Generic and transversal skills

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Generic and transversal skills

This booklet is one of four booklets developed in the framework of the project “VET for Western Balkans”. It is developed by VET teachers for VET teachers.

The booklet consists of concrete examples from teaching in more than twenty different VET subjects. Most of the examples are from Slovenia but there are also case examples from Denmark, Albania, Bosnia-Herzegovina, Kosovo and Montenegro.

We hope that the booklet can contribute to raising awareness about the importance of developing VET students’ soft skills and that it can serve as inspiration among VET teachers in all Western Balkan.

Two of the other booklets we have developed are also for teachers: “Pedagogy and Didactics in VET Education” and “Counselling and Mentoring in VET Education”, whereas the last one “Guidance to VET Leadership” is for managers of VET schools.

Introduction to the topic of this booklet:
GENERIC AND TRANSVERSAL SKILLS

On the following pages, you will find concrete examples from class room situations in different subjects of how you, as a VET teacher, can become more aware of supporting your students in developing the competences and abilities, which they need: both for their future working life and career and for their life in general.

WHAT are the generic and transversal skills?

Generic and transversal skills are also sometimes called **soft skills** in contrast to **hard skills**.

HARD SKILLS are specific, teachable, learnable and measurable abilities, capabilities and skill sets that an individual can possess and demonstrate. **Hard skills** enable individuals to perform job-specific tasks, required for a specific job. **Hard skills** are abilities, such as the basic ones: writing, reading, math and ability to use computer programs and the *specialized* ones such as ability to install electricity in a house, change the brakes of a car, use a robotic arm.

Hard skills are objective, quantifiable skills gained through training, school, or work experiences. Not only you can learn hard skills, but you can easily prove them: you can install electricity or you cannot. They refer to the job-related knowledge and abilities that employees need to perform their job duties effectively..

SOFT SKILLS can also be thought of as people skills. These are characteristics that can be carried over to any job position and are the traits that make you a good employee. Good soft skills are increasingly important to be able to apply hard skills in different job contexts.

Soft skills are skills related to:

- Communication
- Listening to others
- Giving feedback to others
- Establish relations to other people
- Teamwork
- Problem-solving
- Time management
- Critical thinking
- Decision-making
- Organization/coordination
- Stress management
- Pro-activity
- Adaptability
- Conflict management
- Leadership
- Creativity
- Resourcefulness
- Openness to criticism
- Behavioral etiquette
- Work ethic
- Environmental awareness.

WHY?

In a modern learning perspective, the role of 21st-century VET-education is to help every student learn how to learn. Modern learning encourages collaboration, inspires creativity, and appreciates critical thinking. It teaches students how to make sense of the never-ending flow of information and use it wisely. By providing students with these fundamental skills, 21st-century education helps them thrive in the workplace.

The 21st-century skills classroom recognizes that tomorrow‘s jobs do not exist, yet — and that the way to prepare students for the „real world“ is changing.

Through group work, project-based work and case studies/cases, students apply their theoretical knowledge and understanding to practical educational activity. The result? They are better able to recall and apply knowledge from the classroom teaching to understand and solve problems with skills to match the situation.

Today‘s world requires a multi-dimensional approach to the learning experience. A 21st-century skill-based teaching moves away from content acquisition and memorisation to focus on the skills and abilities that will best serve our generation of young minds. The 21st-century classroom focuses on a creative, collaborative approach to learning.

Why Are 21st-Century Skills Essential?

The modern world is characterized by an increasing globalization, rapid technological development, and social diversity, making 21st-century skills more essential to students than ever. This development requires educators to create a framework for successful studying methods and to ensure that young people can prosper in a world of constant transformation. Opportunities for 21st-century students are also expanding. They include international study programs, global knowledge exchanges, and projects organized by companies with the possibility of obtaining a job abroad, etc.

The 21st-century workplace has also become more innovative and competitive. To succeed in modern information-society jobs, students need to solve problems creatively, work in teams, communicate on social media, learn to use new technologies, and deal with a flood of information. Industry-leading business leaders highly value employees who can meet these standards and have the energy to expand their skills, even if they lack some academic or working experience. Hence, 21st-century skills have become a must for anyone who wants a well-paying job in a modern company.

Key features of 21st-century learning

- **It aims to develop creativity in students.** The more complex the world becomes, the more creative solutions people need to overcome its challenges.
- **The approach is highly person-centred.** In modern society, people value individuality and authenticity. 21st-century education seeks a unique approach for every student.
- **It uses technologies.** Books used to be the primary source of information for people. However, nowadays, you can develop 21st-century skills with the help of workshops, online courses, and even YouTube.
- **It highly values students’ progress.** A 21st-century education is not about making students memorize information to get higher grades for their assignments. Modern learning systems favour the idea that average standardized scores shouldn’t measure a student’s success.

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General subject:		SCIENCE
EQF LEVEL: 4	PROGRAM: 1 year of VET and general education	ORGANISATION: School center Kranj

ACTIVITY: **Separation of Mixtures Based on Physical Properties of Substances**

SHORT DESCRIPTION OF THE ACTIVITY:

THEORETICAL FOUNDATIONS:

A mixture is a substance composed of at least two types of particles. Mixtures are created by combining pure substances or other mixtures. The separation of mixtures is a process in which individual substances are separated based on their different properties (physical state, solubility, density, particle size, mass, magnetic properties, boiling point, etc.)

Methods of separating mixtures include, for example: use of a magnet, filtration, evaporation, sieving, sublimation, separation with a funnel, pouring, crystallization, chromatography, distillation, etc.

PURPOSE:

- Students become familiar with various physical properties of substances (volume, density, mass, physical state, etc.) and understand that physical properties can change when substances are exposed to different factors.
- Students learn to use various laboratory equipment.
- Students understand the difference between homogeneous and heterogeneous substances.
- Students become acquainted with various methods of separating mixtures.

PREPARATION AND IMPLEMENTATION:

PREPARATION:

For each group, the teacher prepares 7 different substances (sucrose, sodium chloride, iron filings, quartz sand, cooking oil, iodine, water).

IMPLEMENTATION:

1. The teacher divides students into pairs. Introduces students to all substances and possible methods of separating mixtures. Provides instructions for students to create three mixtures from two substances each and choose a separation method.
2. Students design the experiment themselves:
   - Determine which substances will be used to create the mixtures.
   - Specify the methods for separating these mixtures.
   - Define the timeframe for the exercise.
3. The teacher checks whether the mixtures and separation methods are appropriate.
4. Students create three mixtures and separate them. They also draw and label the laboratory tools used in all three separation methods.
5. Evaluation:
   - Did we learn anything new?
   - Was the method interesting?
   - Can we use the method in life?

SOFT SKILLS DEVELOPED:

1. Problem-solving
2. Organization/coordination
3. Decision-making
4. Communication
5. Teamwork
6. Time management

Subject:		ROBOTIC SYSTEMS
EQF LEVEL: 4	PROGRAM: Mechatronics	ORGANISATION: School center Kranj

ACTIVITY: **Introduction to industrial robot programming**

SHORT DESCRIPTION OF THE ACTIVITY:

Introduction to robot control and programming with basic commands to move the robot.

Using theoretical foundations, we show different variants of robot movement, such as movements along the axes, movements along the basic coordinate system, along the tool coordinate system and the user coordinate system. Displacements in coordinate systems are displayed as both linear displacements and orientational displacements. Handling of the robotic teaching device will be demonstrated.

After mastering the basic handling of the robot, a simple program for the movement of the robot from point to point is created with the help of two basic commands, namely the program command for the movement of the robot along the joints and the linear robot movement.

PREPARATION AND IMPLEMENTATION:

PREPARATION:

The teacher prepares the robot so that the robot can move freely. He also prepares a presentation with the basics and a robot simulator to show the basics in a virtual environment.

IMPLEMENTATION:

1. 1. The teacher presents a robotic learning device. It is explained how it is possible to turn on the motors on the robot to enable manual movement of the robot. On the teaching device, the meanings of the basic keys for movement and for switching between different modes of movement of the robot are explained. The presentation is followed by a demonstration of how the robotic arm responds to the various required movements.
2. With the help of the learning device, the students themselves try out different modes of movement and thus get a sense of how the robot moves in space in a certain mode.
3. The teacher relays two basic commands to move the robot. These are joint movement (MoveJ) and linear movement (MoveL). The basic parameters in the previously listed commands are also presented so that students understand the entire composition of the command. These parameters are selected point, feed rate, zoom zone, selected tool and selected coordinate system. An individual move is also displayed with the help of a simulator, where you can see exactly how the robot creates a movement trajectory according to a different move command.
4. Students implement the acquired knowledge into practice. With the help of a teaching device, they move the robot from point to point, and store the points in the program with the previously presented commands. This is how the first simple robot program is made. The program is then tested in three ways. First manually step by step, then the operation of the program is tested in manual mode. After manual testing, the program can also be started in automatic mode.
5. Evaluation
   - Did you gain new knowledge?
   - How to enable the robot to make manual movements with the help of a learning device?
   - In what ways can we move the robots?
   - What are the basic commands for programming robot movements?

SOFT SKILLS DEVELOPED:

1. Organization and cooperation in a group
2. Decision making
3. Collaborative skills
4. Creativity
5. Solving tasks in an efficient way

Subject:		MECHATRONICS
EQF LEVEL: 4	PROGRAM: Mechatronics Technician	ORGANISATION: School center Kranj

ACTIVITY: **Production Process Development**

SHORT DESCRIPTION OF THE ACTIVITY:

The module „Development of Production Processes“ is designed to acquaint students with the entire developmental process of a product. During the module, the student generates an idea, which is transformed into a practical product by the end of the school year.

PREPARATION AND IMPLEMENTATION:

The “Development of Production Processes” module was developed within the framework of the ERASMUS+ project Talent journey. In its development, active collaboration took place among teachers and company representatives. Legislation allowed the incorporation of this module into the open curriculum (20% of the curriculum that the school can determine in collaboration with the local community).

Discussions with employers revealed that companies seek employees with knowledge in the relevant professional field and a high level of soft skills and competencies. One proposal to achieve this are hands-on projects, learning situations... Within such activities, students can develop teamwork, entrepreneurship, innovation, communication skills, and more.

The module’s content aligns with the goals of ŠC Kranj, as we support and cultivate entrepreneurial thinking among students. We aim to provide them with opportunities to develop their ideas, which they can further refine into final projects and participate in competitions. Taking it a step further, we aspire to establish connections with companies and supportive environments for entrepreneurship, such as various incubators, experts in the field of startups, and educational-manufacturing laboratories...).

The module is structured to develop the following competencies:

- Research of the area/topic
- Selecting project ideas
- Preparation of timetable for the project
- Early product development
- Prototype testing and evaluation
- Production of the final project/product
- Evaluation of the final product

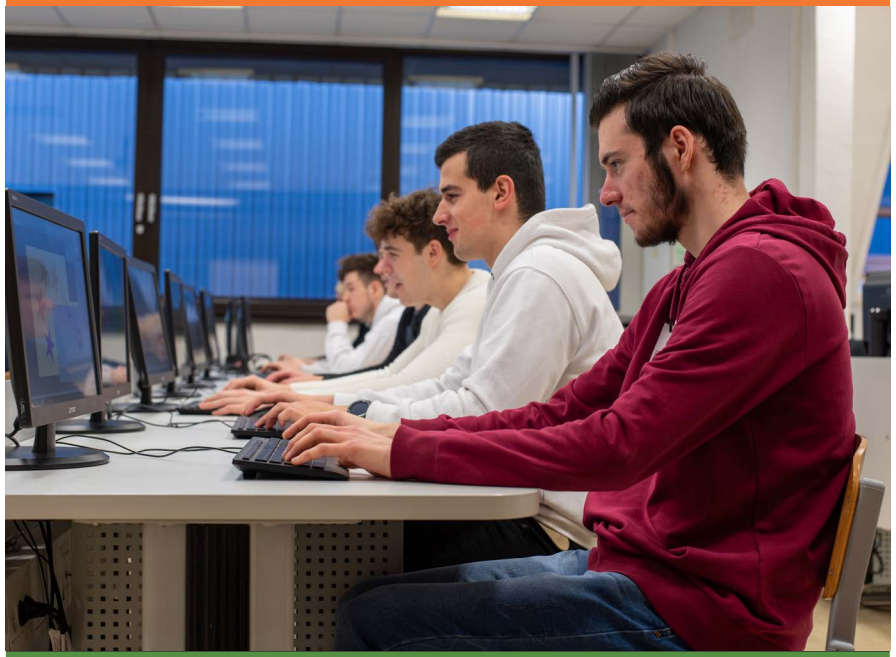
Duration of module: 90 hours.

SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Teamwork
5. Problem-solving
6. Time management
7. Critical thinking
8. Decision-making
9. Organization/coordination
10. Pro-activity
11. Adaptability
12. Conflict management
13. Leadership
14. Creativity
15. Resourcefulness
16. Openness to criticism
17. Behavioral etiquette
18. Work ethic
19. Environmental awareness

General subject:		COMPUTER SCIENCE
EQF LEVEL: 4	PROGRAM: Computer Technician	ORGANISATION: School center Kranj

ACTIVITY: **What is golden ratio and how to determine it?**



SHORT DESCRIPTION OF THE ACTIVITY:

The golden ratio is an irrational number, approximately equal to 1.618033988, often denoted by the Greek letter phi (φ). It appears in various aspects of art, architecture, nature and design.

Students will calculate golden ratio themselves and determine how it relates to Fibonacci sequence and with appearance in nature.

PREPARATION AND IMPLEMENTATION:

The teacher writes task on the table: We have line, from A to B. Find such a point C on the line that satisfies the equation AB: AC = AC: CB.

1. The teacher gives an additional explanation. You should find point C so that the entire line towards the longer part is in the same proportion as the longer part towards the shorter one. It can be assumed that the length of the straight line is one unit.
2. Students form groups of four. In a group, they exchange ideas, set an equation and using formulas for calculating solutions quadratic function. They write code in the C# or Python programming language to calculate both values: 1.618033 and 0.618033. They find that the solutions differ exactly by 1. The teacher completes the discussion to designate a smaller number with a lowercase φ, and a larger one with a uppercase Φ.
3. The teacher gives further instructions: Write down a code that calculates the reversal values of both phi. Students find that both phi are in a reciprocal relationship, i.e. 1/Φ = φ and 1/ φ= Φ. The teacher gives further instructions: Write down a code that calculates and prints the first 30 numbers of the Fibonacci sequence 1, 1, 2, 3, 5, 8, ..., for which each number is considered to be the sum of the previous two, and the initial two numbers are 1. The teacher gives further instructions to supplement the code so that it also outputs the proportions of two adjacent numbers. What do they notice? Students find out that the ratio of two adjacent numbers limits to the golden ratio.
4. Students search online for explanations and examples how the golden ratio is used in photography, painting, and architecture.
5. The teacher screens a film showing natural phenomena and shapes containing the golden ratio (arrangement of leaves on the stems of plants, spiral shapes, the ratio of human body parts, the arrangement of seeds in sunflower flowers, etc.)

EVALUATION

- Did we learn anything new?
- Has your view of the world changed?
- What is your final thought about golden ratio?
- What do you think about the connection between mathematics and nature now?

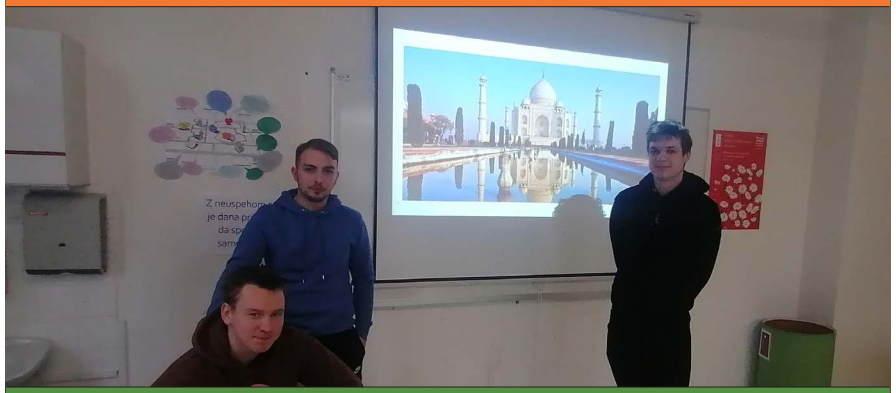
SOFT SKILLS DEVELOPED:

1. Problem-solving
2. Organization and teamwork
3. Communication
4. Awareness that everything is connected

Subject:	THE FIELD OF ECONOMICS

EQF LEVEL:	PROGRAM:	ORGANISATION:
5	Economist	School center Kranj

ACTIVITY: **Identifying potential opportunities for business cooperation with the selected country**



SHORT DESCRIPTION OF THE ACTIVITY:

The parameters that determine the possibilities of carrying out business cooperation with the selected country, as well as the peculiarities of international business, are presented. At the same time, the frameworks of concrete business strategies and business activities are formed.

PREPARATION AND IMPLEMENTATION:

The teacher presents the necessary basic business parameters and directs the students to those particularities that need to be defined in particular before deciding on the possibility of carrying out a business activity with the selected country (guidance question)?

The professional case is solved according to the following steps:

Students individually or in pairs gradually concretize the initial parameters of business cooperation:

- Analyzing the environment of the selected market (research of the macro environment of the selected market - PEST analysis: socio-cultural, demographic, economic, market, legal-legislative environment...).
- Definition of market prospects in the market (market size, market indicators, general market indicators, export-import tendency of individual market...).
- Geographical segmentation of the selected market (geographical segmentation by individual countries, regions or provinces...).
- Critical definition of the possibility of access to the selected market (barriers to entry, customs, permits, transport restrictions, technological, information barriers...).
- Determining the framework conditions of business (economic situation, membership in international organizations, currency...).
- Presentation of the operating program on the selected market.
- Determining the operational implementation of export and import to the selected market.

Through the prepared SWOT analysis, the students provide the established facts:

- Advantages of doing business with the selected country.
- Weaknesses which they must responsibly take into account when deciding on a potential deal.
- Opportunities which they must take advantage of in the potential implementation of the deal.
- Dangers lurking in the potential execution of the deal..

At the end, they define the added value of solving a specific professional case - it is a synthesis of acquired theoretical knowledge with a concrete potential implementation of the business.

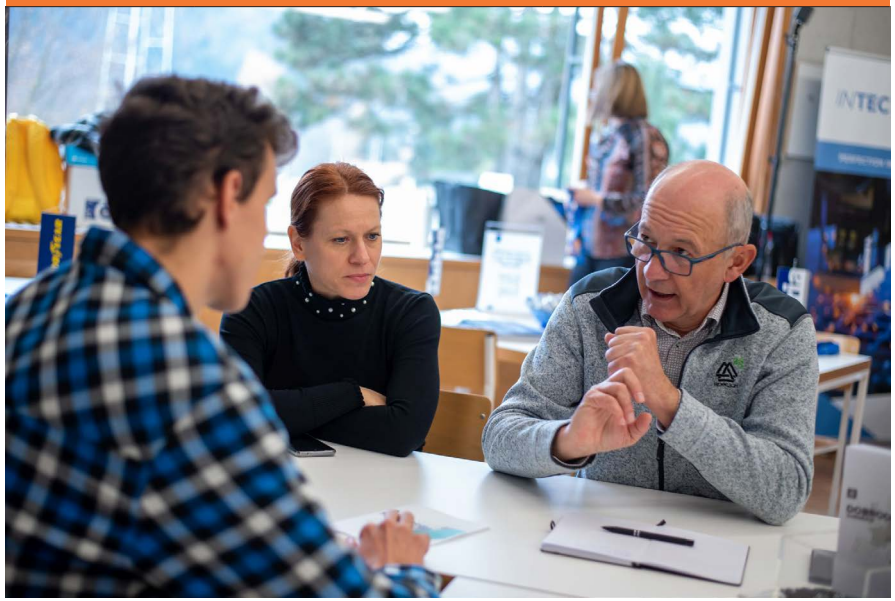
SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Establish relations to other people
5. Teamwork
6. Problem-solving
7. Time management
8. Critical thinking
9. Decision-making
10. Organization/coordination
11. Stress management
12. Pro-activity
13. Adaptability
14. Conflict management
15. Leadership
16. Creativity
17. Resourcefulness
18. Openness to criticism
19. Behavioral etiquette
20. Work ethic
21. Environmental awareness.

General Subject:	QUALITY ASSURANCE

EQF LEVEL:	PROGRAM:	ORGANISATION:
5	Economist	School center Kranj

ACTIVITY: **Implementation of the ISO standard in the company – preparation of internal audit plan**



SHORT DESCRIPTION OF THE ACTIVITY:

At the Higher Vocational College Kranj, The Economist program also includes the subject Quality Assurance. One of the goals of the course is to familiarize students with ISO standards. They also learn about the way to implement such a system in the organization and which documents to prepare for this purpose. The internal audit management plan is an integral part of the management of the quality system. The internal audit is the one that is carried out before the external audit of the quality management system.

PREPARATION AND IMPLEMENTATION:

1. The teacher shows the quality rules of a random company from the Internet and also draws attention to the organizational structure.
She/he then shows an example of an internal audit plan and explains the links to the quality policy.

2. Students are divided into groups according to the companies in which they did their practical training. It is better if the groups are comparably large, but this is not a condition for completing the task.

3. In a group, students discuss their knowledge of the quality management system in a particular company. They look for missing information and documents online.

4. They prepare an internal audit plan for the mentioned company.

5. They check the internal audit plan by determining whether all the points of the quality rules of this particular company were covered in the plan.

6. Evaluation:

- Did you learn something new?
- Why was your knowledge of the organization chart of the company in which you did your practical training very important?
- Have you used all points of the ISO quality standard in your internal audit plan?

SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Teamwork
5. Problem-solving
6. Time management
7. Critical thinking
8. Decision-making
9. Organization/coordination
10. Adaptability
11. Conflict management
12. Creativity
13. Work ethic

General Subject:	CIVIL CONSTRUCTION

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Civil Construction	School center Kranj

ACTIVITY: **From Idea to Product**

SHORT DESCRIPTION OF THE ACTIVITY:

In the third year of the Construction Technician program, the classroom for the Slovenian language subject was equipped with quotes from Slovenian poets and writers. Under the guidance of their teacher, students measured the classroom, selected quotes, created a layout plan for the placement of the inscriptions, produced the inscriptions, and affixed them to the classroom walls.

PREPARATION AND IMPLEMENTATION:

The motivation behind this task was the strained relationship between the teacher for Slovene language and the class. The instructor of technical subjects engaged with the mentioned class to discuss issues with the teacher in question and sought to understand the reasons for the negative atmosphere. Together with the students, they explored options and solutions to liven up the lessons, leading to the idea of incorporating quotes from Slovenian poets and writers on the classroom walls. After completing the task, collaboration between the teacher and students became exemplary.

WORK PROCESS

- Students independently select interesting quotes.
- Using the CorelDraw program, students draw all the walls, allowing for product visualization and practicality in anticipating the final result.
- The scale is set at 1:1, which is unusual for this program but proved feasible. The students, driven by enthusiasm and unburdened by experience, achieved something even the professor hadn‘t considered, facilitating easy measurement of letter size and spacing between elements and walls.
- Once the inscriptions are defined, the production of inscriptions and preparation for application on the wall follows.
- Self-adhesive film is chosen. On the cutter, letters are cut out, and excess film is removed.
- In the next phase, transfer film is applied, facilitating the correct and quick placement of letters on the wall.

PREPARATION OF THE TEACHER

In the first phase, I discussed the students‘ perspective on the issue with the Slovenian language teacher. Based on the conversation, we concluded that the material was presented in a dull and uncreative manner. I also had a conversation with the mentioned teacher to better understand her viewpoint and teaching approach. She was receptive to the suggestions proposed by both me and the students and participated in the selection of quotes

In the second phase, I inspected the classroom and identified suitable locations for the application of quotes. I also selected a visualization method for all walls (Corel Draw) and tested it before starting the work. I prepared all the necessary tools and materials and coordinated with the workshop supervisor to set up a stage, as working at heights is dangerous and requires a responsible approach. I also organized the tasks based on the individual competencies of the students. Considering the occupancy of the classroom and students, I had to find and determine free slots for task execution.

STUDENTS DETERMINE THE EVALUATION CRITERIA:

- Quality of writings on the walls
- What was the amount of waste material during the process?
- Duration for creating one inscription on the wall?

EVALUATION

- Did we learn anything new?
- Was the method interesting?
- Will this knowledge be useful for me in my professional career?

COMPETENCES DEVELOPED:

1. Problem-solving
2. Conflict management
3. Organization/coordination
4. Decision-making
5. Communication
6. Teamwork
7. Time management

General Subject:	USE OF MICROCONTROLLERS

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Computer Technician	School center Kranj

ACTIVITY: **Use of Functions - Electronic Dice**

SHORT DESCRIPTION OF THE ACTIVITY:

The goal of the lesson is to use functions in programming microcontrollers and explore the possibilities of generating random numbers. Students should apply the acquired knowledge to create a program for simulating an electronic dice that generates numbers from 1 to 6. Additionally, students will learn about the operation of LED displays and techniques for displaying numbers on them. For added interest, students will solve the task using the online simulator Wokwi.

PREPARATION AND IMPLEMENTATION:

USING THE WOKWI ONLINE SIMULATOR:

Students sign up on the Wokwi website. For the project, they choose an Arduino microcontroller, a 7-segment LED display, resistors, and buttons. With the help of online tutorials, they learn about the features of the 7-segment display and how to connect it to the microcontroller. They connect the microcontroller to buttons and the display.

USING FUNCTIONS:

The teacher introduces the features and advantages of using functions in the program to students. Students write a simple function that determines the characteristics of individual pins of the microcontroller as outputs in a loop. The teacher also introduces the features of a random function.

WRITING A FUNCTION FOR AN ELECTRONIC DICE:

In the Wokwi environment, students write a function for simulating an electronic dice. The function should generate 10 random numbers. The last number remains displayed on the LED display until one of the buttons is pressed. They use basic commands such as random(), random Seed(), delay(), digitalWrite(), etc.

TESTING THE FUNCTION:

Students test their function using the simulator and check if the electronic dice simulation behaves correctly.

ADDITIONAL EXTENSIONS (OPTIONAL):

Students can expand their program with additional features such as various animations on the LED display during the generation of random numbers, sound effects, and more.

EVALUATION PROCESS

Evaluation Criteria:

- Accuracy and effectiveness of the function for simulating an electronic dice.
- Understanding of basic programming concepts in C++ for Arduino microcontrollers.
- Creativity in developing additional functionalities.

Evaluation Methods

- Code verification in the Wokwi environment.
- A short speech presentation of the project.
- Self-evaluation and team evaluation.

SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Problem-solving
5. Time management
6. Critical thinking
7. Decision-making
8. Organization/coordination
9. Pro-activity
10. Adaptability
11. Creativity
12. Exchanging experiences and solutions with classmates.

Subject: ECONOMICS AND ENTREPRENEURSHIP, MARKETING

EQF LEVEL:	PROGRAM:	ORGANISATION:
5	Informatics, Security, Economist	School center Kranj

ACTIVITY: **Business model assessment and development**

SHORT DESCRIPTION OF THE ACTIVITY:

At the Vocational College Kranj, the Informatics and Security program also include the subject

Economics and Entrepreneurship. One of the general objectives of the course is to develop the ability to assess if an idea represents a business opportunity. Therefore, it is necessary to familiarize students with business models and the tool for business model development Business Model Canvas. They get acquainted with the business models of succesful startups, SMEs, big companies and evaluate the influence of sustainability and digitalisation on present and future companies' business models. They know building blocks of a business model and the tool called Canvas and use it for business model development.

PREPARATION AND IMPLEMENTATION:

1. The lecturer shows and explains how to use the tool Business Model Canvas for business model optimisation or development on the case and by means of presentation materials of a successful Slovenian startup, focusing on impact of sustainability, digitalisation and other trends on its business processes.
2. Then the teams of students with similar or compatible business ideas are formed. Students test their own business ideas and develop business models by means of Canvas. Teacher or mentor guides them and answers their questions.
3. Students business models are presented and discussed.
4. Teams of students assess each others' business models and suggest changes or improvements.
5. Teams of students assess suggestions and feedback, implement suggested changes and improve their business models.

6. Evaluation:
   - How succesful was the group at developing their business model?
   - How useful do you find Business Model Canvas?
   - How would you assess the contribution of teamwork based on Canvas to business model development? Was the development process and communication easier and more efficient?
   - Did Business Model Canvas help you to think holistically about your business?

SOFT SKILLS DEVELOPED:

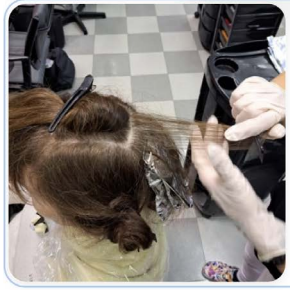
1. Communication
2. Teamwork
3. Problem-discovering
4. Problem-solving
5. Time management
6. Critical thinking
7. Decision-making
8. Organization/coordination
9. Adaptability
10. Conflict management
11. Creativity
12. Work ethics
13. Sustainability
14. Responsibility

Subject:	HAIRDRESSING, PRACTICAL LESSONS

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Hairdresser	School center Kranj

ACTIVITY: **Hair colouring and cutting, hair styling**



SHORT DESCRIPTION OF THE ACTIVITY:

In practical hairdressing lessons, students need many models to perform various hairdressing services. This time, the work will take place on clients who are a socially excluded population in everyday life due to their way of life. The students will acquire much more than professional competences, and in addition, satisfaction will also be on the part of our customers, who will look good at the end.

PREPARATION AND IMPLEMENTATION:

1. During class, the teacher presents the students with the idea of accepting members of the Kralji ulice (Kings of the street) association as customers during practical lessons. Explain to them that these are people who have become homeless for various reasons, are often addicted to drugs and alcohol, and may also have psychological problems. Because of all this, they are poorly accepted in society, they are accompanied by stigma, and it is also more difficult for them to communicate outside their familiar frameworks. In the association Kralji ulice, volunteers from various fields help them integrate into formal and informal forms of assistance and involve them in various activities.
2. The 3rd year students accept the idea without any hesitation. Let's talk about what situations can arise, how to react, how to communicate and solve potential complications.
3. The teacher and the association representative agree on the date and details of the visit.
4. On the day of the performance, the students, with the help of the teacher, prepare the space, tools, and materials for work. Two students will do hair for each customer.
5. When our customers arrive, we welcome them, introduce ourselves and divide into groups. Based on the wishes of the clients, the teacher together with the students determines the procedures, the work technique, the use of preparations and accessories and the time frame for the performance of the services.
6. The students perform the services independently, divide the work among themselves, the teacher helps with advice.
7. After the work has been completed and when we say goodbye to the clients, we discuss the course of the activity. We analyzed and evaluated the workflow and the specifics of each client, the students described and justified the procedures they carried out, we determined which errors occurred during the dyeing and cutting procedures and why and how to avoid or prevent such errors in advance. The students were satisfied with the final appearance of the hairstyles, and our customers were also satisfied, and were already looking forward to their next visit.

SOFT SKILLS DEVELOPED:

1. Teamwork
2. Problem solving
3. Time management
4. Critical thinking
5. Decision making
6. Organization and coordination
7. Stress management
8. Acceptance of difference
9. Adaptability
10. Conflict management
11. Creativity
12. Ingenuity
13. Openness to criticism
14. Behavioral etiquette
15. Work ethics
16. Environmental awareness

Subject:	HAIRDRESSING: HAIR BRAIDING AND KNOTTING

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Hairdresser	School center Kranj

ACTIVITY: **Hair colouring and cutting, hair styling**

SHORT DESCRIPTION OF THE ACTIVITY:

Use of tools and accessories in braiding and knotting by choosing artificial or natural hair materials. The hairdressing product is chosen according to the purpose of use for a certain figure. Making hair products is fundamentally different between braiding and knotting hair. The products must be properly nurtured. The student chooses a certain figure and assembles it by him/herself.

PREPARATION AND IMPLEMENTATION:

Selection and placement of needed work tools for hair braiding; sketch plans for four different hair braiding; the number of hairs for execution of hair braiding; present hair braiding process; performance timeline to be set per minute; purpose and use of individual hair braiding; sewing; the use or fitting of a hair clip into the meaningful image on the scalp; hair braiding care.

1. When hair braiding, six accessory tools are available for braiding hair. All are connected to each other: a braid, wooden pegs, a wooden screw, a thread, a various comb. Students need to know the name all the accessory tools and prepare a braid for hair braiding.
2. Students receive selection of various hair braiding from the provided sketch. They distinguish cover, umbrella, single and double hair braiding.
3. The students learn the basics of hair braiding with artificial and natural hair. Learning is based on the principle of using natural hair. When hair braiding, students have the option of choosing how many hairs they will use for each hair braid. It means that from seven to ten hairs are chosen together. Normally, a useful hair braiding is performed with seven hairs. If more than seven hair is selected, it does not mean that hair braiding will be completed faster. The hair braiding with seven hairs is easier to execute and looks aesthetic at the end. The students get a feeling how to touch the hair, which mathematically means an estimate of the number of hairs between the fingers.
4. Sketch of four different hair braiding are presented verbally showing the theoretical knowledge. Then students approach the practical implementation on the braid.
5. When taking hair from a comb, the student counts up to seven hairs and assembles the cut part; the part of the hair that grows out of the scalp until it gains the feeling in the fingertips. Students then proceed as usual, still checking or counting. The students should perform four twists per minute.
6. The cover mesh has the shape of a deck/roof. We use it when we need a pronounced volume of hair at the scalp when performing a hairstyle. A roof braid with a two centimeters beard is used for volume. A single weave with a beard is a basic weave and is used in all hairstyles for hair density, volume, gain in hair length, braided hairstyle. We insert a double weave with a beard into the growth of the hair when we have thick hair in the treatment and gain a braided hairstyle on the length of the hair.
7. To sew the hair insert, we need a minimum of sixty centimeters of hair braid; the hair weave can be longer, up to one hundred and fifty centimeters in length. Students sew in the shape of a SET or a FLOWER; we can use only the length of the weave without sewing.
8. The ideal placement of the hair clip is on the crown part, but it is not excluded anywhere on the scalp; parietal part, front left and right lateral part, back left and right part, occiput. The hair is opened in the direction of the vortex towards the growth of the hair and the hair clip is attached closer to the scalp in the growth of the hair. We use a minimum of six cross-stitched cords. The hair insert and natural hair are connected to each other with a special wide comb. When inserting a hair braid to obtain length, we divide the hair from the occipital contour horizontally to the crown part. We do not open the crown part because the hair has to cover the hair weave. The division of the horizontal line is four centimeters wide.
9. To care for the hair weave/inserts, use shampoos and care products intended for this purpose; for both wet and dry hair transformation.

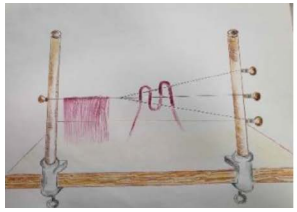
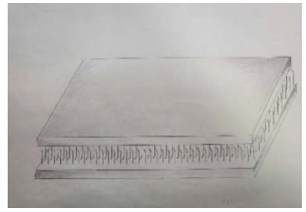
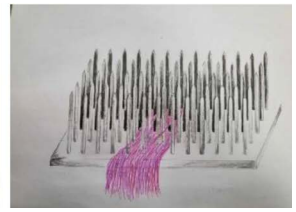
IMPLEMENTATION STEPS: HAIR KNOTTING

Using a free-standing wooden basswood head; preparation of crochet, hammer, pins, tulle and hair for knotting; mustache sketch; knotting; timeline; shaping or trimming the created shape of the mustache; the purpose and use of different mustache shapes; attachment and removal of mustache from the beard; care.

1. The wooden linden head is a soft material to which the selected shape of the mustache on the crown part of the scalp is attached with adhesive tape and the tulle fabric, which has honeycomb holes, is attached with metal centimeter pins and a hammer.
2. Preliminary preparation of the hair involved in a figure eight; on two parallel threads, which we tensioned on the trestle. When braiding, the student‘s hands are wet, which means that when the hair dries, it is in a wavy shape. Unscrew the hook holder on the head and insert the metal part of the hook. Screw the head of the crochet so that it is firm. The student prepares the tulle and turns it right side out. He chooses the size of the mustache according to the sketch. We know the fly moustache, the English moustache, the big moustache, the narrow moustache, the brush moustache, the Spanish moustache, and the extended moustache. For easier understanding, we select the English mustache and the Spanish mustache. The English mustache is sleek and covers the area of the face from the mustache to the corners of the mouth. The Spanish mustache is distinctly dark and covers the space on the face area of the mustache over the corners of the mouth with the tip folded towards the cheekbone.
3. The student places the linden head with the mustache design in the area of the legs above the knees and holds it firmly. The mustache model is facing the correct way from the student‘s face. With a knotting hook and a bun of curled hair, the first knotting begins, namely right-handed people in the outer lower left corner of the mustache, diagonally outwards. The second knot continues horizontally back to the right by dropping the diagonal opening in the tulle. This means that the knots of the odd opening to the middle of the mustache plan horizontally and vertically drop a whole horizontal line of tulle openings in between. The left side of the mustache knotting to the left; the right side of the mustache knotting to the right.
4. Mustache knots for eight to ten hours.
5. Shape the knotted mustache with small pointed scissors by cutting the tulle along the openings around the knot.
6. The English mustache is used by the student when assembling bright, if possible, English figures. The Spanish mustache is used by the student when assembling dark, if possible, Spanish figures.
7. Use facial skin glue to attach the mustache. To remove the mustache, we use a solvent for the facial skin.
8. For knotted mustaches, use shampoos and conditioners intended for this, both for wet and dry care.

SOFT SKILLS DEVELOPED:

1. Awareness of combing theoretical and practical competences
2. Awareness of applying a professional terminology
3. Organisation/coordination
4. Behavioural work etiquette
5. Giving advice and feedback to others
6. Time management
7. Professional differentiating and critical thinking
8. Environmental awareness



Subject:		PHARMACOLOGY
EQF LEVEL: 4	PROGRAM: Social and Health Care Assistant	ORGANISATION: SOSU Østjylland

ACTIVITY: **Patients‘ use of non-prescribed medicines**

CONTEXT

A case is presented to Healthcare Assistants (EQF level 4) describing an issue with a patient who insists on taking Glucosamine, an over-the-counter medication for rheumatoid arthritis that she has seen recommended in a magazine. Taking this drug is without the knowledge of her doctor. The patient is convinced that the adverted Glucosamine can cure her arthritis.

SHORT DESCRIPTION OF THE ACTIVITY:

In groups of 3-4, students are now asked to first; a) discuss what issues they observe in the case and then; b) search for information about Glucosamine on the internet. Finally; c) the students are asked to consider how they will act based on the problems they observe in the case and the knowledge they have gathered through research on the Internet. Each group will then; d) present their observations and action plan for the entire class, followed by feedback from the teacher and the other groups.

PREPARATION AND IMPLEMENTATION:

Upload the case digitally on the students’ learning platform or have it printed for hand out in the classroom.

- Step 1: Introduce the case study to the class and form the groups (3-4 students per group)
- Step 2: Introduce the case to the groups (in the LMS or as handouts) and ask the group members to read it carefully
- Step 3: Ask each group to discuss what problematic or critical issues they observe in the case (30 min. approx.)
- Step 4: Ask each group to research Glucosamine on the internet. Make the groups aware that in their research they should find examples of medically valid sources as well as non-medically valid sources. The groups should be able to explain, with visual examples, how they can distinguish between valid and non-valid sources when presenting to the class (1 hour approx.).
- Step 5: Ask each group to create an action plan of what actions they will take, in order of priority, based on the observations they have made and discussed in the case and the knowledge they have researched on the internet (30 min. approx.).
- Step 6: Each group in turn present their observations and action plan to the class (15 min. per group approx.)
- Step 7: Feedback from teacher and the other groups (10 min. approx.)

SOFT SKILLS DEVELOPED:

1. Communication skills
2. Teamwork
3. Listening to others
4. Establish relations to other people
5. Critical thinking
6. Problem-solving
7. Time management
8. Decision-making
9. Organization/coordination
10. Creativity
11. Resourcefulness
12. Giving feedback to others
13. Openness to criticism

Subject:		HOSTELRY TOURISM
EQF LEVEL: 2	PROGRAM: Restaurant Services	ORGANISATION: Vocational High School „Hysen Çela“ Durres

ACTIVITY: **Managing the restaurant hall and workforce**

CONTEXT

A businessman with the desire to invest in the opening of a new restaurant has presented himself to the Hostelry and Tourism Department of the school with the claim that the restaurant should have high quality and standards in the service process. The request of him was specifically in the setting of the tables according to the „A la Carte“ model from the students of the school with the wish that tomorrow these same students will be employed by this business

SHORT DESCRIPTION OF THE ACTIVITY:

The class will be divided in groups of 3-4 students which will be required;

a) based on the knowledge they have about the „A la Carte“ model, Each member of the group will practice on the layng of the table on „A la Carte“ model.
b) Each member of grupe will be in two roles one in the role of the waiter (chef de rang) explaining how to lay the table on „A la carte „ model and once in the role of the assistant waiter (commis de rang) laying the table according the explanation of the waiter;
c) the students are asked to present their observation on the problems they encounter while setting the tables during the role as waiter and the role as assistant waiter.

PREPARATION AND IMPLEMENTATION:

The teacher Demonstrates with Power Point and explainins in working place in the restorant of the school all the steps for the lay of the table in „A la Carte“ model.

Step 1. Demonstration with Power Point (10 min.approx)

Step 2: Demonstration of the teacher in the working place.(30 min.approx).

1. Wearing the uniformës according with the rules of the dress code and personal hygien in restourant.
2. Inventory of working tools on the side board linen (tablecovers,pieces), porcelain, silverware,glassware,household,decoration.
3. Choise of tools for „A la Carte“ lay.
4. Ranking of tables according to the service scheme.
5. Folding of covers for „A la Carte“ service.
6. Layout of covers (molton,main cover, centro/customer) for „A la Carte“ layout.
7. Placement of porcelane (sow plate, bread plate) for „A la Carte“ layout.
8. Placement of dining cutlery (main fork, main knife, butter knife) for „A la Carte“ layout.
9. Glassware placement (water glass ,wine Glass) for „A la Carte“ layout.
10. Placing utensils (salt,pepper,oil and vinegar container) on the table for „A la Carte“ layout
11. Final check in „A la Carte“ layout.

Step 3 Each group will demonstrate in work place how to lay the table in „A la Carte“ model in working please in the restorant of the school dividing the works.(10 min. per student approx.)

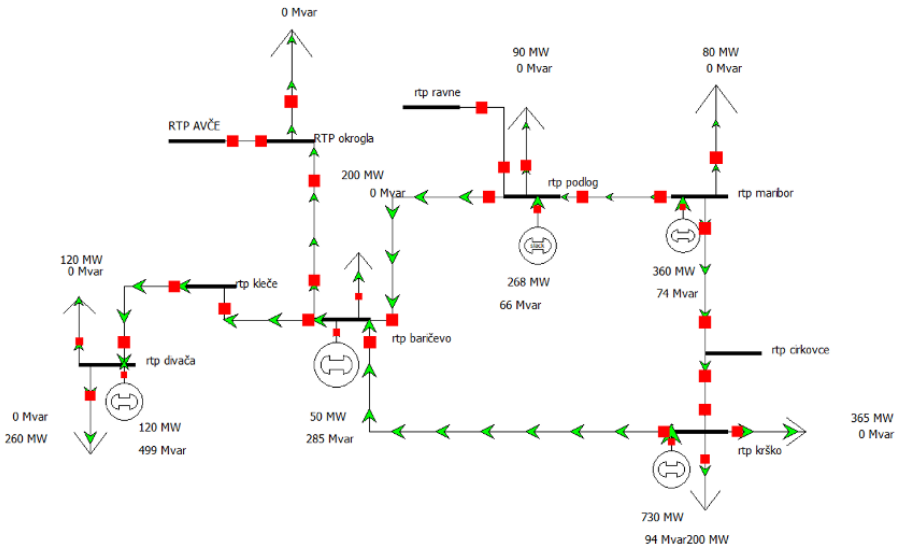
Step 4. Each student in theyr group will play two roles one in the role of the waiter (chef de rang) explaining how to lay the table on „A la carte „ model to the assistant waiters and once in the role of the assistant waiter (commis de rang) laying the table according the explanation of the waiter.(10 min.per role,per student approx.)

COMPETENCES DEVELOPED:

1. Communication skills
2. Teamwork
3. Listening to others
4. Establish relations to other people
5. Critical thinking
6. Problem-solving
7. Time management
8. Decision-making
9. Organization/coordination
10. Creativity
11. Resourcefulness
12. Giving feedback to others
13. Openness to criticism

Subject:		POWER ELECTRICAL SYSTEMS
EQF LEVEL: 5	PROGRAM: Power Engineering (Higher Vocational College)	ORGANISATION: School center Kranj

ACTIVITY: **Drawing Electrical grid, Simulating Powers, Calculating drops of voltage on Busbar**



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	Number	Name	Area Name	Nom kV	PU Volt	Volt (kV)	Angle (Deg)	Load MW	Load Mvar	Gen MW	Gen Mvar	Switched Shunts Mva
1	1	RTP Beričevo	1	138,00	0,00000	0,000	0,00					
2	2	RTP Beričevo	1	400,00	1,00000	400,000	0,00	200,00	50,00	697,26	672,92	
3	3	3	1	440,00	0,00000	0,000	0,00					
4	4	RTP Okroglo	1	400,00	1,00000	400,000	-7,42	150,00	50,00	50,00	108,38	
5	5	5	1	440,00	0,00000	0,000	0,00					
6	6	RTP Divača	1	400,00	1,00000	400,000	-29,69	120,00	20,00	320,00	490,75	
7	7	RTP Trst	1	400,00	0,77389	309,55	-49,33	260,00	0,00			
8	8	RTP Koper	1	400,00	0,85537	342,149	-43,22	200,00	0,00			
9	9	RTP Podlog	1	400,00	1,00000	400,000	72,17	90,00	20,00	1000,00	-183,07	
10	10	RTP Cirkovce	1	400,00	1,00000	400,000	62,90	200,00	30,00	730,00	384,39	
11	11	RTP Maribor	1	400,00	1,00000	400,000	100,21	80,00	30,00	360,00	-0,75	
12	12	RTP Gradz	1	400,00	1,00000	400,000	117,39			170,00	-125,38	
13	13	RTP krško	1	400,00	1,00000	400,000	-7,63	565,00	50,00	365,00	925,55	

SHORT DESCRIPTION OF THE ACTIVITY:

With Application PWS we will draw an electrical grid of 110 kV: We will draw 3 substations, busbars, generators, and loads. In between we will draw transmission lines. We will start the simulation RUN Tools Play. With a special button we will calculate all voltage drops on busbars.

PREPARATION AND IMPLEMENTATION:

For each group, the teacher prepares samples of different pictures.

1. INRODUCTION
(10 MIN)

I will present the electrical grid. It is built of transmission lines and substations, generators, and loads. I will explain on Blackoboard how the load is causing its current-voltage drop on line. And how power station (photovoltaic power station on Low voltage network) will cause during giving of power the voltage increase.

2. DRAW ELECTRICAL GRID
(1 HOUR)

Together with candidates I will draw different parts of the electrical grid. Candidates will follow me on their personal computers.

3. SIMULATION OF POWER
(1 HOUR)

Candidates will start the simulation of power on electrical grids. They will add different sensors showing numbers of powers, P, Q, and S. And current I. They will switch off different Transmission Lines and see how the network‘s circumstances and values will change.

4. CALCULATING OF VOLTAGE DROPS AND INCREASES
(1 HOUR)

Candidates will calculate changes on transmission lines because of currents.

SOFT SKILLS DEVELOPED:

1. Communication
2. Drawing elements with computer application
3. Listening to others
4. Giving feedback
5. Teamwork
6. Problem-solving
7. Critical thinking
8. Calculating
9. Pro-activity
10. Resourcefulness
11. Openness to criticism
12. Environmental awareness

Technical Subject:	ELECTRICAL EGINEERING

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Electrical Engineer. Planning of Electrical Installations	School center Kranj

ACTIVITY: **Energy-efficient renovation of lighting in a multipurpose school lecture room**

SHORT DESCRIPTION OF THE ACTIVITY (PROJECT WORK)

The students of the 3rd year of the electrical engineering educational program (secondary school) carried out a complete renovation of the lighting of the classroom and the installation of smart installations. The mentioned classroom is a multi-purpose space and is used for school lessons, lectures and exams, as well as for holding seminars and meetings for a large number of participants (up to 60 people).

PREPARATION AND IMPLEMENTATION:

For such a complex project, extensive preparation is required. In this case, the mentor bears significant responsibility. It is important to:

- appropriately integrate the project into the curriculum,
- adjust the project timeline to school calendar
- collaborate with industry for sponsorship and professional assistance.

PROJECT WORKFLOW:

- presentation of the project to the school leadership and obtaining their approval,
- securing sponsors (Zumtobel Ljubljana for lighting, Armstrong Ljubljana for ceiling renovation),
- negotiating with companies to provide professional assistance from mentors,
- selection of students,
- defining project objectives,
- implementation of the project

EVALUATION

In this case, the project was the final assignment of students of the 3rd Ea class of the Secondary Technical School ŠC Kranj and it was evaluated as such..

SOFT SKILLS DEVELOPED:

1. Work in a team.
2. Cooperation in a group.
3. Cooperation with different experts.
4. Exchange of ideas.
5. Solving challenges.
6. Achieving common goals.
7. Developing project management skills.
8. Responsibility.
9. Independence at work.
10. Critical thinking.
11. Learning from each other.

Technical Subject:	ELECTRICAL INSTALLATIONS

EQF LEVEL:	PROGRAM:	ORGANISATION:
4 - 5	Electrical technician and electrician - energy engineer	School center Kranj

ACTIVITY: **Freestanding charging station for electric vehicles in ŠC Kranj**

SHORT DESCRIPTION OF THE ACTIVITY (PROJECT WORK)

The basic idea was to design and build a unique free-standing charging station with several charging points and additional equipment, USB ports for charging IT devices such as mobile phones, laptops, etc.

The project has a special added value as students of three-year and four-year programs (EQF 4) and Vocational College students (EQF 5) were involved. Students of different levels of education bring a diversity of knowledge, skills and experience to a project or group. This form of student participation simulates a work environment where cooperation with different experts and teamwork is key. In this way, they can better prepare for the transition from an educational environment to a professional environment.

PREPARATION AND IMPLEMENTATION:

To build a freestanding charging station you must provide financial resources. In our case the project was carried out of the E-POL project „Development and production of pilot charging stations for charging electric vehicles as teaching aids for students of technical vocational schools“.

So it was financed by the Eco Fund of the Republic of Slovenia.

In cooperation with METRON Institute and with help from mentors students were involved in:

- planning of electrical installations and development of technical plans for the installation of a charging station, including the correct assessment of the required electrical power.
- carrying out practical tasks such as assembling and connecting the electrical components of the charging station.

All activities were required to comply with safety standards, and every student had to prioritize safety when working with electrical devices.

EVALUATION

The project was evaluated in several ways. Students of VET programs were evaluated in professional subjects, a Vocational college student defended the project as a diploma thesis and was also evaluated in this context.

SOFT SKILLS DEVELOPED:

1. Problem-solving
2. Conflict management
3. Organization/coordination
4. Decision-making
5. Communication
6. Teamwork
7. Time management

Technical Subject: PLANNING OF ELECTRICAL INSTALLATIONS

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Electrical Engineer	School center Kranj

ACTIVITY: **Energy-efficient renovation of stair lighting in a multi-storey residential building in Kranj**

SHORT DESCRIPTION OF THE ACTIVITY (PROJECT WORK)

The purpose of the project was to determine the positive effects of replacing the existing stairwell lighting with a modern, energy-efficient lighting technical device in a multi-storey multi-apartment building in Kranj.

PREPARATION AND IMPLEMENTATION:

The entire project is conceived as a form of cooperation between the educational institution, social partners and the local environment. The following participated in the implementation: students (15) STŠ ŠC Kranj, electrical engineering program, within the professional module planning electrical installations, electrical engineering graduate VSŠ ŠC Kranj, Zumtobel company from Ljubljana and Elektroservis Anton Maček s. p. from Škofja Loka and the apartment owners of the multi-apartment block in Kranj, who supported the idea of the project and gave written consent that the project can be realized in their block.

The project is very complex and requires thorough preparation. School management approval is also required. In this case, many stakeholders are involved. The project was perhaps easier to carry out, since one of the residents was a professor from ŠC Kranj, who was also a mentor to a group of students.

WORK PROCESS

Tasks that the students had to complete:

- Carry out lighting and electricity consumption measurements. energy for stairwell lighting in the case of existing lamps (stuck state).
- Using the DIAlux program, create a four-variant proposal for a new lighting technical device.
- Carry out the dismantling of existing lamps and install selected lamps with modern light sources and associated sensor technology.
- Measure the illuminance and electricity consumption of the new lighting technical device.
- To make a comparative analysis of the results of lighting measurements and electricity consumption for staircase lighting and to define the economic justification of the implemented project solution.

EVALUATION

The project was a final assignment for the students involved and was evaluated in this context.

SOFT SKILLS DEVELOPED:

1. Problem-solving
2. Conflict management
3. Organization/coordination
4. Decision-making
5. Communication
6. Teamwork
7. Time management

General Subject:	CHEMISTRY

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Mechatronics Technician	School center Kranj

ACTIVITY: **Determination of the unknown polymer**

SHORT DESCRIPTION OF THE ACTIVITY:

The type of polymer can be determined in different ways. In our exercise, we will choose a combustion test. We will burn the polymer samples and observe how they burn, whether smoke comes out when burning, what the smell is like. The special feature of this exercise is that the students themselves design the experiment and then carry it out.

PREPARATION AND IMPLEMENTATION:

Preparation of the teacher:

For each group, the teacher prepares samples of known polymers to prepare a calibration table and samples of unknown polymers.

1. The teacher presents the students with their task: they must correctly determine which polymer the samples they received are made of. In the guided interview, we choose the combustion test method. We tell them that they will have to design the experiment themselves: first write the procedure, then perform the analysis of the sample.

2. Students design the experiment by themselves

- Divide the students into pairs. Larger groups would not be advisable as the exercise is not complex
- First, we wait for a while and monitor how are students thinking. During the process we guide them with questions, if necessary. (How can we determine an unknown material if we have no comparison?, What will we observe when the samples burn?, How long will it take?...)
- How should the experiment be executed :
  - In the first step students prepare a calibration table with known samples. They must determine what they will observe: the color of the fire, the maintenance of burning, smoke, smell, the material melts/charns/bubbles...
  - In the next step, they determine the types of unknown polymers
  - Students determine the time frame: how much time will be needed for the experiment?

3. Students determine the evaluation criteria

- Quality of calibration chart
- Number of correctly identified polymers
- The accuracy of the time frame

4. Evaluation

- Did we learn anything new?
- Was the method interesting?
- Can we use the method in life?

COMPETENCES DEVELOPED:

1. Problem-solving
2. Organization/coordination
3. Decision-making
4. Communication
5. Teamwork
6. Time management

Technical Subject:	DATABASE MANAGEMENT

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Electrical Engineer for Web and Mobile Applications Development	Secondary Voc. School of Electrical Engineering "Vaso Aligrudić" MNE

ACTIVITY: **Database administration**

SHORT DESCRIPTION OF THE ACTIVITY:

Introducing fundamental concepts and database models. Providing instruction on designing, building, and managing databases, along with data manipulation. Students will develop a database model for a school information system capable of handling data for students and staff, fostering precision, creativity, analytical thinking, logical reasoning, organization, responsibility, and a positive professional attitude.

PREPARATION AND IMPLEMENTATION:

Teacher's preparation
Analyze basic concepts of databases
Create a database using SQL commands
Create queries in SQL

1. In the introductory part, the teacher introduces students to the goals and activities for task implementation.
2. Introducing students to basic data types in SQL: int, varchar, date...
3. Presenting basic SQL commands and providing examples to students for practical application: CREATE TABLE, ALTER TABLE, INSERT, UPDATE, DELETE...
4. Defining the task setup - entities that need to be created and their relationships by creating a database for a school information system to which they themselves belong.
5. Within the task, the student creates a database containing the entities: city, school, class, teachers, students, subjects, and grades.
6. Presentation of basic attributes required for individual entities and guiding students to independently upgrade entities.

ASSESMENT OF STUDENTS:

What does a database imply?
What are the basic data types in SQL?
How to create a database using SQL commands?
How can we manipulate data - change or delete it?

EVALUATION:

Was the lesson engaging?
Was the presentation delivered in a way that resonated with you and was easy to understand?
Is there anything you would change about the way the topic was presented and carried out?

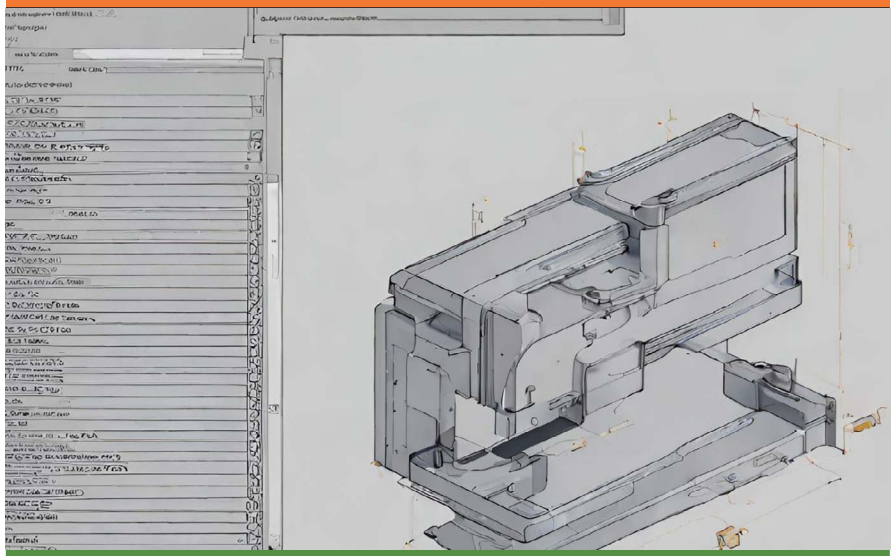
SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Teamwork
5. Problem-solving
6. Time management
7. Critical thinking
8. Decision-making
9. Organization/coordination
10. Pro-activity
11. Adaptability
12. Creativity
13. Openness to criticism
14. Work ethic

General Subject:	CNC PROGRAMMING

EQF LEVEL:	PROGRAM:	ORGANISATION:
4	Technician for computer control of machines	IAAP Rifat Gjota, Peje, Kosovo

ACTIVITY: **CNC Programming. Basics**



SHORT DESCRIPTION OF THE ACTIVITY:

This activity aims to introduce students to the fundamentals of CNC programming, focusing on understanding the G code structure, syntax, and basic commands used in CNC programming languages.

PREPARATION AND IMPLEMENTATION:

TEACHER'S PREPARATION:

Review and understand CNC programming concepts thoroughly.

Prepare instructional materials, including slides, examples, and practice exercises.

Familiarize yourself with CNC simulation software or coordinate with technical staff to set up real CNC machines for demonstration.

IMPLEMENTATION:

1. Introduction to CNC Programming. Provide an overview of what is CNC programming , its importance in modern manufacturing and its applications across industries.
2. Theoretical session covering the following topics:

- ▷ CNC Machine Overview: Types of CNC machines, components, and their functions.
- ▷ CNC Programming Languages: Introduction to G-code and M-code, explanation of basic commands.
- ▷ Reading CNC Programs: Understanding program structure, sequence, and logic.

3. Practical Demonstration: Demonstrate CNC programming using simulation software or real CNC machines if available. Process of writing a simple CNC program, explaining each step and command.
4. Practice: Provide students with exercises to write their own CNC programs based on provided scenarios or simple geometries.

EVALUATION

- ▷ Written Test and Electronic Test: Assess theoretical understanding through a written test and Electronic test covering concepts learned. (Electronic test—Creation from different Applications, Quiz Creator, WonderShare Quiz etc).
- ▷ Practical Assessment: Evaluate students' ability to write and execute CNC programs accurately.
- ▷ Peer Evaluation: Gather feedback from peers on teamwork, communication, and problem-solving skills during the activity.

SOFT SKILLS DEVELOPED:

1. Communication
2. Listening to others
3. Giving feedback to others
4. Establish relations to other people
5. Teamwork
6. Problem-solving
7. Time management
8. Critical thinking
9. Decision-making
10. Organization/coordination
11. Stress management
12. Pro-activity
13. Adaptability.
14. Conflict management
15. Leadership
16. Creativity
17. Openness to criticism
18. Behavioural etiquette
19. Work ethic
20. Environmental awareness

Subject:	ENGLISH AS A FOREIGN LANGUAGE	
ICAO LEVEL: 3	PROGRAM: General	ORGANISATION: High school of Metalworking crafts, Sarajevo

ACTIVITY: **Create a digital campaign to raise awareness about the environmental dangers of plastics**

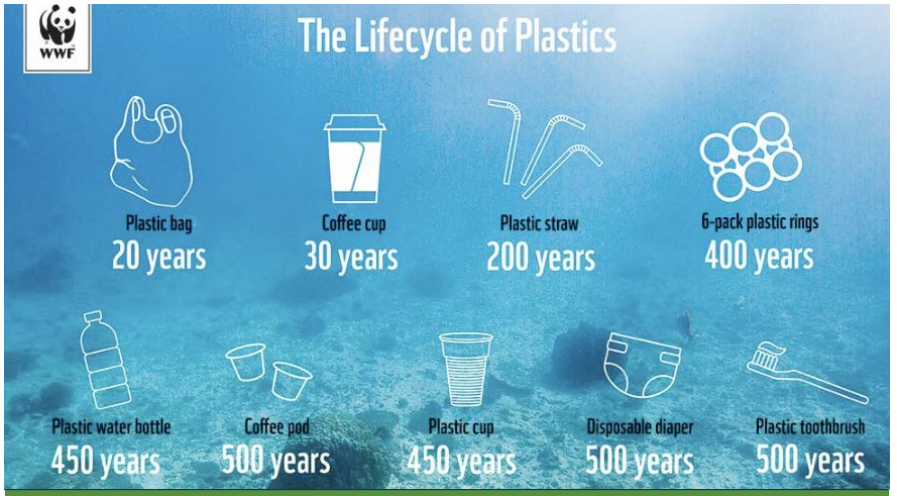
CONTEXT

Intermediate B2 students are presented with the sources dealing with the use of plastics in everyday life and its effects on the environment. They are required to prepare a digital campaign that will help raise awareness of others, less informed people, in a simple comprehensive way and explain why they think their campaign will be successful. Students are given real-life examples as a reference.

SHORT DESCRIPTION OF THE ACTIVITY:

Students are divided in groups of 3-4 and

a) are presented with some general texts that contain information and data on average daily plastic use (bottles, packages, straws, single-use utensils, etc.), its production and disposal, as well as how it interacts with environment in general;
b) analyse the given material to get more information and choose one (or several related) aspects that the waste plastic affects (oceans, wildlife, soil pollution, air pollution, fresh water, riverbeds, city streets, energy consumption etc.) to discuss awareness raising campaign plan
c) are assigned roles within each group to conduct a more detailed research on selected aspects to get more information for preparing their campaign;
d) choose the means of conducting the campaign – text messages, apps, online advertisement, online presentation, video clips, interactive ads, animation etc.
e) present their campaign plan in front of other groups as well as give feedback to other groups' performance.



PREPARATION AND IMPLEMENTATION:

Upload the text, data sheet(s) and resources required for the activity on students' learning platform for students to get informed and explore the topic. No printing for ecological reasons.

Step 1: Introduce the topic and activity to the class and form groups (3-4 students per group)

Step 2: Review the information given with students prior to assigning tasks

Step 3: Ask each group to analyse the given material, discuss it briefly, choose the aspect(s) they will work on, design and create the campaign.

Step 4: Each group will present their campaign, explain the reasons for choosing particular means and aspects and what benefit their campaign should have. Also, each group will take notes on performances of other groups.

Step 5: Each group in turn present their observations and findings and give feedback for each campaign (10 min. per group)

SOFT SKILLS DEVELOPED:

1. Communication skills
2. Teamwork
3. Listening to others
4. Establish relations to other people
5. Critical thinking
6. Problem-solving
7. Decision-making
8. Pro-activity
9. Organization/coordination
10. Creativity
11. Resourcefulness
12. Giving feedback to others
13. Openness to criticism
14. Environmental awareness

Subject:		AVIATION ENGLISH
ICAO LEVEL: 3	PROGRAM: Aviation technician	ORGANISATION: High school of Metalworking crafts, Sarajevo

ACTIVITY: **Full flight operation through successfully communication between the ground operation service and airborne aircraft to achieve successful flights**

CONTEXT

ICAO Level 3 (or Intermediate B2) students are presented with the "anatomy" of communication between Air Traffic Control and a pilot in order to design a flight plan, perform all preparatory pre-flight activities, engage in pre-flight, flight and post-flight communication and simulate the procedure in the classroom. Students are given real-life examples but are required to create their own situation based on received samples.

SHORT DESCRIPTION OF THE ACTIVITY:

Students are divided in groups of 4-5 and

a) are presented with "Anatomy of a radio call" in aviation through quick presentation (requirements and steps), real-life radio communication audio recording and list of phrase;

b) discuss the steps and requirements and relate these to their previous knowledge acquired in other technical subjects they attend

c) each group of students is given the basic information about their flight operations and are required to discuss, design and plan full flight operation using the required phrases and vocabulary with communication skills;

d) act out the communication in front of other groups and discuss each other's performance.

PREPARATION AND IMPLEMENTATION:

Upload PowerPoint presentation, audio recordings and maps on the students' learning platform, print out the sample communication and flight plan for hand out in the classroom.

Step 1: Introduce the activity to the class and form groups (4-5 students per group)

Step 2: Review the information given with students prior to assigning tasks

Step 3: Ask each group to take their individual roles (ATC operators, pilots), discuss the flight plan (with maps and routes), design it and create the communication script for each flight operation stage (preparatory ground operations, taking off, flight, landing, post-flight).

Step 4: Each group will act out the prepared script. Also, each group will take notes on performances of other groups.

Step 5: Each group in turn present their observations and findings and give feedback and ideas for improvements of each of the presented cases (10 min. per group)

SOFT SKILLS DEVELOPED:

1. Communication skills
2. Teamwork
3. Listening to others
4. Critical thinking
5. Problem-solving
6. Time management
7. Decision-making
8. Organization/coordination
9. Creativity
10. Resourcefulness
11. Giving feedback to others
12. Openness to criticism

General Subject:		ENGLISH LANGUAGE
CEFR LEVEL: A2 (elementary)	PROGRAM: technician for the development of web and mobile applications	ORGANISATION: Secondary School of Electrical Engineering "Vaso Aligrudić" Podgorica

ACTIVITY: **Impersonation of famous persons through role-play and audio-visual performance entitled "Inspired – Activated"**

CONTEXT

First grade students of the bilingual class presented their modern interpretation of 10 historical male and female figures from different areas of science and art (physics, chemistry, programming, literature, visual art, classical music). Through collaborative work, extensive research, the use of modern technologies, and the implementation of communication and analytic skills the students not only consolidated the acquired key vocabulary, but also demonstrated the practical use of 21st century classroom skills that rely on critical thinking and problem solving.

SHORT DESCRIPTION OF THE ACTIVITY:

The performance is the final stage of a mid-term project that covers three topics prescribed by the curriculum ("Personality", "The Arts" and "Inventions"), and it is the result of a months-long research aimed at purposeful use of technology in education and merging formal and informal learning. Namely, in addition to the target vocabulary that the students acquired in the lessons, the students themselves collected, classified and processed information from various sources in order to put unusual and less-known facts from the lives of great people such as Nikola Tesla, Mileva Maric Einstein, Jane Austen, Salvador Dali, Beethoven and others in the modern context, as if these great minds were their contemporaries. The performance ends with the student impersonating John Lennon inviting other students as well as the audience to sing the song "Imagine" and emphasise peace as the ultimate goal of both the past and the present.

PREPARATION AND IMPLEMENTATION:

Introduce possible references and sources for students' independent research; distribute and analyse K-W-L charts (Know – Want to Know – Learn); monitor and coordinate student's activities.

PROJECT FLOW:

Step 1: Revise target vocabulary related to the three topics already covered in class; use K-W-L charts to determine to which extent students are familiar with the biographies of the selected figures and to discover their particular areas of interest.

Step 2: Divide students into pairs so that in each pair one student plays the role of an interviewer and the other plays the role of a famous historical figure. Assign roles to students, in accordance with their preferences and desires. Designate two students who will be in charge of audio-visual effects and advertising of the final performance.

Step 3: Students use suggested references as well as other Internet sources to do an extensive research on less-known and intriguing details from the lives of assigned historical figures.

Step 4: Working in pairs, students make a draft script for the role-play interviews (three questions and three answers per pair), following a class discussion and the exchange of ideas and suggestions; the final script is compiled.

Step 5: The final script is sent to the students in charge of audio-visual effects. They make a PPT (one slide for each historical figure – pictures, brief information, background music) to serve as a background follow-up during the dialogues. Also, students create a digital poster using Canva and a printed version of the poster to advertise the final performance.

Step 6: A dress-rehearsal is held: all pairs of students role-play their dialogues and the performance with background audio-visual effects is staged. Final corrections are made and the masks are finalized.

Step 7: The 45 minute performance is held in front of the audience (teachers, students, and school management).

Step 8: Reflection and self-reflection. Giving/receiving feedback (at the following English class).

SOFT SKILLS DEVELOPED:

1. Communication skills
2. Teamwork
3. Critical thinking
4. Problem-solving
5. Time management,
6. Decision-making
7. Organisation/coordination
8. Creativity
9. Adaptability
10. Resourcefulness
11. Conflict management
12. Feedback
13. Openness to criticism

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For more information about the project "VET for Western Balkans", please go to our website: https://edu4wb.com