

R3-A2. Training Materials



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ADAPTATIVE LEARNING PATHS FOR
EMPLOYABILITY OF PEOPLE WITH
DIFFERENT SKILLS IN THE STONE
SECTOR
2021-1-DE02-KA220-VET-000033276



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User's Guide



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1. INTRODUCTION AND DOWNLOAD LINK

In the current context, where access to information is broader and more diversified than ever, interactive digital content has established itself as the favorite means for users to explore and learn about different topics. Audiovisual content platforms and educational video games are clear examples of this trend, capturing the attention and interest of the public through dynamic and attractive formats.

The InclusiveStone project arises as an innovative initiative that seeks to use these digital tools to facilitate the labor inclusion of people with disabilities in the natural stone sector. The mission of the project is to provide an educational platform that offers a realistic and accessible view of the various tasks and processes in this industry, specifically aimed at people with disabilities interested in being part of this work environment. The scarcity of educational resources tailored to the needs of this group underlines the importance of this type of project.

The main purpose of InclusiveStone is to raise awareness of the capacity and value that people with disabilities bring to the natural stone sector, providing adapted training resources and maximizing the possibilities offered by current technologies for the distribution and display of multimedia content. This content, developed in the R3 phase of the project, is a cornerstone for learning and training in the work environment.

The InclusiveStone consortium has developed a 3D Training Tool that presents interactive scenarios designed to reflect the tasks of the natural stone sector, showing both the skills required and possible adaptations for workers with disabilities. This educational tool, freely accessible on the project's platform, serves as support material for courses designed to promote inclusion and provide specialized training. 3D animations, based on careful information gathering, are critical to the effective implementation of InclusiveStone training courses and related Open Educational Resources.

This tool and all the information about the project are available on the InclusiveStone website: <https://inclusivestone.eu/>



2. INCLUSIVESTONE USER GUIDE.

This section contains the different observations necessary for the correct use of the tool developed in this project.

2.1. System components

Below is the equipment needed to be able to carry out tests and trials of the positions included in this tool.

1. A virtual reality device.
2. A computer to install the app.
3. A USB cable.
- 4.

2.2. Before first use

It is important to follow the steps below to install the app:

- A Virtual Reality device and, if necessary, a computer. Unity specifies the following features:

| VR Device | Refresh Rate |
|-------------|--------------|
| Gear VR | 60hz |
| Oculus Rift | 90hz |
| Vive | 90hz |

Software

- **Windows:** Windows 7, 8, 8.1, y Windows 10 son todos compatibles.
- **Android:** Android OS Lollipop 5.1 o superior.
- **OS X:** OSX 10.9+ con Oculus 0.5.0.1 runtime. Sin embargo, Oculus ha [pausado el desarrollo](#) para OS X, entonces utilice Windows para una funcionalidad VR nativa en Unity.
- **Graphics card drivers:** Asegúrese de que sus drivers (controladores) estén actualizados. Cada dispositivo se mantiene al día con los drives más nuevos, por lo que los drivers más viejos podrían no estar soportados.

Figure1. Required performance of the equipment to be used.

- Use the cable included with the VR headset to connect it to a computer.
- Verify that the connection is correct.
- In the case of using Oculus, it will be necessary to provide permissions to strangers in order to continue.

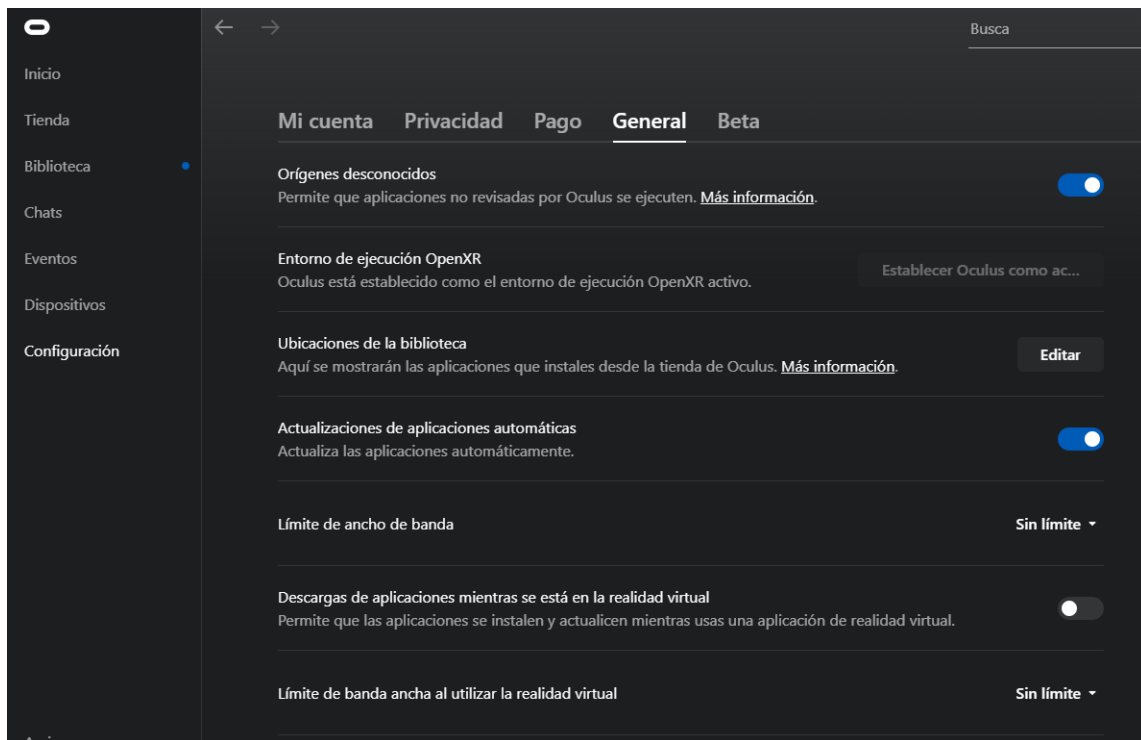


Figure2. Provide permissions to Oculus.

- Once connected to the computer, in the case of Oculus via Oculus link.
- Download the standalone application provided on the InclusiveStone website on the computer.
- Once done, open the standalone application executable on the computer.
- The interaction can then begin.

2.3. Use by InclusiveStone

The user experience of InclusiveStone follows the structure described in the feature development section. The steps that the user will follow when using the tool are as follows:

1. At the beginning of the experience, the user will be presented with the main menu.
2. First, you choose your language.
3. Second, the user chooses the scene to evaluate.



4. Next, you will enter the scene and have to read the welcome information and instructions from the tutorial.
5. After this, you will move on to the first mission.
6. If you pass this mission, you'll move on to the next one. And so on until you get to the last mission.

After this, you will be given the option to return to the main menu, to repeat each of the steps again with any of the scenes, or repeat this scene again.



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Other training materials



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Consortium members: Deutscher Naturwerkstein-Verband e.V. (DNV), Asociación Empresarial de Investigación Centro Tecnológico del Mármol, Piedra y Materiales (CTM), Federación de Asociaciones Murcianas de Personas con Discapacidad Física y Orgánica (FAMDIF), Institute of Entrepreneurship Development (iED), Klesarska skola (KSK).



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WITH DIFFERENT SKILLS IN THE STONE SECTOR

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PILOT COUSE



PROJECT RESULTS

RESULTS

Main project results of the project are:

R1. Educational approach for people with different skills focused on transversal capacities in stone sector.

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills.

R3. VR-Adaptative Training Content and Evaluation.

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

Inclusion in employment is the cornerstone of social integration. Its scope, its implementation and the active determination of the **necessary actions** to facilitate its promotion will determine its success. To combat the enemy of non-diversity and discrimination, information and training of professionals is the basis for success.

The creation and development of a guide that includes the definition of the main approaches and an educational approach for people with different skills focused on transversal capacities in stone sector, as well as positive actions or mitigation of difficulties to promote the integration of people with disabilities in the stone sector is one of the main axes on which this project is based.

Therefore, the project will offer training material based on the identification, information and adaptation of special needs through an educational approach for people with different skills focused on transversal capacities in stone sector. This educational approach will allow the target groups of the project to work with the new industrial systems and processes in the stone sector adapted to people with disability.

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

R1-A1. Roadmap of the Methodology.

R1-A2. Awareness of needs surveys to identify specific learning difficulties.

R1-A3. Report of data analysis and conclusions.

R1-A4. Handbook for an educational approach for people with different skills focused on transversal capacities in stone sector.

R1-A5. Report on the results of First International Seminar in Split (Croatia).



InclusiveStone: A2-a Questionnaire

Uključivanje is a project driven by funding from the Erasmus+ programme and aims to create a framework that facilitates access to employment for people with disabilities in the natural stone sector. The consortium that makes up **Uključivanje** has considered it necessary to carry out a survey to assess the degree of compliance with the different dimensions in the companies with which it has contacted. With this information, the consortium will be able to work more effectively with participating companies to improve their accessibility and make their work environments more inclusive for people with disabilities. The questionnaire is addressed to managers, human resources managers, health and safety officers and other decision-makers within the natural stone sector, and focuses on current and planned competency issues related to inclusion training. We are very grateful for your contribution in filling in this questionnaire, which will enable us to develop new training content, accessible through tools and innovative training platforms. It should not take more than 5 minutes to complete the questionnaire. All answers will be treated in the strictest confidence. More information about the project will be available at the following url: <https://inclusivestone.eu/>

Uključivanje

H HIGH degree of compliance. The criterion is fully / largely met.
M MEDIUM degree of compliance. The criterion is not **ok**, but could easily be met.
L LOW degree of compliance / non-compliance. The criterion is not met / cannot be met.

| | Compliance | | |
|---|------------|---|---|
| | H | M | L |
| PHYSICAL SPACE AND TRANSPORT | | | |
| The company has transport for its staff, or there are accessible means of transport nearby. | | | |
| The urban environment near the company is accessible (pavements with curbs, audible traffic lights, etc.). | | | |
| There are accessible parking spaces or spaces reserved for people with reduced mobility. | | | |
| Access to the workplace is accessible: no steps and/or ramp, door, lifts, turnstiles... | | | |
| The interior spaces of the workplace are accessible: wide passageways, corridors, access to rooms, interior layout, brightness... | | | |
| Uključivanje are accessible. | | | |
| Emergency doors and other safety measures are accessible and signposted. | | | |
| Accessible furniture is available: tables, chairs, filing cabinets, cupboards, shelves, shelving, etc. | | | |
| Counters and customer service counters, if any, are accessible to both those providing and receiving care. | | | |
| Universal design criteria and standards are Uključivanje account in all planning of works and/or refurbishment of company infrastructures. | | | |
| Uključivanje | | | |
| TECHNICAL RESOURCES AND TOOLS | | | |
| Machinery, equipment, Uključivanje or work tools (including software) are accessible and/or adaptable to persons with disabilities. | | | |
| In all planning for the acquisition of tools, equipment or other resources, universal design criteria and standards are Uključivanje account. | | | |
| Uključivanje | | | |
| INFORMATION AND COMMUNICATION | | | |
| The mechanisms, methods and procedures used to communicate and provide information (internal and external) of the company contemplate universal design: telephony, electronic messaging, Uključivanje , etc. | | | |
| The signage located in the company's premises facilitates the circulation of people and the location of the departments and services offered. | | | |



| | | | | |
|---|--|--|--|------------|
| There are alternative communication systems, staff trained in Sign language, magnetic Uključivanje or other communication measures for All. | | | | |
| In the advertising and marketing of the products and services offered by the company, universal design criteria are Uključivanje account. | | | | |
| Uključivanje | | | | |
| ATTITUDES | | | | Compliance |
| The values promoted in the company's culture are based on the principles of non-discrimination, equal opportunities and inclusion in all its dimensions. | | | | |
| The company's staff has basic knowledge on how to interact with people with disabilities (hearing, visual, intellectual, physical) and psychosocial or mental), legislation on the subject, or customer service, among others. | | | | |
| People with disabilities already exist in the company and are fully integrated. | | | | |
| Uključivanje | | | | |
| POLICIES, STANDARDS AND PROCEDURES | | | | Compliance |
| The company has a Corporate Social Responsibility Committee | | | | |
| The company has clear and well-publicised policies for the selection and recruitment of personnel in general. | | | | |
| The company has some kind of positive action policy on gender, disability, youth, or other groups at risk of exclusion. | | | | |
| The company has designed an organisational policy that promotes equal opportunities, non-discrimination, inclusion and participation of people with disabilities in all dimensions (physical space, information and communication, attitudes, etc.). | | | | |
| The company has a mechanism in place to disseminate and monitor its disability-inclusive policy, including sanctions for any type of discrimination. | | | | |
| The company includes in its Strategic Plan an action plan that directs the organisation towards the inclusion of people with disabilities in all dimensions, with the participation of the different administrative and operational units, resources, responsibilities and deadlines. | | | | |
| The company has a personnel selection policy that does not discriminate against people with disabilities, and/or those who acquire a disability while working in the company, or in its promotion processes. | | | | |
| The company's rules and codes of conduct Uključivanje account the needs of stakeholders with disabilities. | | | | |
| The company's production standards take into consideration the criteria and standards of universal design (equitable use, flexible use, intuitive and simple use, perceptible information, error tolerance, low physical effort, size and space). | | | | |
| The company's business objectives, mission and vision are aligned with the inclusion of people with disabilities in all dimensions of the company. | | | | |
| The needs of customers, consumers and other stakeholders with disabilities are considered in the company's products and services. | | | | |
| The company's suppliers and companies that provide raw materials and services to the company comply with non-discrimination. | | | | |
| Uključivanje | | | | |

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PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

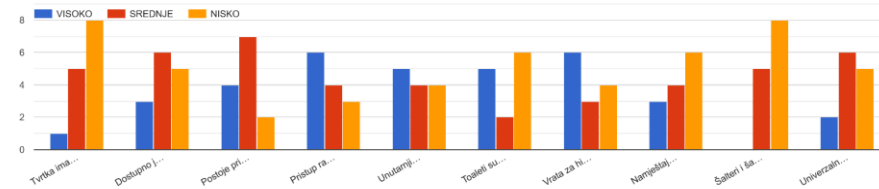
R1-A1. Roadmap of the Methodology:

The project partners will establish a roadmap including the research methodology for desk research, questionnaire research and field research to have a harmonised approach in all participating countries. Based on the decisions taken by the consortium, will carry out the guidelines and propose the guidelines to be followed by all participants.

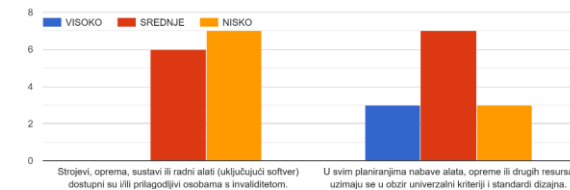
R1-A2. Awareness of needs surveys to identify specific learning difficulties:

This task aimed to identify the main transversal skills and abilities developed during the performance of tasks related to the stone industry, as well as the specific adaptation needs of each of them for people with disabilities. To this end, all partners will carry out feedback surveys to professionals in the field of disability.

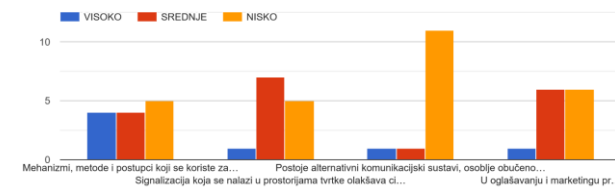
Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? FIZIČKI PROSTOR I PRIJEVOZ



Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? TEHNIČKI RESURSI I ALATI



Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? INFORMIRANJE I KOMUNIKACIJA



PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

SELECTED JOBS IN FACILITIES

- Forklift truck.
- Truck driver.
- CNC 5/6 axis or 2D for screen printing.
- Block cutter and header.
- Sawing machine, cutting table and other equipment.
- Cleaning.
- Waste management.
- Crane.
- Calibration and reinforcement line.
- Maintenance operator.
- Multiple sawing machine.
- Finishing.

INITIAL ANALYSIS

1. Forklift truck.
2. Overhead crane.
3. Cleaning and Waste management.
4. Calibration and reinforcement line.

R1-A3. Report of data analysis and conclusions.

FINAL SELECTION

1. Handling of blocks, boulders and blocks (70 hours).
2. Handling and conditioning of products, consumables and machinery in natural stone processing plants and mineral and rock processing and beneficiation plants (110 hours).
 - 2.A. Cleaning in natural stone factories and mineral and rock beneficiation plants (70 hours).
 - 2.B. Storage of consumables and products in natural stone factories and mineral and rock processing and beneficiation plants (40 hours).
3. Handling of loads with fork-lift trucks (50 hours).
4. Handling of loads with overhead cranes and hoists (30 hours).

VR-SCENARIOS

1. Forklift truck. 2 scenarios.
2. Overhead crane. 2 scenarios.
3. Cleaning and Waste management. 2 scenarios.

PROJECT RESULTS

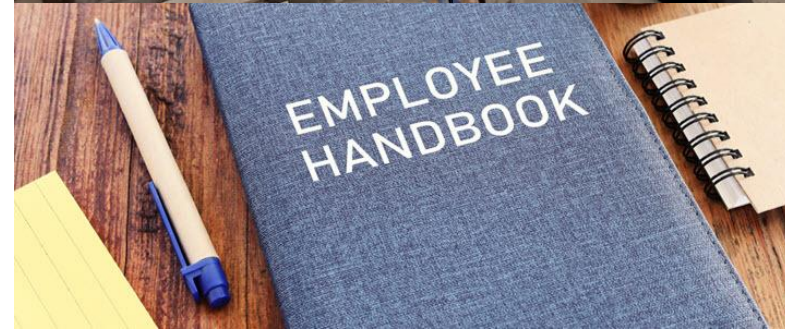
R1. Educational approach for people with different skills focused on transversal capacities in stone sector

R1-A4. Handbook for an educational approach for people with different skills focused on transversal capacities in stone sector:

The aim is to create an educational and training manual for applying a methodology for the sector's training centres aimed at achieving adaptative training for people with different capacities, through recommendations and actions ranging from re-designing the training offer and reformulating the delivery of training and evaluation, to providing specific teaching resources, to combat social exclusion in VET systems and facilitate the integration of collective.

R1-A5. Report on the results of First International Seminar in Split (Croatia):

Hosted by KSK, will focus on the adaptation of professions of Stone Sector, where will be attended these professionals from the involved countries and by representants related to associations of people with different capacities. It will be developed a report with all the results of the event thanks to the feedback of those stakeholders about this R1.



PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

Training is the basis for success. The creation of an innovative qualification methodology adapted to special needs that brings together the three main axes of the project, Employability- Disability – Stone industry, will mean that the social integration will be able to overcome the deficiencies that are currently latent.

Therefore, the project will offer training in the adaptation of work methodologies and incorporation of integration criteria in the stone industry, which will allow the project's target groups to find new labour opportunities, that will allow them to evolve for their personal and professional self-development.

This Result refers to the following required aspects adapted to disabled people:

- Knowledge and skills that target groups are expected to acquire.
- The learning standards or learning objectives they are expected to meet.
- The units and lessons that teachers must teach.
- The assignments and projects assigned to students.
- The thematic of books, materials, videos, presentations, and readings used in the courses.
- The tests, assessments, and other methods used to evaluate student learning and outcomes.

PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A1. Definition of Training Units and Learning Outcomes.

R2-A2. Design and Organization of Training Paths.

R2-A3. InclusiveSTONE Course Curriculum.

R2- A4. Report on the results of Workshop in Murcia (Spain).



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InclusiveStone PROJECT

Adaptative learning paths for employability of people with different skills in the Stone Sector



PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A1. Definition of Training Units and Learning Outcomes:

The first step is to define the main objectives and learning outcomes of the curriculum and the goals to be achieved.

This activity will focus on breaking down the learning content of InclusiveSTONE into smaller and more manageable training modules. Each cross-cutting skill and capacity identified in outcome R1 can be assessed and will be done considering the virtual reality design of R3.

The definition of Training Units will be based on the results of a comprehensive skills analysis with the key topics:

- Skills and competences address and support by the usual tasks in the stone manufacturing fields.
- Selection of tasks which are particularly suited to address these skills in the training of people with disabilities to develop all relevant skills.

The task will develop:

- The choice of tasks.
- The skills that are addressed through these tasks.
- The usual / straight training path for people without disabilities.
- The different pathways suggest for people with disabilities.

R2-A3 InclusiveSTONE Course Curriculum.



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Erasmus+

PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A2. Design and Organization of Training Paths:

To create a work-based learning content addressed to service providers in general for persons with disabilities for the development of therapies based in tasks and techniques employed in the manufacturing process of stone sector. The Training Path presented in this document will be a synthesized follow-up of the defined training units and learning contents in the previous R2-A1.

R2-A3. InclusiveSTONE Course Curriculum:

To define a Recognition and Validation tool for the assessment of all skills and transversal competences identified in A1 through the learning content identified in A2. So, based on this learning content, a training curriculum should be designed in a coherent and concise way that highlights the most significant and dominant skills and competences and at the same time, ensures the integrity and efficiency of the course. The curriculum will be a common tool at European level for students and Teachers of each partner country.

R2- A4. Report on the results of Workshop in Murcia (Spain):

A Workshop will be held in Murcia (Spain) hosted by CTM after the research is performed, attended by professionals in stone sector and from the occupational therapy. The different tasks carried out will be promoted, analysed, and discussed, highlighting the strong and weak points of each aspect in every country, as well as their adaptation to the current situation and needs of the stone market regarding to social inclusion of disabled people.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

One of the main aims of the project will be the production and the development of a VR immersive and Adaptative Training Path. Their aim will be to support the implementation of training courses focused on people with disabilities who wish to develop their professional careers in the natural stone sector, producing all the scripts for the VR training environments and these environments will be also suitable for individual use over the entire target group.

The Immersive VR Training tool will help to the connection of educational concepts in with a training material focused on this specific target group. In conclusion, it will be built a useful and innovative tool with different situations and environments, where one of them will be the most suitable way and procedures, as well as appropriate equipment, with technological training materials specially adapted to their necessities.

The purpose of piloting the Curriculum of R2 in this R3 is to make sure the Complete Training Path Guide for teaching stone sector's professions for people with different skills and the handbook for an educational approach for people with different skills focused on transversal capacities in stone sector have been carried out correctly and to make changes and improvements before it is distributed widely. The Pilot process of the curriculum will help to identify which sections of the tasks worked and which sections need strengthening. The process will include an evaluation of the curriculum's effectiveness and usefulness in achieving the course's training objectives. The information gathered from the pilot will be used to strengthen and improve the course content, materials, etc.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A1. Implementation plan.

R3-A2. Training materials

R3-A3. Defining and structuring the key VR-scenarios.

R3-A4. Production of virtual reality (VR) immersive
Adaptative Training Path.

R3-A5. Define a Recognition and Validation tool for the
assessment of all skills and transversal competences.

R3-A6. Recognition and Validation of Knowledge, Skills
and Competences (EQF-ECVET).

R3-A7. Implementation of the pilot courses.



Successful example. SafeCRobot project

PROJECT RESULTS

Frenar

Pulsa el botón principal (A o X) con el dedo pulgar para frenar la carretilla elevadora.

Recuerda las normas de seguridad sobre circulación en el entorno de trabajo para evitar accidentes.



R3. VR-Adaptative Training Content and Evaluation

R3-A1. Implementation plan:

For the implementation of the training content a plan was previously prepared in order to identify what, when, how and to whom it will be implemented. It was considered, among other things, the following ones for 3 different groups of disability:

- Facilities where the pilot will be done.
- Target groups to make the groups.
- Number of people to allocate in each group.
- Dates of starting and finishing the pilot.
- Total of hours: per day and division between theoretical and practical training.
- Schedule of the pilot.
- Teachers for each module or group.
- Procedure to solve any issue during the pilot overcoming technological barriers.

PROJECT RESULTS



R3. VR-Adaptative Training Content and Evaluation

R3-A2. Training materials:

Based on R2, each learning unit will include a specific learning module describing the methodology of different techniques in the stone field and manufacturing process. Each learning units will also include an activity sheet to evaluate the knowledge acquired by the learners.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A3. Defining and structuring the key VR-scenarios:

The key scenario will be proposed to be included in the 3D environments. It will be based on previous reports, considering the main adapted training path for professions in the stone sector. These scenarios will be sent to all partners who will comment any addition or change that should be done.

R3-A4. Production of virtual reality (VR) immersive Adaptative Training Path:

In relation to the creation and development of the VR, the content will be presented using characters who exhibit exaggerated character traits of workers in stone sector. Using the latest 3D design techniques will allow the situations, easily understandable without using spoken language, only gestures to be able to explain proper procedures with educational itineraries adapted to people with disabilities.

R3-A5. Define a Recognition and Validation tool for the assessment of all skills and transversal competences:

It includes all necessary tasks for the development of recognition and validation tools. For each unit considered in A2, an evaluation form is created to evaluate how skills and transversal capacities for a specific unit addressed will be developed or implemented by the learner. InclusiveSTONE aims to serve as a tool for the recognition and validation of knowledge, skills, and transversal capacities to promote the integration of disabled people into traditional sectors such as stone manufacturing. The InclusiveSTONE Training Course will consider the principles of the European Qualifications Framework (EQF) and the European Credit System for Vocational Education and Training (ECVET).

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A6. Recognition and Validation of Knowledge, Skills and Competences (EQF – ECVET):

This EQF will serve as a reference tool to compare the qualification levels of the different EU qualifications systems and to promote both lifelong learning and equal opportunities in the knowledge-based society, as well as the further integration of the European labour market, while respecting the rich diversity of national education systems. The EQF will be constructed around existing EQF at national levels, inputs coming from the R1-2 and will give specific attention to quality in management, relations with education and research organisations and innovation. It will be organised in learning outcomes, addressing knowledge, skills, and competences.

R3-A7. Implementation of the pilot courses:

According to R2, the pilot courses will be developed according to the task R3-A1 and using training materials of R3-A2 and R3-A4. The implementation of these pilot courses will involve a total of at least 60 participants from all countries of the consortium. Students will be supported 100% during the whole Training Path to overcoming technological barriers. As result of this activity, assessment reports of each individual participating in the implementation and the feedback of teachers and learners will obtained.





Proyecto InclusiveStone

ITINERARIOS DE APRENDIZAJE ADAPTATIVOS PARA LA EMPLEABILIDAD DE PERSONAS CON CAPACIDADES DIFERENTES EN EL SECTOR DE LA PIEDRA

ADAPTATIVE LEARNING PATHS FOR EMPLOYABILITY OF PEOPLE WITH DIFFERENT SKILLS IN THE STONE SECTOR



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Proyecto InclusiveStone

ITINERARIOS DE APRENDIZAJE ADAPTATIVOS PARA LA EMPLEABILIDAD DE PERSONAS CON CAPACIDADES DIFERENTES EN EL SECTOR DE LA PIEDRA

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Proyecto InclusiveStone

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Las personas con discapacidad tienen el doble de riesgo de inactividad que las sin discapacidad. Con la edad, aumenta la probabilidad de discapacidad, lo que se prevé en la UE. Es esencial abordar sus necesidades para mejorar su integración laboral y participación social.



Muchas de las personas discapacitadas que pueden y quieren trabajar están desempleadas. Podemos hacerlos en mejores condiciones laborales y mejorar sus perspectivas de empleo. El desarrollo de contenidos de formación para el empleo progresar.

Un itinerario formativo para personas con discapacidad basado en un itinerario de Fabricación de la Piedra será una herramienta de reconocimiento y validación de conocimientos y capacidades transversales para promover la Inclusión Laboral de las personas con discapacidad en sectores tan tradicionales como es el de la Piedra.

OBJETIVOS

El proyecto InclusiveStone, se validará en un sector tradicional de la Inclusion laboral de personas con discapacidad en un sector que requiere adaptarse a una nueva sociedad de integración social y que es posible gracias a los nuevos avances técnicos y tecnológicos del sector que permiten una mayor accesibilidad para todos y en todos los niveles de la cadena productiva de la industria.

RESULTADOS

Los principales resultados del proyecto son:

- Enfoque educativo para personas con capacidades diferentes centrado en las capacidades transversales en el sector de la piedra
- Guía completa del itinerario formativo para la enseñanza de las profesiones del sector de la piedra para personas con diferentes habilidades y evaluación con formación adaptada a la RV.



www.inclusivestone.eu

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

SELECTED JOBS IN FACILITIES

- Forklift truck.
- Truck driver.
- CNC 5/6 axis or 2D for screen printing.
- Block cutter and header.
- Sawing machine, cutting table and other equipment.
- Cleaning.
- Waste management.
- Crane.
- Calibration and reinforcement line.
- Maintenance operator.
- Multiple sawing machine.
- Finishing.

INITIAL ANALYSIS

1. Forklift truck.
2. Overhead crane.
3. Cleaning and Waste management.
4. Calibration and reinforcement line.

FINAL SELECTION

1. Handling of blocks, boulders and blocks (70 hours).
2. Handling and conditioning of products, consumables and machinery in natural stone processing plants and mineral and rock processing and beneficiation plants (110 hours).
 - 2.A. Cleaning in natural stone factories and mineral and rock beneficiation plants (70 hours).
 - 2.B. Storage of consumables and products in natural stone factories and mineral and rock processing and beneficiation plants (40 hours).
3. Handling of loads with fork-lift trucks (50 hours).
4. Handling of loads with overhead cranes and hoists (30 hours).

VR-SCENARIOS

1. Forklift truck. 2 scenarios.
2. Overhead crane. 2 scenarios.
3. Cleaning and Waste management. 2 scenarios.

LIFE CYCLE OF NATURAL STONE



LIFE CYCLE OF NATURAL STONE

QUARRY

Example in an open-cast quarry in Greece..
https://www.youtube.com/watch?v=NrtwBO_nyFA

Underground quarry.
<https://www.youtube.com/watch?v=vAiZ9uLfibl>

LIFE CYCLE OF NATURAL STONE

FACTORY (I). Reception



LIFE CYCLE OF NATURAL STONE

FACTORY (II). Overhead crane inside



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). CNC



LIFE CYCLE OF NATURAL STONE

FACTORY (VI). CALIBRATOR



LIFE CYCLE OF NATURAL STONE

FACTORY (VII). POLISHING MACHINE



LIFE CYCLE OF NATURAL STONE

FACTORY (VIII). PLASTERING MACHINE



LIFE CYCLE OF NATURAL STONE

FACTORY (IX). SLAB CUTTING



LIFE CYCLE OF NATURAL STONE

FACTORY (X). PALLETISER



LIFE CYCLE OF NATURAL STONE

FACTORY (XI). FORKLIFT TRUCK



LIFE CYCLE OF NATURAL STONE

FACTORY (XII). COMPLETE PROCESS

Example of a factory.

<https://www.youtube.com/watch?v=1sqLzMYWs1Y>

LIFE CYCLE OF NATURAL STONE

FACTORY (XIII). CRAFTSMANSHIP

Example of the Klesarska Skola.

Video 1. <https://www.youtube.com/watch?v=Kj8WjVqakA0>

Video 2. <https://www.youtube.com/watch?v=YRBIS5kYVEc>

LIFE CYCLE OF NATURAL STONE

CONSTRUCTION/DECONSTRUCTION WORK

<https://www.bimstoneproject.eu/>
<https://www.youtube.com/watch?v=dF2IPxRojLU>



<https://www.safestoneplace.com/>
<https://www.youtube.com/watch?v=czVn0t5NzO8>



<https://www.stoneplacing.com/en>
<https://www.stoneplacing.com/ready/videos/Videos/7.%20Matching%20stone%20pieces%20with%20the%20anchorage.mp4>

STONEPLACING



2021-1-DE02-KA220-VET-000033276



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ADAPTATIVE LEARNING PATHS FOR EMPLOYABILITY OF PEOPLE
WITH DIFFERENT SKILLS IN THE STONE SECTOR
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InclusiveStone

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PILOT COUSE



PROJECT RESULTS

RESULTS

Main project results of the project are:

R1. Educational approach for people with different skills focused on transversal capacities in stone sector.

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills.

R3. VR-Adaptative Training Content and Evaluation.

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

Inclusion in employment is the cornerstone of social integration. Its scope, its implementation and the active determination of the **necessary actions** to facilitate its promotion will determine its success. To combat the enemy of non-diversity and discrimination, information and training of professionals is the basis for success.

The creation and development of a guide that includes the definition of the main approaches and an educational approach for people with different skills focused on transversal capacities in stone sector, as well as positive actions or mitigation of difficulties to promote the integration of people with disabilities in the stone sector is one of the main axes on which this project is based.

Therefore, the project will offer training material based on the identification, information and adaptation of special needs through an educational approach for people with different skills focused on transversal capacities in stone sector. This educational approach will allow the target groups of the project to work with the new industrial systems and processes in the stone sector adapted to people with disability.

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

R1-A1. Roadmap of the Methodology.

R1-A2. Awareness of needs surveys to identify specific learning difficulties.

R1-A3. Report of data analysis and conclusions.

R1-A4. Handbook for an educational approach for people with different skills focused on transversal capacities in stone sector.

R1-A5. Report on the results of First International Seminar in Split (Croatia).



InclusiveStone: A2-a Questionnaire

Uključivanje is a project driven by funding from the Erasmus+ programme and aims to create a framework that facilitates access to employment for people with disabilities in the natural stone sector. The consortium that makes up **Uključivanje** has considered it necessary to carry out a survey to assess the degree of compliance with the different dimensions in the companies with which it has contacted. With this information, the consortium will be able to work more effectively with participating companies to improve their accessibility and make their work environments more inclusive for people with disabilities. The questionnaire is addressed to managers, human resources managers, health and safety officers and other decision-makers within the natural stone sector, and focuses on current and planned competency issues related to inclusion training. We are very grateful for your contribution in filling in this questionnaire, which will enable us to develop new training content, accessible through tools and innovative training platforms. It should not take more than 5 minutes to complete the questionnaire. All answers will be treated in the strictest confidence. More information about the project will be available at the following url: <https://inclusivestone.eu/>

Uključivanje

H HIGH degree of compliance. The criterion is fully / largely met.
M MEDIUM degree of compliance. The criterion is not **ok**, but could easily be met.
L LOW degree of compliance / non-compliance. The criterion is not met / cannot be met.

| | Compliance | | |
|---|------------|---|---|
| | H | M | L |
| PHYSICAL SPACE AND TRANSPORT | | | |
| The company has transport for its staff, or there are accessible means of transport nearby. | | | |
| The urban environment near the company is accessible (pavements with curbs, audible traffic lights, etc.). | | | |
| There are accessible parking spaces or spaces reserved for people with reduced mobility. | | | |
| Access to the workplace is accessible: no steps and/or ramp, door, lifts, turnstiles... | | | |
| The interior spaces of the workplace are accessible: wide passageways, corridors, access to rooms, interior layout, brightness... | | | |
| Uključivanje are accessible. | | | |
| Emergency doors and other safety measures are accessible and signposted. | | | |
| Accessible furniture is available: tables, chairs, filing cabinets, cupboards, shelves, shelving, etc. | | | |
| Counters and customer service counters, if any, are accessible to both those providing and receiving care. | | | |
| Universal design criteria and standards are Uključivanje account in all planning of works and/or refurbishment of company infrastructures. | | | |
| Uključivanje | | | |
| TECHNICAL RESOURCES AND TOOLS | | | |
| Machinery, equipment, Uključivanje or work tools (including software) are accessible and/or adaptable to persons with disabilities. | | | |
| In all planning for the acquisition of tools, equipment or other resources, universal design criteria and standards are Uključivanje account. | | | |
| Uključivanje | | | |
| INFORMATION AND COMMUNICATION | | | |
| The mechanisms, methods and procedures used to communicate and provide information (internal and external) of the company contemplate universal design: telephony, electronic messaging, Uključivanje , etc. | | | |
| The signage located in the company's premises facilitates the circulation of people and the location of the departments and services offered. | | | |



| | | | | |
|---|--|--|--|------------|
| There are alternative communication systems, staff trained in Sign language, magnetic Uključivanje or other communication measures for All. | | | | |
| In the advertising and marketing of the products and services offered by the company, universal design criteria are Uključivanje account. | | | | |
| Uključivanje | | | | |
| ATTITUDES | | | | Compliance |
| The values promoted in the company's culture are based on the principles of non-discrimination, equal opportunities and inclusion in all its dimensions. | | | | H M L |
| The company's staff has basic knowledge on how to interact with people with disabilities (hearing, visual, intellectual, physical) and psychosocial or mental), legislation on the subject, or customer service, among others. | | | | |
| People with disabilities already exist in the company and are fully integrated. | | | | |
| Uključivanje | | | | |
| POLICIES, STANDARDS AND PROCEDURES | | | | Compliance |
| The company has a Corporate Social Responsibility Committee | | | | |
| The company has clear and well-publicised policies for the selection and recruitment of personnel in general. | | | | |
| The company has some kind of positive action policy on gender, disability, youth, or other groups at risk of exclusion. | | | | |
| The company has designed an organisational policy that promotes equal opportunities, non-discrimination, inclusion and participation of people with disabilities in all dimensions (physical space, information and communication, attitudes, etc.). | | | | |
| The company has a mechanism in place to disseminate and monitor its disability-inclusive policy, including sanctions for any type of discrimination. | | | | |
| The company includes in its Strategic Plan an action plan that directs the organisation towards the inclusion of people with disabilities in all dimensions, with the participation of the different administrative and operational units, resources, responsibilities and deadlines. | | | | |
| The company has a personnel selection policy that does not discriminate against people with disabilities, and/or those who acquire a disability while working in the company, or in its promotion processes. | | | | |
| The company's rules and codes of conduct Uključivanje account the needs of stakeholders with disabilities. | | | | |
| The company's production standards take into consideration the criteria and standards of universal design (equitable use, flexible use, intuitive and simple use, perceptible information, error tolerance, low physical effort, size and space). | | | | |
| The company's business objectives, mission and vision are aligned with the inclusion of people with disabilities in all dimensions of the company. | | | | |
| The needs of customers, consumers and other stakeholders with disabilities are considered in the company's products and services. | | | | |
| The company's suppliers and companies that provide raw materials and services to the company comply with non-discrimination. | | | | |
| Uključivanje | | | | |

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PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

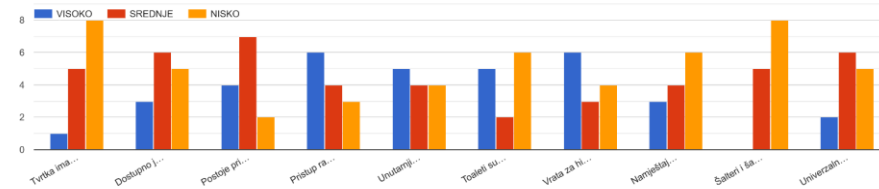
R1-A1. Roadmap of the Methodology:

The project partners will establish a roadmap including the research methodology for desk research, questionnaire research and field research to have a harmonised approach in all participating countries. Based on the decisions taken by the consortium, will carry out the guidelines and propose the guidelines to be followed by all participants.

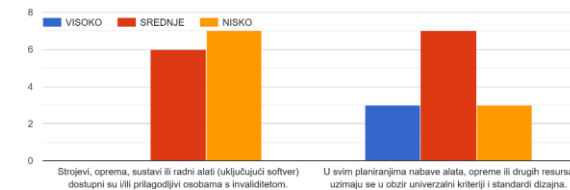
R1-A2. Awareness of needs surveys to identify specific learning difficulties:

This task aimed to identify the main transversal skills and abilities developed during the performance of tasks related to the stone industry, as well as the specific adaptation needs of each of them for people with disabilities. To this end, all partners will carry out feedback surveys to professionals in the field of disability.

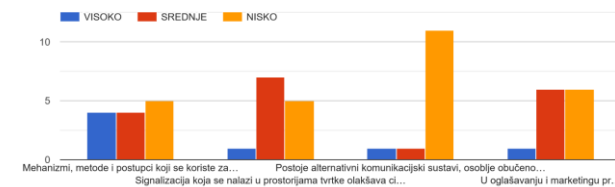
Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? FIZIČKI PROSTOR I PRIJEVOZ



Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? TEHNIČKI RESURSI I ALATI



Koliko su u vašoj tvrtki osigurani slijedeći uvjeti za osobe s invaliditetom? INFORMIRANJE I KOMUNIKACIJA



PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

SELECTED JOBS IN FACILITIES

- Forklift truck.
- Truck driver.
- CNC 5/6 axis or 2D for screen printing.
- Block cutter and header.
- Sawing machine, cutting table and other equipment.
- Cleaning.
- Waste management.
- Crane.
- Calibration and reinforcement line.
- Maintenance operator.
- Multiple sawing machine.
- Finishing.

INITIAL ANALYSIS

1. Forklift truck.
2. Overhead crane.
3. Cleaning and Waste management.
4. Calibration and reinforcement line.

R1-A3. Report of data analysis and conclusions.

FINAL SELECTION

1. Handling of blocks, boulders and blocks (70 hours).
2. Handling and conditioning of products, consumables and machinery in natural stone processing plants and mineral and rock processing and beneficiation plants (110 hours).
 - 2.A. Cleaning in natural stone factories and mineral and rock beneficiation plants (70 hours).
 - 2.B. Storage of consumables and products in natural stone factories and mineral and rock processing and beneficiation plants (40 hours).
3. Handling of loads with fork-lift trucks (50 hours).
4. Handling of loads with overhead cranes and hoists (30 hours).

VR-SCENARIOS

1. Forklift truck. 2 scenarios.
2. Overhead crane. 2 scenarios.
3. Cleaning and Waste management. 2 scenarios.

PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

R1-A4. Handbook for an educational approach for people with different skills focused on transversal capacities in stone sector:

The aim is to create an educational and training manual for applying a methodology for the sector's training centres aimed at achieving adaptative training for people with different capacities, through recommendations and actions ranging from re-designing the training offer and reformulating the delivery of training and evaluation, to providing specific teaching resources, to combat social exclusion in VET systems and facilitate the integration of collective.

R1-A5. Report on the results of First International Seminar in Split (Croatia):

Hosted by KSK, will focus on the adaptation of professions of Stone Sector, where will be attended these professionals from the involved countries and by representants related to associations of people with different capacities. It will be developed a report with all the results of the event thanks to the feedback of those stakeholders about this R1.



PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

Training is the basis for success. The creation of an innovative qualification methodology adapted to special needs that brings together the three main axes of the project, Employability- Disability – Stone industry, will mean that the social integration will be able to overcome the deficiencies that are currently latent.

Therefore, the project will offer training in the adaptation of work methodologies and incorporation of integration criteria in the stone industry, which will allow the project's target groups to find new labour opportunities, that will allow them to evolve for their personal and professional self-development.

This Result refers to the following required aspects adapted to disabled people:

- Knowledge and skills that target groups are expected to acquire.
- The learning standards or learning objectives they are expected to meet.
- The units and lessons that teachers must teach.
- The assignments and projects assigned to students.
- The thematic of books, materials, videos, presentations, and readings used in the courses.
- The tests, assessments, and other methods used to evaluate student learning and outcomes.

PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A1. Definition of Training Units and Learning Outcomes.

R2-A2. Design and Organization of Training Paths.

R2-A3. InclusiveSTONE Course Curriculum.

R2- A4. Report on the results of Workshop in Murcia (Spain).



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InclusiveStone PROJECT

Adaptative learning paths for employability of people with different skills in the Stone Sector



PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A1. Definition of Training Units and Learning Outcomes:

The first step is to define the main objectives and learning outcomes of the curriculum and the goals to be achieved.

This activity will focus on breaking down the learning content of InclusiveSTONE into smaller and more manageable training modules. Each cross-cutting skill and capacity identified in outcome R1 can be assessed and will be done considering the virtual reality design of R3.

The definition of Training Units will be based on the results of a comprehensive skills analysis with the key topics:

- Skills and competences address and support by the usual tasks in the stone manufacturing fields.
- Selection of tasks which are particularly suited to address these skills in the training of people with disabilities to develop all relevant skills.

The task will develop:

- The choice of tasks.
- The skills that are addressed through these tasks.
- The usual / straight training path for people without disabilities.
- The different pathways suggest for people with disabilities.

R2-A3 InclusiveSTONE Course Curriculum.



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Erasmus+

PROJECT RESULTS

R2. Complete Training Path Guide for teaching stone sector's professions for people with different skills

R2-A2. Design and Organization of Training Paths:

To create a work-based learning content addressed to service providers in general for persons with disabilities for the development of therapies based in tasks and techniques employed in the manufacturing process of stone sector. The Training Path presented in this document will be a synthesized follow-up of the defined training units and learning contents in the previous R2-A1.

R2-A3. InclusiveSTONE Course Curriculum:

To define a Recognition and Validation tool for the assessment of all skills and transversal competences identified in A1 through the learning content identified in A2. So, based on this learning content, a training curriculum should be designed in a coherent and concise way that highlights the most significant and dominant skills and competences and at the same time, ensures the integrity and efficiency of the course. The curriculum will be a common tool at European level for students and Teachers of each partner country.

R2- A4. Report on the results of Workshop in Murcia (Spain):

A Workshop will be held in Murcia (Spain) hosted by CTM after the research is performed, attended by professionals in stone sector and from the occupational therapy. The different tasks carried out will be promoted, analysed, and discussed, highlighting the strong and weak points of each aspect in every country, as well as their adaptation to the current situation and needs of the stone market regarding to social inclusion of disabled people.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

One of the main aims of the project will be the production and the development of a VR immersive and Adaptative Training Path. Their aim will be to support the implementation of training courses focused on people with disabilities who wish to develop their professional careers in the natural stone sector, producing all the scripts for the VR training environments and these environments will be also suitable for individual use over the entire target group.

The Immersive VR Training tool will help to the connection of educational concepts in with a training material focused on this specific target group. In conclusion, it will be built a useful and innovative tool with different situations and environments, where one of them will be the most suitable way and procedures, as well as appropriate equipment, with technological training materials specially adapted to their necessities.

The purpose of piloting the Curriculum of R2 in this R3 is to make sure the Complete Training Path Guide for teaching stone sector's professions for people with different skills and the handbook for an educational approach for people with different skills focused on transversal capacities in stone sector have been carried out correctly and to make changes and improvements before it is distributed widely. The Pilot process of the curriculum will help to identify which sections of the tasks worked and which sections need strengthening. The process will include an evaluation of the curriculum's effectiveness and usefulness in achieving the course's training objectives. The information gathered from the pilot will be used to strengthen and improve the course content, materials, etc.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A1. Implementation plan.

R3-A2. Training materials

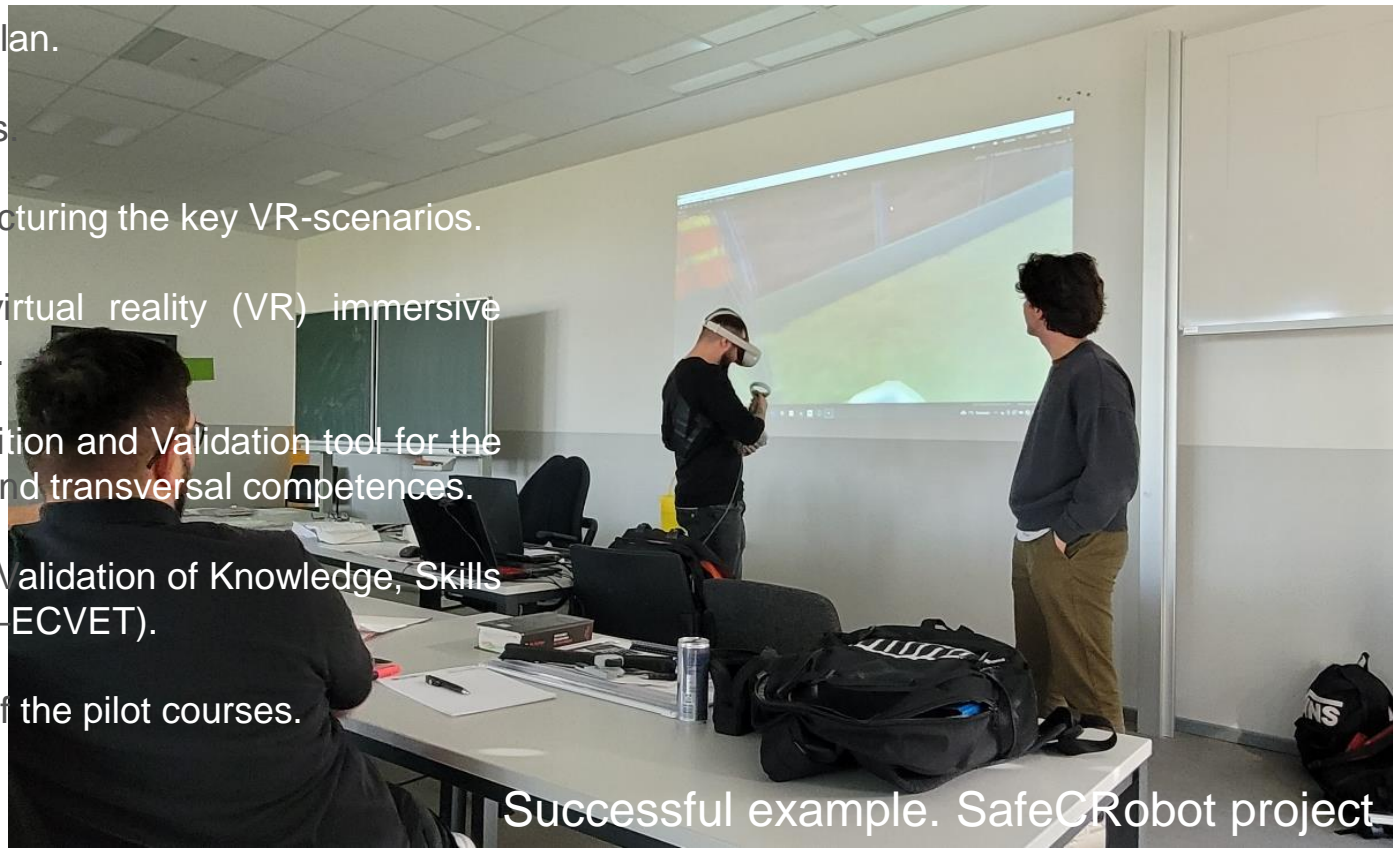
R3-A3. Defining and structuring the key VR-scenarios.

R3-A4. Production of virtual reality (VR) immersive
Adaptative Training Path.

R3-A5. Define a Recognition and Validation tool for the
assessment of all skills and transversal competences.

R3-A6. Recognition and Validation of Knowledge, Skills
and Competences (EQF-ECVET).

R3-A7. Implementation of the pilot courses.



Successful example. SafeCRobot project

PROJECT RESULTS

Frenar

Pulsa el botón principal (A o X) con el dedo pulgar para frenar la carretilla elevadora.

Recuerda las normas de seguridad sobre circulación en el entorno de trabajo para evitar accidentes.



R3. VR-Adaptative Training Content and Evaluation

R3-A1. Implementation plan:

For the implementation of the training content a plan was previously prepared in order to identify what, when, how and to whom it will be implemented. It was considered, among other things, the following ones for 3 different groups of disability:

- Facilities where the pilot will be done.
- Target groups to make the groups.
- Number of people to allocate in each group.
- Dates of starting and finishing the pilot.
- Total of hours: per day and division between theoretical and practical training.
- Schedule of the pilot.
- Teachers for each module or group.
- Procedure to solve any issue during the pilot overcoming technological barriers.

PROJECT RESULTS



R3. VR-Adaptative Training Content and Evaluation

R3-A2. Training materials:

Based on R2, each learning unit will include a specific learning module describing the methodology of different techniques in the stone field and manufacturing process. Each learning units will also include an activity sheet to evaluate the knowledge acquired by the learners.

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A3. Defining and structuring the key VR-scenarios:

The key scenario will be proposed to be included in the 3D environments. It will be based on previous reports, considering the main adapted training path for professions in the stone sector. These scenarios will be sent to all partners who will comment any addition or change that should be done.

R3-A4. Production of virtual reality (VR) immersive Adaptative Training Path:

In relation to the creation and development of the VR, the content will be presented using characters who exhibit exaggerated character traits of workers in stone sector. Using the latest 3D design techniques will allow the situations, easily understandable without using spoken language, only gestures to be able to explain proper procedures with educational itineraries adapted to people with disabilities.

R3-A5. Define a Recognition and Validation tool for the assessment of all skills and transversal competences:

It includes all necessary tasks for the development of recognition and validation tools. For each unit considered in A2, an evaluation form is created to evaluate how skills and transversal capacities for a specific unit addressed will be developed or implemented by the learner. InclusiveSTONE aims to serve as a tool for the recognition and validation of knowledge, skills, and transversal capacities to promote the integration of disabled people into traditional sectors such as stone manufacturing. The InclusiveSTONE Training Course will consider the principles of the European Qualifications Framework (EQF) and the European Credit System for Vocational Education and Training (ECVET).

PROJECT RESULTS

R3. VR-Adaptative Training Content and Evaluation

R3-A6. Recognition and Validation of Knowledge, Skills and Competences (EQF – ECVET):

This EQF will serve as a reference tool to compare the qualification levels of the different EU qualifications systems and to promote both lifelong learning and equal opportunities in the knowledge-based society, as well as the further integration of the European labour market, while respecting the rich diversity of national education systems. The EQF will be constructed around existing EQF at national levels, inputs coming from the R1-2 and will give specific attention to quality in management, relations with education and research organisations and innovation. It will be organised in learning outcomes, addressing knowledge, skills, and competences.

R3-A7. Implementation of the pilot courses:

According to R2, the pilot courses will be developed according to the task R3-A1 and using training materials of R3-A2 and R3-A4. The implementation of these pilot courses will involve a total of at least 60 participants from all countries of the consortium. Students will be supported 100% during the whole Training Path to overcoming technological barriers. As result of this activity, assessment reports of each individual participating in the implementation and the feedback of teachers and learners will obtained.





Proyecto InclusiveStone

ITINERARIOS DE APRENDIZAJE ADAPTATIVOS PARA LA EMPLEABILIDAD DE PERSONAS CON CAPACIDADES DIFERENTES EN EL SECTOR DE LA PIEDRA

ADAPTATIVE LEARNING PATHS FOR EMPLOYABILITY OF PEOPLE WITH DIFFERENT SKILLS IN THE STONE SECTOR



2021-VET-000033276

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Proyecto InclusiveStone

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Proyecto InclusiveStone

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Las personas con discapacidad tienen el doble de riesgo de inactividad que las sin discapacidad. Con la edad, aumenta la probabilidad de discapacidad, lo que se prevé en la UE. Es esencial abordar sus necesidades para mejorar su integración laboral y participación social.



Muchas de las personas discapacitadas que pueden y quieren trabajar están desempleadas. Podemos hacerlos en mejores condiciones laborales y mejorar sus perspectivas de empleo. El desarrollo de contenidos de formación para el sector de la piedra es un proceso que requiere pocas personas con discapacidad. El desarrollo de un itinerario formativo para personas con discapacidad en el sector de la piedra será una herramienta de reconocimiento y validación de conocimientos y habilidades y capacidades transversales para promover la inclusión laboral de las personas con discapacidad en sectores tan tradicionales como es el de la piedra.

OBJETIVOS

El proyecto InclusiveStone, se validará en un sector tradicional de la inclusión laboral de personas con discapacidad en un sector que requiere adaptarse a una nueva sociedad de integración social y que es posible gracias a los nuevos avances técnicos y tecnológicos del sector que permiten una mayor accesibilidad para todos y en todos los niveles de la cadena productiva de la industria.

RESULTADOS

Los principales resultados del proyecto son:

- Enfoque educativo para personas con capacidades diferentes centrado en las capacidades transversales en el sector de la piedra
- Guía completa del itinerario formativo para la enseñanza de las profesiones del sector de la piedra para personas con diferentes habilidades y evaluación de la formación adaptada a la RV.



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PROJECT RESULTS

R1. Educational approach for people with different skills focused on transversal capacities in stone sector

SELECTED JOBS IN FACILITIES

- Forklift truck.
- Truck driver.
- CNC 5/6 axis or 2D for screen printing.
- Block cutter and header.
- Sawing machine, cutting table and other equipment.
- Cleaning.
- Waste management.
- Crane.
- Calibration and reinforcement line.
- Maintenance operator.
- Multiple sawing machine.
- Finishing.

INITIAL ANALYSIS

1. Forklift truck.
2. Overhead crane.
3. Cleaning and Waste management.
4. Calibration and reinforcement line.

FINAL SELECTION

1. Handling of blocks, boulders and blocks (70 hours).
2. Handling and conditioning of products, consumables and machinery in natural stone processing plants and mineral and rock processing and beneficiation plants (110 hours).
 - 2.A. Cleaning in natural stone factories and mineral and rock beneficiation plants (70 hours).
 - 2.B. Storage of consumables and products in natural stone factories and mineral and rock processing and beneficiation plants (40 hours).
3. Handling of loads with fork-lift trucks (50 hours).
4. Handling of loads with overhead cranes and hoists (30 hours).

VR-SCENARIOS

1. Forklift truck. 2 scenarios.
2. Overhead crane. 2 scenarios.
3. Cleaning and Waste management. 2 scenarios.

LIFE CYCLE OF NATURAL STONE



LIFE CYCLE OF NATURAL STONE

QUARRY

Example in an open-cast quarry in Greece..
https://www.youtube.com/watch?v=NrtwBO_nyFA

Underground quarry.
<https://www.youtube.com/watch?v=vAiZ9uLfibI>

LIFE CYCLE OF NATURAL STONE

FACTORY (I). Reception



LIFE CYCLE OF NATURAL STONE

FACTORY (II). Overhead crane inside



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). Cutting



LIFE CYCLE OF NATURAL STONE

FACTORY (V). CNC



LIFE CYCLE OF NATURAL STONE

FACTORY (VI). CALIBRATOR



LIFE CYCLE OF NATURAL STONE

FACTORY (VII). POLISHING MACHINE



LIFE CYCLE OF NATURAL STONE

FACTORY (VIII). PLASTERING MACHINE



LIFE CYCLE OF NATURAL STONE

FACTORY (IX). SLAB CUTTING



LIFE CYCLE OF NATURAL STONE

FACTORY (X). PALLETISER



LIFE CYCLE OF NATURAL STONE

FACTORY (XI). FORKLIFT TRUCK



LIFE CYCLE OF NATURAL STONE

FACTORY (XII). COMPLETE PROCESS

Example of a factory.

<https://www.youtube.com/watch?v=1sqLzMYWs1Y>

LIFE CYCLE OF NATURAL STONE

FACTORY (XIII). CRAFTSMANSHIP

Example of the Klesarska Skola.

Video 1. <https://www.youtube.com/watch?v=Kj8WjVqakA0>

Video 2. <https://www.youtube.com/watch?v=YRBIS5kYVEc>

LIFE CYCLE OF NATURAL STONE

CONSTRUCTION/DECONSTRUCTION WORK

<https://www.bimstoneproject.eu/>
<https://www.youtube.com/watch?v=dF2IPxRojLU>



<https://www.safestoneplace.com/>
<https://www.youtube.com/watch?v=czVn0t5NzO8>



<https://www.stoneplacing.com/en>
<https://www.stoneplacing.com/ready/videos/Videos/7.%20Matching%20stone%20pieces%20with%20the%20anchorage.mp4>

STONEPLACING



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WITH DIFFERENT SKILLS IN THE STONE SECTOR
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**THANKS FOR YOUR
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