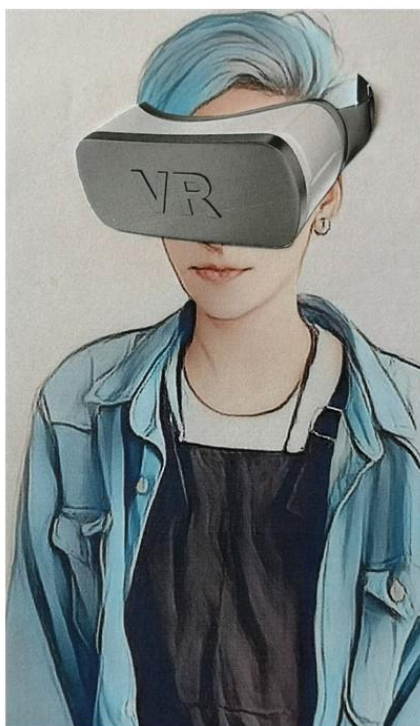


## CDO-VR



# COMMON SPECIFICATIONS FOR THE DEVELOPMENT OF VR/AR TOOLS



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## 1. INTRODUCTION

The introduction of VR (Virtual Reality) and AR (Augmented Reality) technologies offers transformative potential for various sectors, particularly in addressing the challenges associated with deficit occupations. These technologies provide immersive, interactive experiences that can significantly enhance learning, training, and the overall understanding of various professions. By simulating real-world environments and scenarios, VR and AR can bridge the gap between theoretical knowledge and practical skills, offering a novel approach to career orientation, professional development, and the promotion of underrepresented occupations.

The document outlines detailed feedback and suggestions from focus groups across different target demographics, including pupils, young jobseekers, employers, managers, experts, masters, and the unemployed, highlighting the diverse perspectives on the use of VR/AR technologies.

These suggestions highlight the focus groups' emphasis on creating VR experiences that are immersive, educational, and reflective of the diversity and realities of the workplace. By leveraging VR technology, there is a unique opportunity to address deficit occupations through engaging, realistic, and informative simulations that prepare and inspire individuals for future careers.

This document provides comprehensive guidelines for developing VR/AR tools to address various aspects of deficit occupations, gender-reflective and diversity-sensitive materials in career orientation, and the specific needs of target groups across different regions.



## 2. SPECIFICATIONS OF 6 COMMON DEFICIT OCCUPATIONS IN SI AND AT

In the following chapter, we will detail the specifications of six different occupations identified as facing shortages in both Slovenia and Austria in 2024. These occupations are: cook, builder, electrician, metal technician specializing in welding, care worker/nursing professional, and system administrator/technician. This analysis is designed to aid our partners in developing VR/AR tools and environments that will provide project target groups with an optimal virtual reality experience, offering deep insights into the day-to-day activities and responsibilities of these six critical professions.

### 2.1 COOK / CHEF

**Occupational field:** hospitality and tourism



#### 2.1.1 TASKS AND RESPONSIBILITIES

A chef's job is to prepare dishes according to the order or for planned menus. His/her job is to prepare food in accordance with the principles of preserving the biological values of food products, taking into account the taste, satiety and pleasing appearance of the food. A chef's work is varied, ranging from ordering and receiving food products to cleaning, cooking, portioning, garnishing and decorating. A chef orders and collects food products and all other goods for food preparation. He prepares and cleans them or assigns this work to kitchen support staff.



A chef prepares or makes hot and cold dishes and desserts according to the daily menus. In doing so, he/she follows recipes and quantity norms for the consumption of food products and for the portions of the meals. He/she carries out his/her work in a hygienic manner, ensuring hygiene and cleanliness in the kitchen.



He/she also prepares the daily accounts of food products and portions which have been used and keeps the stock check. He/she works with other on inventories.

The chef is involved in the preparation and compilation of menus and in the calculations for individual dishes or meals. He/she monitors and applies professional innovations in order to work successfully. Once he/she has gained sufficient experience, he/she is involved in the induction of new staff.

### 2.1.2 AREAS OF WORK / WORK ENVIRONMENT

A chef works in a variety of food services, where the scope of work is different, and the organisation of work varies. He or she may cook in a large hotel restaurant with a large number of daily menus and à la carte dishes, in a ships or specialised restaurant (e.g. fish restaurant), in a tavern with a larger variety of home-cooked dishes, in a cafeteria or in a mountain lodge. You can also work in a hospital, a kindergarten, a retirement home, a student's kitchen, a military kitchen, or a company kitchen. More recently, food preparation and delivery, known as catering, is gaining ground. In this case, the chef prepares the food in a central unit and the food is delivered to the client's premises. This could be a birthday party in person's own home or a company organising a reception in its own premises. It also includes the delivery of food by plane and other types of transport, the organisation of banquets, cocktail parties, wedding receptions or the preparation of food on the client's premises. A chef can also work in the kitchen of a food industry that produces frozen food.







### 2.1.3 WORK EQUIPMENT

A chef uses various sources of energy such as electricity, gas or steam, as well as technical and mechanical devices. He/she uses cooking, table serving and transport utensils, cutlery and kitchen tools: mechanical processing machines, universal machine with attachments, peeler for tuberous vegetables, onion peeler; vegetable washing machine, meat mincing, chopping, slicing and sawing machines, whisking and spinning machines, dough processing and shaping machines; thermal appliances, cooker, cooking pots, tipping pans, meat and pastry oven, fryer, grill and spit, steam convection ovens and cooking machines, warming drawers, dishwashing appliances. In addition, refrigeration, and ice cream machines.

A chef uses cooking, serving, washing, cleaning and waste utensils, thermal and pressure cookware, various tools, and small inventory. It uses trolleys, conveyor belts and lifts to carry and transport food and meals. The work also requires kitchen linen and cleaning tools and utensils, rags, sponges, brushes, brooms, and mistletoe. He/she uses animal and plant foods, spices and fragrances, and water to prepare meals. To maintain cleanliness, it uses mechanical and chemical cleaning agents, disinfectants, and disinfection. The following documents and records are also important: requisitions, recipes and delivery notes, norm lists, menu books, price lists, price calculations, semi-finished goods accounts, daily food consumption accounts, reservation books and damage reports. When working, he/she shall be dressed in work clothes, wear a hat, wear appropriate footwear, and observe the rules on occupational safety.



## 2.1.4 WORK SCHEDULE

double shift (60% of vacancies)

### Working hours

Full-time - 96% of vacancies

Part-time - 4% of vacancies

The chef's working hours are usually fixed, as the work is carried out indoors according to a predetermined schedule. It is often double shifts, at weekends or at night, depending on the need for work or the restaurant's opening hours, plus the organisation of special events. The chef's hours vary depending on the length of the party or event on site.

## 2.1.5 KNOWLEDGE AND COMPETENCES

What skills and competences are expected?

- ❖ Implement the HACCP (Hazard Analysis Critical Control Points) system
- ❖ Food nutrition science
- ❖ Carry out sensory evaluation
- ❖ Cook sauces and soups
- ❖ Plan menus
- ❖ Prepare meat dishes
- ❖ Prepare desserts
- ❖ Prepare vegetable dishes
- ❖ Cook seafood
- ❖ Control costs
- ❖ Ordering supplies
- ❖ Prepare bakery products
- ❖ Prepare salad dressings
- ❖ Checking delivered goods on receipt
- ❖ Preparing flambé dishes
- ❖ Preparing cooking creations
- ❖ Prepare dairy products
- ❖ Compiling new recipes
- ❖ Identify the nutritional properties of foodstuffs
- ❖ Prepare a diet plan
- ❖ Prepare ready meals
- ❖ Prepare sandwiches
- ❖ Slice fish
- ❖ Store food raw materials
- ❖ Prepare dairy products
- ❖ Make up new recipes
- ❖ Identify the nutritional properties of foods
- ❖ Advise on the preparation of diets

### **2.1.7 PSYCHOPHYSICAL ABILITIES**

A chef must be good at distinguishing colours, smells and tastes and have dexterous hands and fingers. Maintains order, cleanliness, and personal neatness. He or she also has a sense of aesthetics, a sense of work organisation and good timekeeping. Works standing by turning, bending, reaching, lifting, and carrying light and medium loads. Working with foodstuffs requires regular medical examinations, a minimum hygiene course and an occupational safety examination. Allergies to foodstuffs and cleaning products may be a problem.

### **2.1.8 WORKING CONDITIONS**

A cook is exposed to many hazards in the course of his work, especially cuts, punctures, burns, abrasions, falls and colds. The cook must use protective equipment and work clothes.

The cook shall work in the presence of significant changes in temperature, draughts, strong odours, steam, vapours, moisture, damp, wetness, and rustling. Work may be hazardous due to sharp tools, hot objects and pressurised equipment or slippery floors.

### **2.1.9 PERSONAL CHARACTERISTICS AND INTERESTS**

A Chef is responsible, resourceful, creative and has a flair for working with people. He/she is calm, collected and has a good overview of what food is most appropriate, healthy, and tasty for the occasion. He or she must be economical in handling food.

### **2.1.10 EDUCATION**

What is the training required for this profession?

The profession requires a secondary education qualification in cookery. Primary school pupils can continue their education at catering and tourism secondary schools throughout both countries.

Length of training: 3 or 4 years.

You can continue your studies at a higher vocational school in the Hospitality and Tourism programme in Slovenia.

Many chefs have felt their mission and their love for the profession without having trained for it. Courses, training at home and abroad and the possibility of retraining open the door to a career as a chef for anyone who really wants it.

There are also several courses that allow you to retrain and obtain a licence to practise the professions of assistant chef, pizza maker, front-of-house cook and catering manager as part of the National Vocational Qualification (NVQ).

## 2.2. BUILDER

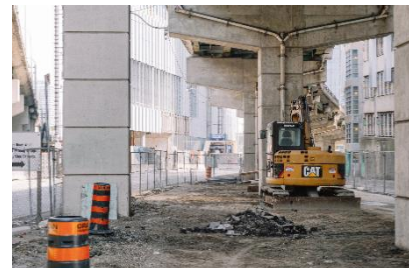
**Career field:** construction, architecture, geodesy, urban planning



### 2.2.1 TASKS AND RESPONSIBILITIES

Building services are basic building and construction contracting work. A builder's professional work can be seen on the motorway, on the approach to a housing estate, on the street or in a building. A builder builds the individual elements of a building and connects them together to form a solid, stable structure. He/she must therefore be familiar with the different types of brick bond, the ways in which the elements are connected and how they are assembled. He/she builds foundations, walls, columns, ceilings, bridges, concrete roads and tunnels. Knows how to plaster walls inside and outside a building, lay floors and make manholes. He/she is involved in the construction of foundations deep in a construction pit or at the bottom of riverbeds, where he concerts the foundations and dam of a new hydroelectric power station. They expertly rehabilitate and restore old buildings. A builder knows the building materials, how to prepare them and how to install them economically. Much of his/her work is done by hand, but he/she is often helped by machines.

He/she prepares mortar and concrete in a mixer or has concrete delivered by truck. He/she can install it by hand or by pump. Transport is easier with a crane or a hoist. He/she must have a sense of statics to build stable, solid and durable buildings. They must have a good knowledge of building regulations to be able to carry out the work professionally. He/she makes repeated pre-assessments for the building materials needed and then orders them. When deliveries of materials are made, he/she helps to unload them and stores or transports them to the job site. A builder usually works in a team. Every construction is a new challenge that needs to be solved, so a builder's work is by no means monotonous.





## 2.2.2 AREAS OF WORK / WORK ENVIRONMENT

A builder usually works outdoors on a construction site or in a plant producing building products and prefabricated elements. A building site may be just rebuilding part of a wall, putting up a new door, repairing plaster or building a detached house, block, or tower block. It is involved in the construction of new neighbourhoods with work, entertainment, housing and roads and other infrastructure facilities. Works on the ground, in a construction pit or on scaffolding, on scaffolding outside or inside a building. A builders' work is often intertwined with other construction professionals and often involves simple ironwork or carpentry.

A builder may work as a freelance builder or as an employee of a company. There are less those that work as freelance builders. They are usually building houses or renovating and upgrading existing buildings, making facades, or carrying out low-rise construction work. A builder employed by a company usually works on larger projects on building sites, which may be high-rise buildings, low-rise buildings, or waterworks.



## 2.2.3 WORKING EQUIPMENT

The builder uses the plans and the technical manuals as a guide for building. To do this, he/she needs working and measuring tools, a pencil, a tape measure, a string, a trowel, a pick, a lath, a hammer, a mason's spoon, a ladle, a smoother and a bucket. He/she uses hand-held machines to drill and cut the masonry. He/she uses a mixer to prepare concrete. He/she needs a wheelbarrow, trolleys and a crane to transport the material. He/she uses forklifts, cranes, a crane, a conveyor belt and a concrete pump to make the heavier physical work easier. He/she uses blueprints, drawings and other technical documentation. Prepares pre-estimates of the material required and makes simple calculations. Uses order forms or delivery notes when ordering and collecting goods.

## 2.2.4 PRODUCT AND SERVICES

A builder's product may be the repair of a wall, plaster, façade or stairs, the rebuilding of a building or the construction of a new building altogether.

## 2.2.5 WORK SCHEDULE

Morning (75% of vacancies)



## Working hours

Full-time, 100% vacancies

### 2.2.6 SKILLS AND COMPETENCES

What skills and competences are expected?

- ❖ Lift loads
- ❖ Finishing concrete
- ❖ Breaking bricks
- ❖ Mixing concrete
- ❖ Mixing levelling compounds
- ❖ Control stock levels
- ❖ Installing building profiles
- ❖ Draw a line without a ruler
- ❖ To work plastered joints
- ❖ Removing concrete formwork
- ❖ Laying bricks
- ❖ Erecting scaffolding
- ❖ Placing concrete formwork
- ❖ Erecting temporary site infrastructure
- ❖ Checking the flatness of walls
- ❖ Understand two-dimensional plans
- ❖ Use protective equipment in construction
- ❖ Observe procedures for ensuring safety at work at height
- ❖ Operate a construction material saw
- ❖ Work in a construction team
- ❖ Inspecting delivered concrete
- ❖ Inspect construction materials
- ❖ Transport construction materials
- ❖ Understand three-dimensional plans
- ❖ Use a piling bar
- ❖ Building regulations
- ❖ Estimate the cost of renovation
- ❖ Install formwork
- ❖ Maintain equipment
- ❖ Apply health and safety procedures in construction

### 2.2.7 PSYCHOPHYSICAL APTITUDES

A builder works in a variety of weather conditions. He/she works in damp construction pits, on top of factory chimneys, on scaffolding and ladders. He/she must have a sense of height, where he/she moves with agility and dexterity. He/she must be able to judge distances quickly and

accurately, both vertically and horizontally. He/she shall be resourceful and physically robust. He/she must not be allergic to dust and chemicals used in construction.

### **2.2.8 WORKING CONDITIONS**

Work takes place in a variety of weather conditions. Height or depth must not be an obstacle. He/she often works overtime, and seasonal working hours are common. Anyone who chooses to work as a builder must know that he/she will often change his/her work site and move from place to place, so he/she is always getting to know new places and people. Today he/she will be plastering a house, tomorrow he/she will be building a tunnel under a hill, then a power station and then a bridge. He/she will keep improving and learning.

Because of the nature of his/her work, a builder is exposed to falls to depth, to being buried in a construction pit, to poisoning and to accidents when working with electricity. Injuries caused by impact or carrying heavy loads are also common. You must comply with workplace safety regulations to ensure that you do not endanger yourself or other workers by being careless at work and wear protective equipment: work clothes and safety boots, gloves and a helmet.



### **2.2.9 PERSONAL CHARACTERISTICS AND INTERESTS**

A builder must be persistent, meticulous, and patient. He/she has a sense of economy and aesthetics. They must always be improving their skills, learning new materials and methods of construction. They must be able to adapt to working in a team.

### **2.2.10 EDUCATION**

What is the expected education for this profession?

A builder must have the appropriate professional skills to be able to build independently and to a high quality based on a plan. The profession requires the completion of a vocational secondary school - builder programme. During their training, builders learn the basic theoretical and practical skills that are essential for the profession.

Completion of school is not, however, strictly necessary for the profession. There are also many apprentice masons with similar prior knowledge to that of a trained mason.

Length of training: 3 years

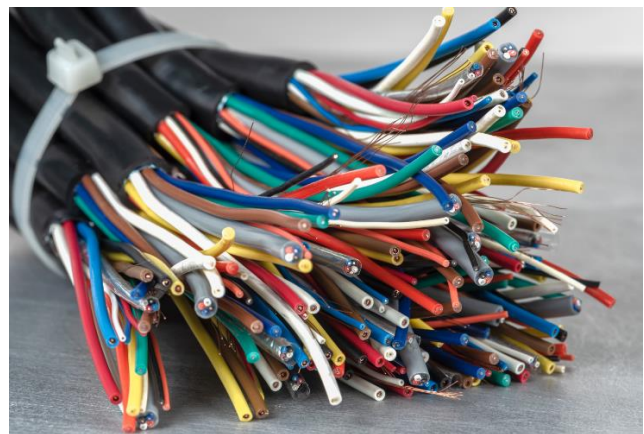
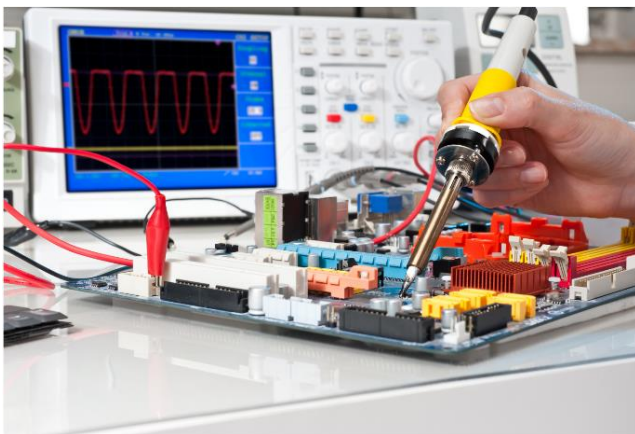
## 2.3 ELECTRICIAN

**Career field:** electrical engineering, electronics, telecommunications



### 2.3.1 TASKS AND RESPONSIBILITIES

An electrician shall supply the new or renovated building with the electrical wiring according to the prescribed documentation (plan) or in consultation with the owner in the case of private premises. He/she shall arrange the electrical wiring in the interior spaces for the needs of household appliances, lighting, computer network, internet connection, telephone wiring, air conditioning or for the wiring of the alarm system and the installation of a lightning conductor. As a maintenance technician, he/she ensures safety when working with machinery and emergency interventions in the event of any problems with the electrical wiring.



### 2.3.2 AREAS OF WORK

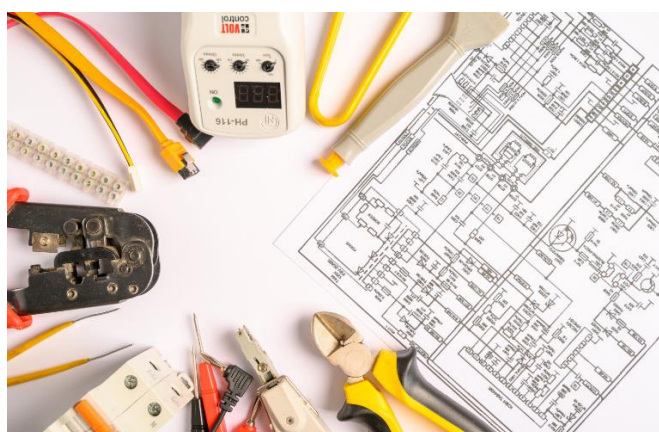
The services of an electrician are essential wherever a new or renovated building needs to be supplied with electrical power. The work areas are very varied, which means a constantly changing environment. Each installation has certain specific features which the electrician knows from experience and can anticipate in advance. He or she also works as a maintenance technician in the company, where he or she ensures safety when working with machines that use electricity and takes emergency action if there are any problems with the electrical wiring.



To be self-employed, you must obtain a trade licence issued by the local branch of the Slovenian Chamber of Crafts.

### 2.3.3 WORKING AIDS

Rough installation work requires the use of impact apparatus to help prepare the ground for the installation of electrical cables by cutting channels in walls or floors. Fine installation, once the ducts have been hollowed out, requires pliers to measure out the necessary length of cables and tools to install the cables in the ducts and fix them - couplers. When completing the fine installation, he/she uses a ladder for working at height and a screwdriver to fix the sockets, switches, and the light base to which he attaches the bulb and the chandelier. When fitting out larger buildings, he/she shall adhere to the intended plan, which shall be certified by an official. This is of great help to him/her in the installation of the electricity, whereas in the case of private houses it depends on the wishes of the person paying for the work or on his own judgement. When he/she has finished the work, he/she shall measure the electrical installation with the aid of measuring devices such as an ammeter and a voltmeter.



### 2.3.4 PRODUCT AND SERVICES

The service of an electrician is indispensable in the fitting out of any building, private or public. The end product is useful for everyone, as every building has light switches, sockets and plugs.

### 2.3.5 WORK SCHEDULE

It is a single-shift job (70% of vacancies).

#### Working hours

Full-time (100 % vacancy rate).

### **2.3.6 SKILLS AND COMPETENCES**

- ❖ Electricity
- ❖ Electrical installation plan
- ❖ Comply with regulations relating to electrical safety
- ❖ Electromechanics
- ❖ Read standard schematics
- ❖ Install electrical and electronic equipment
- ❖ Troubleshoot
- ❖ Maintain electrical equipment
- ❖ Work in a construction team
- ❖ Electronics
- ❖ Control systems
- ❖ Installing power lines and cables
- ❖ Technology for building systems control
- ❖ Keep a repair log

### **2.3.7 PSYCHOPHYSICAL APTITUDES**

Electrical wiring requires colour coordination of the various installations, so a worker practising as an electrician must not be colour blind. Hearing impairment and possible disability are also a handicap. As he/she often works at height, for example in the installation of lightning conductors, he/she must be in good mental and physical health, as demonstrated by regular medical examinations and by taking care of his health.

### **2.3.8 PERSONAL CHARACTERISTICS AND INTERESTS**

An electrician must first and foremost be a conscientious worker. A fault in the installation of electricity in a building often becomes apparent only after a certain period of time. Particularly in the case of workers who are employed by a private company or are self-employed, word-of-mouth advertising about good service is widespread and reliable workers never run out of work. The same applies to public enterprises. It is only through conscientious work, done to agreed deadlines, that new customers are won. Quality work requires a great deal of precision and manual dexterity, as a reckless gesture or too strong a blow can damage the interior of the building being electrified. Duties also include working with thinner wires that need to be installed as inconspicuously as possible, for example for alarm devices.

### **2.3.9 EDUCATION**

Electrician is a 3-year programme culminating in a final examination. Students who complete the vocational qualification can enrol in a vocational-technical education programme for the profession of electrician. They continuously update their knowledge in courses where they are introduced to new tools and measuring devices.



## 2.4 METAL TECHNICIAN WITH WELDING

**Occupational field:** mechanical engineering, metalworking, vehicle repair



### 2.4.1 OCCUPATION: METAL DESIGNER WITH METAL JOINING

#### 2.4.1.1 TASKS AND RESPONSIBILITIES

The metal technician was originally based on manual skills and metal forming skills, but nowadays, with computer-aided machines and devices, mental skills and a flair for design are more important.

Jobs that were once mainly done by hand by a miller, grinder or scraper are now done by a metal designer using computer-controlled machines. Most of the work is done in front of a screen, where the worker checks the accuracy of parameters and digital data to produce a product, which is often made up of machine elements, hydraulics, sensors, and electronics.

A profession akin to that of a mechatronics toolmaker, it is indispensable in the automotive industry. As the work of a metalworker is not physically demanding, it is also suitable for women.

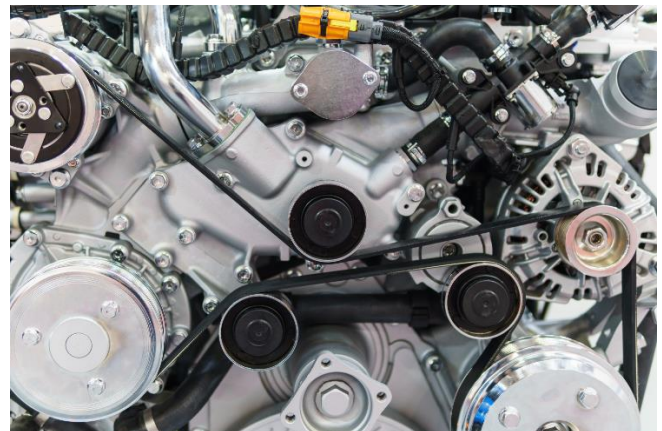
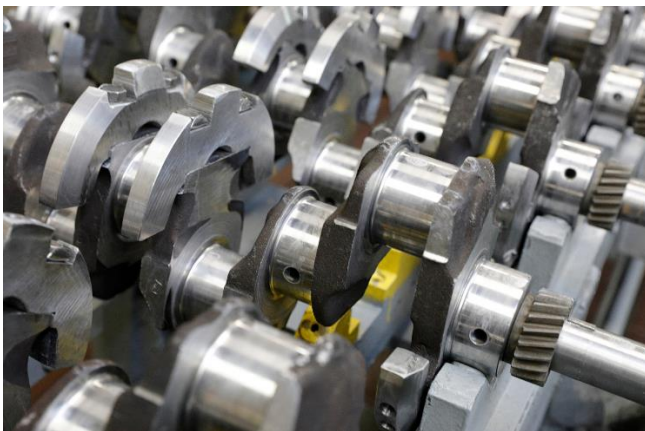
#### 2.4.1.2 AREAS OF WORK / WORK ENVIRONMENT

Like the toolmaker, who assembles the elements prepared by the metalworker into a single tool, the metalworker is predominantly employed in the industrial and craft sectors. He or she produces individual metal elements and prepares them for further processing or for incorporation into apparatus and working machines. Modern technological production also incorporates robotics and complex robotic machines into the manufacturing processes of working machines and appliances.



### 2.4.1.3 WORKING AIDS

The working tools of a metal technician are various machines and devices for the production of products and semi-finished products, hand and machine tools, machine tools, etc. Production planning is mostly done by computer, using screens where the metal technician checks the parameters of the planned production and runs a simulation for a prototype product. Once the programme has been selected, the desired production command is sent over the network to the computer, which enables the precise preparation of the products.



### 2.4.1.4 PRODUCT AND SERVICES

The metal technician produces a wide variety of products, usually on automated machines, ranging from simple objects for everyday use to so-called smart tools that have many mechatronic components built in. The use of these tools is widespread in the automotive industry. In the craft sector, it also carries out repairs of individual machine elements, unique products, and servicing.

### 2.4.1.5 WORK SCHEDULE

Mornings (51% of vacancies).

#### Working hours

Full-time (100 % of vacancies)

#### **2.4.1.6 SKILLS AND COMPETENCES**

- ❖ Assemble metal parts
- ❖ Mark metal workpieces with a punch
- ❖ Non-ferrous metal processing
- ❖ Processing of ferrous metals

#### **2.4.1.7 PSYCHOPHYSICAL APTITUDES**

A metalworker must have good eyesight, spatial awareness, and a sense of precision in practical work. He/she is communicative, resourceful, and willing to work with complex tools, machines and electronic devices.

#### **2.4.1.8 PERSONAL QUALITIES AND INTERESTS**

The metal technician particularly enjoys designing various objects, tools, and devices. He/she must be precise and calm in his work. As mechanical engineering technology is rapidly evolving, he or she must be prepared to learn throughout life.

#### **2.4.1.9 EDUCATION**

A metalworker receives the necessary training in school and dual-track secondary vocational education. Anyone who has completed primary school or a lower vocational education programme may enrol in the training programme, accompanied by a certificate proving that the applicant has no medical handicap for enrolment in the training programme. The Metal Designer training programme is offered at the Secondary School of Mechanical Engineering and Mechatronics and Media Technology. Students can continue their education on the 3+2 differentiated programme and obtain the qualification of Mechanical Engineering Technician. They can continue their education in a higher vocational or university programme in mechanical engineering.

Metal designers are mainly trained as: turner, grinder, and miller. They shape different metals and produce various metal products on machine tools such as lathes, milling machines and grinding machines.





## 2.4.2 OCCUPATION: METAL JOINER – WELDER



### 2.4.2.1 TASKS AND RESPONSIBILITIES

The welder must first prepare the welding site.

- He or she checks the functioning of the basic equipment, procures basic, supplementary, and auxiliary materials and takes care of safety and security at work.
- When working in the field, he/she shall ensure that the weather effects on the joining process are minimised.
- The preparation of weld grooves, machining, grinding, cleaning, and degreasing of welded joints is a very important task.
- The welding process itself means the successful joining of two elements.
- The quality of the joint is influenced to the greatest extent by the welder himself. Therefore, the correct qualification of the welder, confirmed by a certificate of competence to carry out welding work, is crucial for the quality of the welded joint.
- When certain parts of the welded joint are of inadequate quality, the welder must grind them and repeat the welding process.
- Sometimes a so-called fire watch is required in welding areas where there is a risk of fire or explosion, which may last up to 24 hours after the welding work has been completed.

### 2.4.2.2 AREAS OF WORK

A welder can be employed in several different fields of work. He or she works in the workshop or in the field. The classic areas of welding work are welding shops for small elements and objects, house installations and piping, which are usually welded in the rooms where they are installed, and various maintenance work. The work involves a variety of working procedures, welding techniques and materials.

### 2.4.2.3 WORKING AIDS

A flame welder uses gas cylinders, a torch, and a hose pack. He or she uses tools such as various conveyors, a hoist, various small tools, ladders, a worktable and fasteners to facilitate his or her work. Daily, he is confronted with paper documents such as work orders, norm sheets, operation sheets, technological procedures and work execution plans. The necessary basic, supplementary, and auxiliary materials for the execution of the work are provided by the foreman or are procured by the foreman himself.



### 2.4.2.4 PRODUCT AND SERVICES

The job of the welder is to carry out the brazing under the direction of the foreman, a welding specialist, and to make the joint of the appropriate quality as defined by the prescribed standards. For welding work on certain products, e.g. steel structures, pressure vessels and pipelines, the welder must have his/her skills additionally checked. For such work, he shall obtain a certificate of fitness to carry out complex welding work from a testing body, the Institute of Welding.

### 2.4.2.5 WORK SCHEDULE

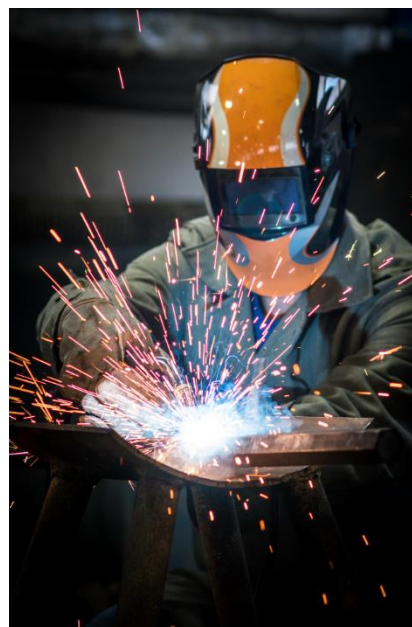
Mornings (64% of vacancies).

#### Working hours

Full-time (100 % of vacancies).

### 2.4.2.6 SKILLS AND COMPETENCES

- ❖ Quality standards
- ❖ Metal joining technologies
- ❖ Apply brazing techniques
- ❖ Apply arc welding techniques
- ❖ Types of metals
- ❖ Review technical resources
- ❖ Test products
- ❖ Handle fuels
- ❖ Use a torch for flame welding
- ❖ Use soldering equipment





- ❖ Operate precision measuring equipment
- ❖ Maintain mechanical equipment
- ❖ Fuel gases

#### **2.4.2.7 PSYCHOPHYSICAL APTITUDE**

Excellent manual dexterity is a prerequisite for a good welder. Hand movements must be calm, steady, precise, and easy. Good physical skills are also necessary, as sometimes the soldering position is extremely awkward. Other requirements are sharp eyesight, good colour discrimination, good breathing, good balance, ability to work at height and in tight spaces.

#### **2.4.2.8 PERSONAL QUALITIES AND INTERESTS**

The job requires a high level of quality work from the welder. Therefore, the welder's aptitude for welding work must be verified by certification every two years. To achieve a high level of work quality, he must be meticulous, careful, and persistent.

#### **2.4.2.9 EDUCATION**

The training is open to anyone who has completed their primary education and is over 18 years of age. To qualify for the National Vocational Qualification, a candidate must have completed primary education or lower vocational education of a comparable level (technical). The curriculum consists of theoretical subjects in welding, occupational safety and health, and practical soldering instruction. Each participant is provided with an equipped workplace and sufficient basic and supplementary materials.



## 2.5 CARE WORKER / NURSING

### Occupational field:



### 2.5.1 TASKS AND FUNCTIONS

- Identifying residents' needs, planning, implementing, and analysing care procedures.
- Assisting with the activities of living: breathing, eating, and drinking, elimination, exercise, sleep, and rest, dressing and undressing, personal hygiene, maintaining normal body temperature.
- Care and management of the most common medical conditions of old age.
- Monitoring the dying and care of the deceased.
- Documentation and reporting in nursing care Plan, prepare, implement and monitor their own work in collaboration with supervisors.
- Carry out hygiene of premises and equipment in hygiene-requiring areas.
- Collaborates with medical staff in rehabilitation activities.
- Recognising and responding to injuries and sudden illnesses.
- Promote healthy lifestyles.
- Comply with the Code of Ethical Principles in Health Care.
- Communicate with colleagues, patients and professional services.
- Use modern information technology and develop entrepreneurial qualities.

### 2.5.2 AREAS OF WORK / WORK ENVIRONMENT

A care worker/nursing assistant works in the following areas:

- primary, secondary and tertiary level of healthcare;
- social and special social care institutions;
- health resorts;
- social-medical, hygiene, epidemiological and health-ecological activities.

### 2.5.3 WORKING AIDS

The care worker uses a variety of aids: personal and bed linen, towels, soap, and disinfectants for hygienic care of the patient, feeding utensils such as cutlery, plates and cups. He/she also uses patient safety aids such as a guardrail, call system, stand and trolley. Uses medical technical aids and apparatus such as thermometer, blood pressure monitor, syringe, scissors, forceps, catheter, probe, drain, monitor and computer. The materials he/she works with are textiles, plastics, wood, rubber, and metal. He/she also works a lot with biological and chemical materials. The documents he/she uses are: nursing and medical records, test reports, X-rays, order forms and billing slips.



### 2.5.4 WORK SCHEDULE

Multi-shift (69 % of vacancies)

### 2.5.5 WORKING HOURS

Full-time - 97% of vacancies

Part-time - 3% of vacancies

### 2.5.6 KNOWLEDGE AND COMPETENCES

- ❖ To carry out cleaning
- ❖ Sterilisation techniques
- ❖ Listen actively
- ❖ Take responsibility
- ❖ Disability care
- ❖ Communicate with care staff
- ❖ Communicate with health service users
- ❖ Deal with emergencies
- ❖ The needs of older adults
- ❖ Distribute meals to patients
- ❖ Empathise with the healthcare service user
- ❖ Work with care staff
- ❖ Identify irregularities
- ❖ Adhere to clinical guidelines



- ❖ Follow organisational guidelines
- ❖ Comply with healthcare legislation
- ❖ Ensure the safety of healthcare service users
- ❖ Work under supervision in the field of nursing
- ❖ Geriatrics
- ❖ Types of disability

### **2.5.7 PSYCHOPHYSICAL CAPACITIES**

The work and duties of a nursing assistant require appropriate psychophysical abilities and personal qualities that enable a humane and responsible attitude towards individuals and the social community. Professional knowledge, accuracy, reliability, critical judgement, decision-making and creative problem-solving skills, communication skills, emotional stability, a humane attitude towards the patient, adaptability, and the ability to react quickly, manual dexterity and optimism are prerequisites for successful nursing practice.

### **2.5.8 PERSONAL CHARACTERISTICS AND INTERESTS**

The carer must respect the dignity and privacy of the client, his/her individual needs and values, and his/her right to choose and decision-making. He/she is obliged to protect as a professional secret information about the client's state of health and everything he/she knows about the client's personal, family, and social situation. The nursing assistant shall introduce innovations in the field of nursing into his/her work.

### **2.5.9 EDUCATION**

Publicly valid "Caregiver Nurse" programmes, which provide the individual with:

- a publicly valid certificate of completion after three years of training,
- a diploma at level IV and the occupation HOSPITAL CAREGIVER/HOSPITAL CAREGIVER in Slovenia
- the possibility of continuing their education in the vocational-technical nursing education programme.

Before entering the profession, a nursing assistant must complete an apprenticeship and a professional examination and be entered in the register of health professionals and associate professionals.



## 2.6 SYSTEM ADMINISTRATOR / TECHNICIAN

**Career field:** computing, programming, IT



System administrator - software maintainer, maintains system software, applies migration and conversion methods to existing data to transfer or convert data between formats, storage systems or computer systems. Provides support to users of personal computers and installs and maintains computer networks.

### 2.6.1 TASKS AND RESPONSIBILITIES

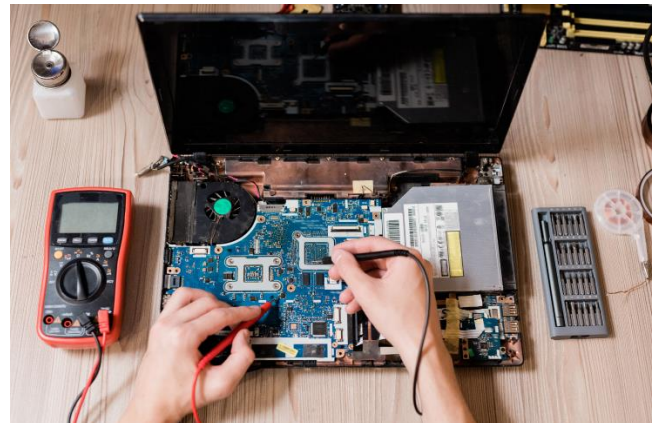
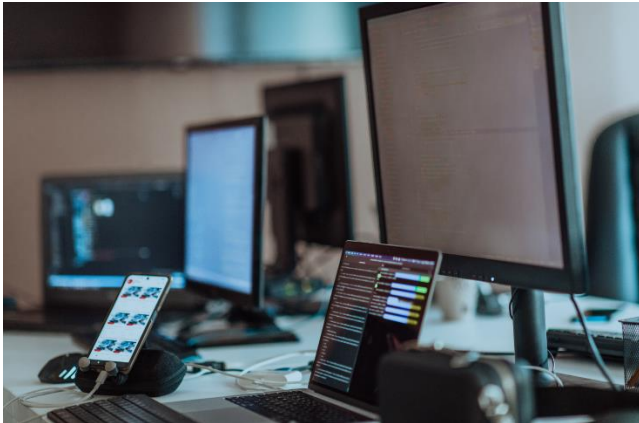
- The Software Maintainer reviews and prepares computer network documentation.
- Investigates possibilities for obtaining programs via the Internet and prepares software packages for processing and archiving.
- When maintaining system software, he/she must install and verify the operation of the operating system and peripheral devices.
- Update the operating system of any central computer and set up firewalls.
- Participates in the execution of complex computer processing and receives system messages from the computer system.
- His/her work includes troubleshooting foreseeable system errors, servicing system software and creating and storing backup copies.
- The maintainer sorts out e-mails from a common e-mail address.
- He installs and tests standard software, updates software and changes media such as CD, DVD, and tape units for automated file archiving.
- It also provides computer support to the various departments using the computers and software.
- It procures and updates anti-virus programs and installs standard software.
- Frequently performs tasks within operating systems such as printer integration and setup, user setup, uploading programs to users or setting up file archiving.
- It corrects user-induced errors and makes and stores backup copies of programs.
- Troubleshoots computer networks.
- Continuously monitors and logs system and user messages.
- Keep records of access profiles, passwords, and access phases, and edit and tabulate archive files.



If he/she works for a company that provides helpdesk services, he/she advises users on how to resolve minor problems and supplies computers remotely.

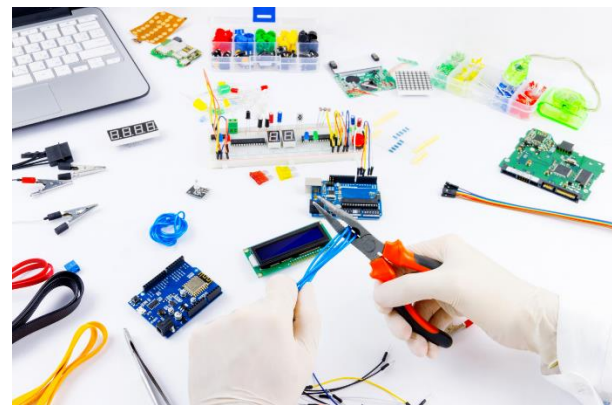
### 2.6.2 AREAS OF WORK / WORK ENVIRONMENT

System technicians are employed in large, medium-sized and large IT companies, as well as in service companies in the field of computing. In fact, they can be employed in any workplace where the user network includes several computers that require special supervision.



### 2.6.3 WORKING EQUIPMENT

His/her working tools are computer software, devices, technical manuals and operating systems.



### 2.6.4 WORKING SCHEDULE

Morning - 94% of vacancies

#### Working hours

Full-time - 96% of vacancies

Part-time - 4% of vacancies

### **2.6.5 SKILLS AND COMPETENCES**

- ❖ Implement the transfer of existing data
- ❖ Hardware
- ❖ Manage change in ICT systems
- ❖ Perform backups
- ❖ Solve ICT system problems
- ❖ Manage the ICT system
- ❖ Manage information system security
- ❖ Maintain the ICT system
- ❖ ICT system user requirements
- ❖ Carry out system testing
- ❖ Acquire a system component
- ❖ Provide technical documentation
- ❖ Systems development life cycle
- ❖ ICT system integration
- ❖ Libraries of software components
- ❖ Renew the ICT system
- ❖ Support users of the ICT system
- ❖ Interpret technical texts
- ❖ Internet management
- ❖ Implement ICT network diagnostic tools
- ❖ Install electronic communications equipment
- ❖ Analyse network bandwidth requirements
- ❖ Install signal repeaters
- ❖ Adjust ICT system performance
- ❖ Implement the transfer of existing data
- ❖ Procurement of ICT network equipment
- ❖ ICT network hardware
- ❖ Find solutions to problems
- ❖ Maintain the Internet protocol configuration
- ❖ ICT communication protocols
- ❖ ICT network cabling constraints
- ❖ ICT system programming
- ❖ ICT network routing
- ❖ Security risks in ICT networks
- ❖ Provide technical documentation

### **2.6.6 PSYCHOPHYSICAL ABILITIES**

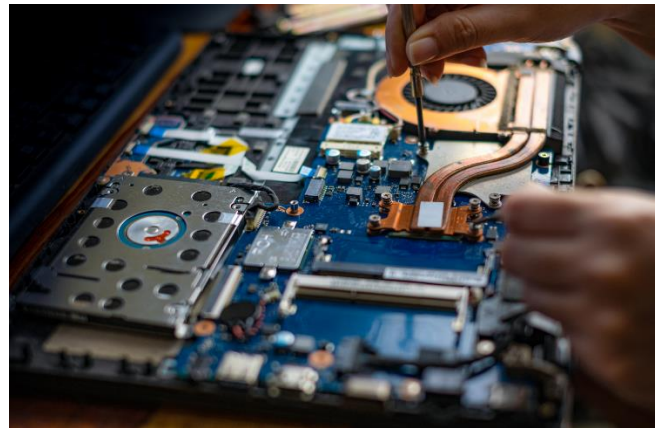
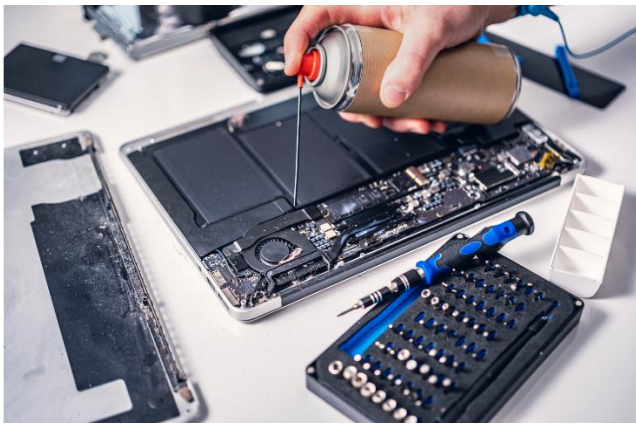
Good psychophysical performance and good eyesight and hearing are required.

### **2.6.7 PERSONAL QUALITIES AND INTERESTS**

For the System Administrator/technician it is important to have a desire for further education and training, as the field of computer software is changing extremely rapidly, and the maintenance technician must keep abreast of developments. They must be aware of the confidentiality of data, especially if the software is used within the company for specific purposes. The maintainer must be able to think logically, and patience makes it easier to find a solution to a problem. Because he or she is working with users who may be stressed by an inoperative computer, he or she must be friendly to the interlocutor.

### **2.6.8 EDUCATION**

The relevant secondary school programme for the profession of System Administrator - Software Maintenance is the Computer Technician programme.



### 3. SPECIFICATIONS FOR VR/AR GIVEN BY PROJECT TARGET GROUPS

#### 3.1 TARGET GROUPS INVOLVED IN SLOVENIA

Focus group	No. of participants	M	F	Description
Pupils	7	3	4	Age: 13 – 14 8th grade Primary school
Unemployed	7	3	4	Age: 18 - 39 <ul style="list-style-type: none"> <li>•Computer science education</li> <li>•Hospitaliy</li> <li>•Electrical engineering</li> <li>•Economists/metalwork</li> <li>•Incomplete secondary school</li> </ul>
Employers	6	2	4	Age: 30 - 35 <ul style="list-style-type: none"> <li>•IT</li> <li>•Metalwork</li> <li>•Catering</li> <li>•Elderly care</li> <li>•Construction</li> <li>•Industrial installation</li> </ul>
Masters, experts	7	6	1	Age: 35 - 55 <ul style="list-style-type: none"> <li>•IT</li> <li>•Construction</li> <li>•Health care</li> <li>•Hospitality</li> <li>•Metalwork</li> <li>•Electrician</li> </ul>

The focus groups provided diverse and valuable insights into the perception of career guidance and deficit occupations among different demographic groups. Key findings include:

The focus group with **primary school students** showed a high level of technological literacy among young people and an interest in the use of VR technology in the presentation of occupations. Pupils expressed divided interests in occupations according to gender and stressed the importance of salary, personal interest and the complexity of the work in choosing an occupation. There is an awareness of deficit occupations, but the choice of occupation is still partly based on common perceptions.



The focus group with the **unemployed** highlighted that many occupations are undervalued and low paid, which affects the perception of job opportunities. Participants criticised the lack of practical training and direct experience of occupations and expressed the need for a more realistic representation of occupations in the education system.

The focus group with **employers** showed a positive attitude towards modern ways of presenting professions and employment. Employers are facing staff shortages and stress the importance of adapting to new technologies, motivating young people and presenting a realistic picture of occupations to attract talent.

The focus group with **master craftsmen** revealed the observation of a decline in young people's interest in technical careers, which is attributed to a lack of manual skills and technical knowledge. The masters were open to the use of modern approaches such as VR technologies to introduce and teach the professions and highlighted the need for motivation and interest in acquiring the skills required for the professions.

All focus groups stressed the importance of adapting educational approaches to modern trends, the use of technologically advanced tools to present career opportunities and the need to overcome traditional gender stereotypes. They also highlighted the need for a more comprehensive integration of practical learning and a more realistic presentation of careers to better prepare young people to make decisions about their future careers.

### 3.2 TARGET GROUPS INVOLVED IN AUSTRIA

Focus group	No. of participants	M	F	Description
Students	6	1	5	Age: 14 – 15 9th grade Secondary school
Young unemployed job seekers	5	3	2	Age: 15 - 25 Youth college for integration into the labour market Development of individual career paths
Employers, managers, experts	5	3	2	Care Electrical engineering Metal technology Construction industry
Employer, managers, experts	4	4	0	Hospitality industry Cook Metal technology IT - sector

The statements from the focus groups in Austria reveal insights into the perspectives of young women and men, as well as employers, managers, and experts regarding the workplace, career choices, and the utilization of virtual reality (VR) tools in career orientation.

### **Young Women and Men:**

There is a very strong tendency towards the use of cool colours and real-world environments in which it is possible to interact with other users. Hands-on experiences and actual contact with things are widely appreciated. This information includes salary, working hours, and work-life balance (weekend days off, no night shifts). Work in care is often related to elderly people and little information about various professions is being provided. Some people treat care as an opportunity for earning.

Accessibility to and familiarization with professions have much impact on the selection of careers. It is a well-known fact that gender stereotypes are an issue, they limit self-confidence in such fields like crafts especially for girls. The small image and knowledge, if exist at all, regarding the IT sector also hinder the interest among the people. Practicalities (commute, salary, old friends) play a decisive role in the choice-making process. Negative childhood memories (what parents said about certain occupations) may lead to a lack of interest in some career areas, and psychologically demanding and occupationally dangerous jobs are avoided. Good working environment and a vision of a job, like cookery or care, are also important. The atmosphere and environmental conditions (temperature, workload) have an impact on the career choices as well.

### **Employers, Managers, and Experts:**

The significance of collaborating, undertaking relevant work, sustainable fashion, and the skilled ability to appreciate the feeling of creating something with your hands is highlighted. Demonstration of the whole business arena including the area one enters after having a specific training is done to attract young job seekers.

As a vital element, money is valued with the same degree for it being satisfied and getting to know wider impacts of works. Providing that teaching about and providing trial opportunities to different than those already encountered may help individuals make the right choice among professions.

Realism and interactivity in VR are important aspects that should be considered. These cannot be achieved by focusing only on imagery and language, but they should be prioritized. VR design should carefully avoid data overload, while keeping users entertained, letting them experience the different aspects of a job through such elements (e.g., hunting for treasures and solving logical tasks). In addition, the speaker should highlight the future prospects of the career which might include salaries, availability of opportunities for advancing, and social importance status of the occupation.

In conclusion, the focus groups already conducted in Austria emphasize the multitude of difficulties that young people suffer when thinking of work, whether practical considerations, environmental conditions or gender stereotypes are to be considered. For companies and instructors, things as providing realistic, interactive, and significant experiences can be done either through VR or else, and this will help in attracting and retaining the youngster's talent for the different areas.

### **3.3. FOCUS GROUPS SPECIFICATION FOR CREATING A VIRTUAL REALITY ENVIRONMENT**

Based on the feedback gathered from the focus groups in Slovenia and Austria, we have outlined a comprehensive set of specifications for creating a Virtual Reality (VR) environment designed to engage and inform various target groups about different professions. The development of this VR environment should cater to the diverse needs and interests of pupils, young jobseekers, employers, managers, experts, masters, and the unemployed. The specifications are divided according to these target groups for clarity and focus.

#### **3.3.1 PUPILS AND YOUNG JOBSEEKERS**

- ❖ The VR system should replicate real workplaces in all their diversity with highly authentic settings, so that users can interactively explore different professions. This includes familiarisation with equipment, tools and materials and other job specifications. Create environments that are not only visually correct, but also reproduce the sounds, atmosphere and (where appropriate) tactile feedback that would be experienced in real workplaces. This spectrum includes the quiet hum of a kitchen as well as the chatter of a construction site.
- ❖ Let the users do some job tasks such as cooking, construction work, or wiring in a safe environment. This sort of tactic shall help people know professions better, one that will cause a demystification and eventual bolstering of confidence. Ensure that work assignments include activities that mimic actual workplace routines to give the employees feeling of real work tasks. This could mean everything from cooking with a timer to fixing a circuit breaker in the perfectly safe, virtual space.
- ❖ Provide the visitors with information panels or virtual guides featuring a summary of each craft with its salary, job outlook, required qualifications, and information on how to start an apprenticeship. Each job profession should have an info point placed in the virtual world which could be accessed at any moment. The career hub would present core career details using an innovative format, such as holding a virtual plate to find information about the culinary industry, career pathways, length of apprenticeships, salary expectations, and work-life balance.

- ❖ The VR experience should be interesting and thrilling with game-like parts to it where suitable. The puzzles, quizzes and challenges should be added as the compulsory parts of this experience. It should be designed to be adjustable to the difficulty level and the number of tasks to be picked up and be suitable for each age and skill level.
- ❖ Create scenarios where the users can work virtually with peers, customers, or other students to imitate social interactions actual in the workplace. Create immersive scenarios, strengthening the ability to work in a team and develop other workplace skills critical for doing business well.
- ❖ Provide different environments and kinds of jobs in one VR game that the participants can experience, thereby they can explore various career paths during a single session.

### **3.3.2 EMPLOYERS, MANAGERS, EXPERTS, MASTERS**

- ❖ Their proposals include a focus on interactive and immersive experiences rather than just content. They suggest moving away from traditional, passive learning methods such as videos. Emphasis should be placed on hands-on experiences that will allow users to perform different tasks, make decisions and solve problems as they would in a real work situation.
- ❖ A wide range of job/occupation-specific activities, from traditional tasks to modern approaches, should be included to show how technology interacts with traditional skills. For example, disassembling and assembling machines in 3D should include both manual and technical aspects.
- ❖ Include simulations that require users to perform tasks, solve problems or think critically and plan strategically. Ensure that the VR platform requires active participation and mimics the physical and cognitive demands of real-world tasks. This may include virtual tools that users need to manipulate precisely in order to achieve different goals.
- ❖ Ensure users are not just observers but active participants in the VR environment, able to manipulate objects, solve puzzles, and complete job-specific tasks.
- ❖ Introduce simple tasks or exercises at the beginning to familiarize users with VR controls and simulate the physical aspect of jobs.
- ❖ Give users the feedback on their performance to help identify skills and areas for improvement. Implement a system that offers constructive feedback on users' performance, helping them identify strengths and areas for improvement which is crucial for skill development and career planning.



### 3.3.3 UNEMPLOYED AND GENERAL CONSIDERATIONS

- ❖ The emphasis should be on practical learning and the acquisition of practical skills rather than theoretical knowledge, bridging the gap between education and the demands of the real world. Give users a clear understanding of the skills and tasks required by the job. This will bridge the gap between theoretical knowledge and the competences valued by employers.
- ❖ Virtual reality experiences should reflect the current labour market and real work environments and highlight the skills and occupations in demand, which is important to provide valuable insight and preparation for job seekers.
- ❖ Make the VR experience accessible and intuitive, with straightforward navigation and clear instructions, allowing users of all backgrounds and ages to benefit from the platform.
- ❖ Show the diversity of the workforce and include different roles within professions that will challenge traditional stereotypes and will encourage a wider range of individuals to explore different professions or careers.
- ❖ Incorporate elements that motivate users to explore and pursue careers, such as showcasing the societal impact of professions, potential for advancement, and creative fulfilment.

By following these suggestions in the development of VR, we aim to create a versatile and effective tool for career and education research that will be adapted to the needs and interests of a diverse audience. We want to empower individuals with the knowledge, skills and motivation to effectively explore and realize their career aspirations.

## 3.4. PROFESSION-SPECIFIC VR ENVIRONMENT SUMMARIES FROM FOCUS GROUPS

### 3.4.1 COOK/CHEF:

- ❖ Focus on the kitchen's layout, preparation before service, and the importance of cleanliness. Include simulations of selecting ingredients, cooking, plating, and cleaning up. The environment should be highly interactive, allowing users to handle kitchen tools and ingredients.
- ❖ Create a kitchen environment with stations for prep, cooking, and plating. Include virtual ingredients that can be chopped, cooked, and plated. Simulate the pressure of service time and incorporate a cleanliness standard to maintain throughout the simulation.

### 3.4.2 BUILDER

- ❖ Cover the diversity of construction work, including formwork, bricklaying, and plastering. Highlight the importance of physical work, precision, and teamwork in achieving construction goals.
- ❖ Simulate a construction site with tasks like mixing mortar, laying bricks, and plastering walls. Include scenarios that require teamwork, such as coordinating tasks on a larger building project.

### **3.4.3 ELECTRICIAN**

- ❖ Focus on electrical installations, safety procedures, and troubleshooting. Simulate various scenarios, from residential wiring to complex industrial systems, emphasizing the risk-free trial and error learning.
- ❖ Create scenarios ranging from installing simple home circuits to troubleshooting industrial electrical systems. Incorporate tools for measuring electrical parameters and safety gear for risk management.

### **3.4.4 METAL TECHNICIAN WITH WELDING**

#### METAL DESIGNER WITH METAL JOINING

- ❖ Emphasize the design and production process, from concept to completion, including working with CAD software and operating CNC machines. Highlight the blend of creativity and technical skill.
- ❖ Include simulations for designing metal parts on CAD software, selecting materials, and setting up CNC machines for production. Tasks should demonstrate the precision and technical knowledge required in metal design.

#### METAL JOINER – WELDER

- ❖ Stress the precision and safety aspects of welding, including preparation, welding techniques, and quality assessment of welds. Address the physical aspect of the job and the importance of proper technique.
- ❖ Simulate a workshop environment with various welding projects. Allow users to select tools, prepare materials, and perform welding tasks, followed by an inspection of their welds for quality assurance.

### **3.4.5. CARE WORKER / NURSING**

- ❖ The VR should cover various care settings (home, operating room, ward) and focus on empathy, patient interaction, and basic care procedures. Highlight the significance of personal and emotional aspects of care.

- ❖ Create multiple care settings with interactive patients showing diverse needs. Simulate daily care activities, emergency response, and communication with patients and healthcare team members. Incorporate feedback on bedside manner and care techniques.

#### **3.4.6 SYSTEM ADMINISTRATOR/TECHNICIAN:**

- ❖ Highlight the problem-solving aspect of the job, including troubleshooting, network setup, and server maintenance. Emphasize the importance of continuous learning and adaptation to new technologies.
- ❖ Design a network operations centre with servers, routers, and workstations. Tasks include diagnosing network issues, upgrading software, and setting up security measures. Include simulations of emergency troubleshooting under time constraints.

By adhering to these instructions and feedback summaries, the VR environment will offer an immersive and educational experience tailored to the specific needs and interests of each profession.

## **4. CREATING INCLUSIVE AND EQUITABLE VR TOOLS FOR CAREER EXPLORATION: A FOCUS ON GENDER EQUALITY AND DIVERSITY AWARENESS**

The relevance of gender equality in the development of VR tools for career orientation, especially in the context of addressing deficit occupations, is multifaceted. It speaks to the need to create a more inclusive and equitable workforce and to challenge and change the historical patterns of gender segregation in various professions. Integrating gender equality into the preparation of VR scenarios for showcasing occupations involves several key considerations:

- ❖ We need to ensure that VR scenarios depict a diverse range of characters in terms of gender, race, and ethnicity, performing a variety of roles within each occupation. This representation helps in challenging stereotypical perceptions about who can perform certain jobs.

By featuring virtual mentors or professionals from underrepresented genders in various fields, especially in those identified as deficit occupations. Seeing women in construction or men in nursing, for example, can inspire users to explore careers irrespective of societal norms.

- ❖ We need to design VR experiences that offers an authentic insight into the day-to-day activities of professions, focusing on the skills and competencies required and not so much on the gender of the person doing a job. It is recommended that we use gender-neutral language and avoid images that reinforce stereotypes to ensure that our content is equally appealing to all genders.
- ❖ We need to allow users to virtually "step into the shoes" of professionals in deficit occupations, performing tasks and making decisions that reflect actual job challenges. This hands-on approach demystifies professions and makes the exploration process engaging and informative. By crafting the scenarios that encourage users to perform a wide range of tasks, not just those traditionally associated with their gender. For example, including scenarios where users can experience both the technical and caregiving aspects of nursing and can help break down the stereotype that nursing is solely a woman's job.
- ❖ We can show diverse work cultures that are welcoming to all genders, emphasizing policies and practices that support inclusion, such as flexible working hours, parental leave, and anti-discrimination policies. We can demonstrate paths for advancement and professional development within each occupation, highlighting how individuals from all genders can achieve success and leadership positions.

By integrating these principles, we seek not only to enrich and inform the career exploration experience but also to effect meaningful change in the perception and decision-making process regarding career choices across genders. In this way we not only prepare individuals for the realities of the job market but also contribute to the broader goal of creating a more diverse, inclusive, and equitable workforce.

Within the framework of this project partnership, project partner NOWA has conducted a workshop aimed at highlighting the critical importance of gender equality. To further support this initiative, NOWA has developed and provided the document titled "Designing Gender-Reflective and Diversity-Sensitive Materials in the Context of Career Orientation," which is included as an annex to this document. This effort underscores the commitment to integrating gender equality and diversity sensitivity into the fabric of career orientation materials and practices.

## **5. CONCLUSION**



The integration of Virtual Reality (VR) and Augmented Reality (AR) technologies presents a transformative opportunity to address challenges in career guidance and the presentation of deficit occupations across Slovenia and Austria. This document has synthesized insights from diverse focus groups, including pupils, young jobseekers, the unemployed, employers, managers, experts, and masters, to draft comprehensive specifications for developing immersive and educational VR/AR tools.

The core of our initiative lies in the ability to simulate real working environments and scenarios very accurately, bridging the gap between theoretical knowledge and practical skills. Focus group feedback highlights the need for VR experiences that are not only immersive and realistic, but also engaging, interactive and reflective of the diversity and reality of the workplace. It is essential that these experiences are designed to be inclusive of both genders and present career opportunities in a way that challenges traditional gender norms and stereotypes. In this way, we will provide rich career exploration experiences that are accessible to all genders and prepare and inspire future professionals with a deeper insight into the day-to-day activities and responsibilities that different professions entail.

By aligning the development of VR with the detailed specifications described above, based on the needs and interests of the target groups, and by emphasising the importance of gender equality, this project aims to create an effective tool for career exploration and education. The aim is to empower individuals with the knowledge, skills and motivation to effectively explore and pursue their career aspirations unconstrained by outdated gender expectations. This approach aims to go beyond traditional stereotypes, to adapt educational approaches to contemporary trends and to ensure that practical learning is integrated in a fair and equitable framework.

This document serves as a basis for future developments in the use of VR/AR technologies in career counselling and contains a vision in which technology not only educates but also inspires, cultivating a well-informed and motivated workforce ready for the demands of tomorrow's labour market. In realising this vision, the collaborative efforts of educators, industry experts and technology professionals will be key to ensuring that VR/AR tools are developed and used in ways that genuinely benefit individuals and society at large, while consistently promoting gender equality.

## **6. REOURCES**

- <https://www.ess.gov.si/iskalci-zaposlitve/poklici-in-kompetence/opisi-poklicev/#/>
- <https://www.mojaizbira.si/poklici/kuhar>
- <https://www.zaposlitev.info/kariera/kuhar/>
- <https://www.karieravturizmu.si/sl/poklici/kuhar>

Source of all photos in the document: Canva

See attached ANNEX

**Interreg**



Sofinancira  
EVROPSKA UNIJA  
Kofinanziert von  
der EUROPÄISCHEN UNION

Slovenija – Österreich

**CDO-VR**

Project title: Centre for deficit occupations through Virtual Reality

Project partners: Ljudska univerza Ptuj(Slovenia), Zavod za zaposlovanje RS – Območna služba Ptuj(Slovenia), Art Rebel 9 d.o.o.(Slovenia), NOWA (Austria), ISOP (Austria)

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LJUDSKA UNIVERZA Ptuj



PRODUCING DIFFERENCE



**ANNEX**

## DESIGNING OF GENDER-REFLECTIVE AND DIVERSITY-SENSITIVE MATERIALS IN THE CONTEXT OF CAREER ORIENTATION

Gender Stereotypes and different experiences of women\*, men\* and people who do not identify with these genders continue to lead to gender-specific differences in many areas of social and economic life. These also affect the educational sector, the choice of vocational training and qualification and, in the long term they effect careerpath, livelihood security and participation opportunities.

Women\* are more likely to choose the service sector and in apprenticeships, they are spread across very few branches. Men are more likely to choose technical careers and apprenticeships are spread across several branches. According to this, male and female domains manifest themselves in paid work and on the labour market. The gender gap begins at a very young age. Girls\* and boys\* learn very early on what behaviour is appropriate for their gender. Advertising and media, as well as educational institutions such as kindergartens and schools, play an important role. The belief in what a woman\*/man\* can do well and, above all, what a man\*/woman\* is not suitable for is internalized and shows its effects at the latest when choosing training and career.

There is no universal recipe for integrating the gender and diversity perspective into materials for career development work and career guidance in general. It is always important to take into account the respective goals, framework conditions, environments and opportunities of the target groups. Nevertheless, a common understanding of basic terms, attitudes and implementation options in relation to the topic is helpful in order to actually reach a broad spectrum of people from the respective target group and, in the context of this project, to interest and motivate them in deficit occupations.

### 1. TERMS AND DEFINITIONS

The following section is dedicated to terminology as a basis for dealing with the topics of gender equality and diversity:

#### 1.1 Sex

biological term

#### 1.2 Gender

... means in contrast to the biological term "sex" the social term "gender" - different roles and norms that are assigned to women and men in our society. Because it is learned and not innate, gender can be changed.

#### 1.3 Stereotype

A stereotype is a description of people or groups that is present in everyday knowledge. It is memorable and pictorial and refers to a simplified view that is considered typical.

In contrast to prejudice, which expresses a general attitude, stereotypes are part of an unconscious and sometimes even automatic cognitive assignment.

#### 1.4 Gender stereotypes

attribute certain characteristics and behaviours to people based on their sex/gender. These attributions are acquired during the whole life and permanently activated through self and external perception, so that they appear "natural".

### **1.5 Equality between women\* and men\***

The participation of women and men in all areas of society based on equal rights and equal resources.

### **1.6 Equality**

is achieved when all structures and decision-making processes are designed in a way that women and men based on their gender roles in relation to individual lifestyle, distribution of power, resources and work are neither preferred nor disadvantaged.

### **1.7 Gender competence**

... includes knowledge of gender relations and their reasons as well as the ability to apply this knowledge in everyday activities and to reflect on it on an individual level.

Gender-competent action aims at the individual and societal analyses of gender constructions and inequalities and is the basis of equality between women and men.

Gender competence is required in order to be able to consistently implement measures and decisions in line with gender mainstreaming. It leads to an optimization of the competence of persons and organizations.

### **1.8 Diversity**

..."comes from Latin and means variety and diversity (Duden, foreign dictionary). The terms heterogeneity, difference, diversity, variety and difference are often used synonymously with diversity. The term diversity focuses on similarities and differences between people. The focus is on historically developed social differences that have brought about social inequalities."  
(<https://erwachsenenbildung.at/themen/diversitymanagement/grundlagen/begriffserklaerung.php>)

### **1.9 Diversity management**

... "is an intersectional approach to the targeted perception, use and promotion of diversity in social systems such as profit and non-profit companies, public organizations as well as groups and teams. The aim of diversity management is to make optimal use of human skills and resources in organizations by promoting equal opportunities and competently dealing with diversity."  
([https://www.societyfordiversity.at/show\\_content.php?hid=1](https://www.societyfordiversity.at/show_content.php?hid=1))

### **1.10 Intersectionality**

...describes the interaction of different forms of discrimination or social inequality. It is about the interaction, interaction and interconnection of social categories, so that a person can be affected by several types of discrimination at the same time.



“We tend to talk about inequality based on racialization as if it were separate from inequality based on gender, class, sexuality, or immigration history. What is missing is the understanding that some people are exposed to all these inequalities. “The experience of these people is not simply the sum of its parts” (Kimberly Crenshaw).

## **2. INFLUENCING FACTORS**

Let us start, trying to find some answers according to these questions:

What actually influences young people’s career choices?

Which factors are crucial?

What are key points?

### **2.1. What is known and familiar provides security**

What is new and unknown, which does not occur or occurs little in one's own world and experience, creates uncertainty. This also influences career choice behavior. It is easier to choose areas of activity that are known, familiar and perhaps already tried and tested in one way or another.

### **2.2. Attributions and stereotypes**

From an early age, children and young people are confronted with and shaped by different expectations, norms and attributions from their social and family environment, society, media, etc. Consciously or unconsciously, these attributions and stereotypes influence young people's career choices.

### **2.3. Role models**

When choosing a career, young people base their career choices on different role models from their social environment as well as on role models from (social) media, advertising, the art and culture scene, the celebrity world, etc. Here, too, we encounter stereotypes and attributions when it comes to the professional world and activities, and not only in terms of gender, but also in terms of social and cultural background.

### **2.4. Nobody likes to be “different”**

Because there are women\* and men\* domains in the professional world, girls\* and boys\* are in the minority in non-traditional professions that tend to be chosen homogeneously. This can trigger the feeling of “being different” and of “not really belonging” - or the the opposite reaction “I'm going to prove it even more now” and “I'll show everyone that I can do it”.

### **2.5. To be welcome**

For many companies and/or training institutions, it is often still unusual to train young people in so-called non-traditional professional fields. It is up to companies, and many are already doing so with great

success, to think and act about what structures and framework conditions are needed so that girls\* and boys\* feel welcome in the company and can successfully complete their apprenticeship.

### **3 GENDER-REFLECTIVE AND DIVERSITY-SENSITIVE CAREER ORIENTATION**

addresses the above-mentioned influencing factors on a structural and individual level and mean:

- ❖ creation of broad participation opportunities for all children and young people using different methods and approaches,
- ❖ to keep an eye on stereotypes and attributions and to deconstruct them through language, pictures, and examples,
- ❖ encouragement to take new, unknown paths and try things out,
- ❖ offering various role models and opportunities for identification beyond conventional attributions,
- ❖ strengthening children and young people in their own interests, skills, strengths, and potential beyond any role expectations,
- ❖ to help ensure that young people are provided with the most usable, understandable, and helpful information possible so that they can make their career and training choices based on their individual interests and abilities.

#### **3.1. Presentation of content - General equality-oriented approaches**

Let's think about what associations are triggered by certain colours (e.g. pink / light blue) or certain toys (car / doll) or different tools or machines (chainsaw / sewing machine). Who do we see dealing with these things etc. Pictures often say more than a thousand words and certain words create images in the head - and everything together contributes to the consolidation of gender stereotypes and attributions:

- ❖ Representation and discussion of different realities of life (with regard to gender and diversity);
- ❖ Reference to the everyday life, experiences, living environments and social contexts of the children/students/participants.
- ❖ Thematisation and deconstruction of gender relations, e.g. who will be in which jobs, who will be a manager, who will be portrayed in which activities Avoiding stereotypes and attributions, e.g. regarding behaviour, abilities, cloth etc.
- ❖ Consistent use of gender-appropriate and gender-sensitive language.
- ❖ Visibility and appreciation of differences as well as similarities in design, visualization, images and graphics from a gender and diversity perspective.
- ❖ Provide facts and information about the gender-specific horizontal and vertical segregation of the labour market.
- ❖ Making the unknown known: The specific job profile is often less interesting because it still seems too abstract for many children. The general conditions of the job description are often more interesting. A clear representation of these general conditions can anticipate fears and uncertainties and open the door to further engagement with the profession.
- ❖ Clear representation of the results and meaning of the product / work content / services from the respective professional field. Concrete visual material makes it “comprehensible”.
- ❖ An important factor is offering different role models, who talk about their everyday work, explain why they like their job and show individual areas of activity. Role models should reflect the diversity of society wherever possible.

### 3.2. Methods - General equality-oriented approaches

- ❖ Creating different learning and participation opportunities that offer all participants/students/children the opportunity to participate, e.g. verbal and non-verbal opportunities, create fear-free spaces for trying out, etc.).
- ❖ Diversity of methods reflects the diversity of participants/students/children and creates connection opportunities for everyone.
- ❖ Both are important: opportunities in which I can only watch, opportunities in which I can become active myself.
- ❖ Create the opportunity to try out new things, recognize your own strengths and potential and gain self-confidence by successfully solving unfamiliar and unknown challenges.
- ❖ Collecting your own experiences, insights and information is a good basis for increased scope for action and a broader range of decisions, especially in the area of career and training choices. I can only make good decisions about things that I know and have tried out.

These approaches and recommendations are intended to support the general focus of our VR Toll on gender-equality. Additional detailed recommendations and results can be found in the focus group summary (see point 4).

Prepared by NOWA