technologies and the global transition toward sustainability.
2	Solar Energy Technicians	7411.1.4	Solar energy technicians install and maintain systems that collect solar energy. They prepare the necessary fixtures, often on roofs, install solar panels, and plug them into an electronic system including an inverter to connect the solar energy systems to the electricity lines.	Solar Energy Technicians require a combination of technical expertise, sustainability knowledge, and entrepreneurial skills to efficiently install and maintain solar energy systems. They must have a strong foundation in electrical and mechanical work, ensuring system functionality while adhering to safety regulations. Their role involves optimizing energy efficiency, minimizing environmental impact, and embracing circular economy practices. Additionally, they need problem-solving skills to enhance system performance, market awareness to understand the economic viability of solar energy, and effective communication to advise clients on system benefits and maintenance. By integrating technical, green, and business competencies, they contribute to the global shift toward sustainable energy solutions. More Specifically: ESCO Guidelines Electrical & Mechanical Expertise: Installing and maintaining photovoltaic (PV) systems. Technical Interpretation: Reading and understanding electrical wiring plans. Safety & Compliance: Following health and safety procedures, especially when working at heights. System Testing & Troubleshooting: Inspecting electrical supplies and ensuring system	Solar Energy Technicians typically acquire vocational training or certifications in solar energy technology, electrical engineering, or renewable energy systems, ensuring they have the technical foundation to install and maintain photovoltaic systems safely and efficiently. Hands-on experience through apprenticeships or fieldwork is crucial for mastering practical installation techniques and troubleshooting methods. Additionally, safety certifications in electrical work and construction site protocols are essential to comply with industry regulations. Advanced training in energy efficiency, system optimization, and sustainable practices further enhances their expertise, allowing them to contribute to the growing demand for clean energy solutions.

GREEN INDUSTRY HANDBOOK

Project Number: 2024-1-ES01-KA220-HED-000245422

GREENENTRE 4EAF



Sustainability Manager

ESCO Code: 1213.8

Profession overview:

Sustainability Managers develop and implement strategies that reduce environmental impact and promote social responsibility. They focus on energy efficiency, waste reduction, circular economy, supply chains, compliance and stakeholder engagement to drive sustainable growth.

Key tasks & responsibilities:

- Develop and implement sustainability policies
- Monitor energy use, waste and resource efficiency
- Ensure compliance with environmental regulations
- Engage stakeholders and raise staff awareness
- Report on sustainability results and progress

Green skills - GreenComp

- Systems thinking: understanding how environmental, social and economic factors are interconnected
- Critical thinking and problem solving: analysing impacts and finding sustainable solutions
- Collective action: engaging stakeholders to drive sustainability initiatives

Work Challenges:

- Balancing sustainability goals with cost and business priorities
- Ensuring compliance with changing environmental regulations
- Engaging staff and stakeholders to adopt sustainable practices

Entrepreneurial skills - EntreComp

- Spotting opportunities: identifying sustainable business ideas and green innovations
- Mobilising resources: securing support, funding and networks for green initiatives
- Taking the initiative: leading projects and driving sustainable change

Work Environments:

Offices, production sites, construction areas, outdoor facilities, and stakeholder meetings.

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VR SCENARIO DEVELOPMENT [1]

1. Solar Energy Technician
2. Recycling Worker (Zero Waste shop)
3. Farmer / Urban Farmer
4. Recycling Worker (Repair/Upcycling focus)
5. Sustainability Manager

- 12 scenarios for each of the jobs

VR SCENARIO DEVELOPMENT [2]

office -	Partner	Environment	Skill Targeted
Scenario 1 Basic sustainable office choices	EKA		Waste sorting in an office environment Energy-saving decision-making Reducing paper and resource usage Engaging colleagues in sustainable practices

VR SCENARIO DEVELOPMENT [3]

Scenario	Items	Pictures
The user takes on the role of a Sustainability Manager in a modern office. During the simulation, they must make decisions about everyday office practices: how to dispose of waste correctly, whether to use digital or printed reports, how to reduce energy use, and how to encourage colleagues to act more sustainably. Each decision affects the office's sustainability score (energy use, CO_2 footprint, and waste reduction).	Recycling bins (plastic, paper, glass, organic, general waste) Printer (option: print vs. digital send) LED light bulbs and conventional light bulbs Coffee cups (single-use vs. reusable mugs) Water tap (option: running water vs. saving water)	

VR SCENARIO DEVELOPMENT [2]

	Dialogue	Other Commnets
	Introduction: "Welcome to your office. Today you are responsible for making sustainable choices to reduce the environmental footprint." Situation 1 (Waste Sorting): "A colleague throws a plastic bottle in the general waste bin. What do you do?" Correct action: "Remind them to use the recycling bin for plastics." Situation 2 (Printing vs. Digital): "Your team wants to print 50 copies of a report. What is your suggestion?" Correct action: "Propose sending it digitally to save paper." Situation 3 (Energy Use): "You notice the lights on in the meeting room where no one is present." Correct action: "Switch off the lights and remind staff to be energy efficient." Situation 4 (Coffee Break): "During a coffee break, employees use disposable cups. How do you respond?" Correct action: "Encourage them to use reusable mugs provided in the office." Closing: "Congratulations! Your choices have reduced waste, energy use, and promoted a greener office culture. Keep inspiring your colleagues!"	The scenario can be enhanced by showing real-time indicators (energy saved %, CO_2 reduction, paper saved) to give feedback on the user's choices.
	Introduction:	

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	Introduction:	

GUIDELINES

- Bright visuals, simple mechanics, and interactive gameplay hold attention and promote motor skills.
- Avoid sudden visual changes, such as abrupt scene transitions or rapid camera movements.
- Use calm, non-flashing visuals to avoid overstimulation.
- Avoid loud, jarring, or unpredictable sounds.
- Use clear, simple menus and icons with large, easy-to-read fonts.
- Provide visual or audio guidance for navigation (e.g., arrows or voice prompts).
- Avoid negative feedback; focus on encouragement and positive reinforcement.
- Include pause and reset options that are easy to access at any time.
- Implement "safe zones" where players can rest without progressing gameplay.
- Include a way to exit the game immediately if the player feels overwhelmed
- Minimize camera motion and provide options for teleportation or smooth locomotion.
- Use static or fixed reference points to reduce motion sickness.
- Avoid activities requiring rapid head movements or spinning.
- Include clear boundaries or visual indicators to prevent collisions in the physical play area.
- Use straightforward, achievable goals to maintain engagement without causing frustration.
- Break tasks into smaller steps with frequent rewards or acknowledgments.
- Choose themes that are engaging but not overly intense (e.g., nature exploration, creative building, or rhythm-based games).

Thank you!

What did you hear?

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dlearn
EUROPEAN DIGITAL LEARNING NETWORK ETS

THANK YOU FOR YOUR ATTENTION

STAY IN TOUCH WITH US!

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