



MAKER EDUCATION

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Magazine No. 5, 2022

January 2022



ISSN 2668-7852 ISSN-I 2668-7852

Co-funded by the  
Erasmus+ Programme  
of the European Union



# MAKER EDUCATION

**Colegiul Tehnic "Gheorghe Cartianu"**

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Co-funded by the  
Erasmus+ Programme  
of the European Union



**Project Title: Maker Education**

**Main objective of the project: Exchange of Good Practices**

**Project Start Date: 01-09-2019**

**Project End Date: 31-08-2022**

**Project Total Duration: 36 months**

**Applicant Organisation: Colegiul Tehnic „Gheorghe Cartianu”,  
România**

**Website: <https://makereducation6.weebly.com/>**

**Partner Organisations:**

- **SABA, The Republic of North Macedonia, partner**
- **Insignare - Associacao De Ensino E Formacao, Portugal, partner**
- **Erbakir Fen Lisesi, Turkey, partner**
- **Iis Alessandro Volta, Italy, partner**
- **Centrum Kształcenia Praktycznego w Jastrzebiu-Zdroju, Poland, partner**



## I. C4.3D Printing technology and Digital skills

### 1.Short-term exchanges of groups of pupils 6th-10th December 2021

*Insignare - Associacao De Ensino E Formacao-Portugal*

Project title: Maker Education

Project reference number: 2019-1-RO01-KA229-063086\_5

Days	Activity
5 December 2021	Arrival of partner schools
<b>December 6, 2021</b>	
9:30	Official welcome – Mrs. Carina João Oliveira, INSIGNARE’s CEO and Mr. José Pegada, Ourém Vocational School’s Technical Pedagogic Board
09:45	Icebreaking activities
10:30	Coffee break
10:45	School visit
12:00	Lunch at school canteen.
13:15	Partner schools’ presentations (bring flash disk)
15:30	Coffee break
15:45	Folk music festival
17:00	End of workingday.
<b>December 7, 2021</b>	
9:30	Workshop “Digital Painting”
12:00	Lunch at school canteen.
13:15	Workshop “3D Modelling”
17:00	End of working day.
<b>December 8, 2021</b>	
08:50	Leaving the hotel.

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<b>Days</b>	<b>Activity</b>
9:30	Convent of Christ, Tomar (UNESCO's World Heritage Site).
11:00	Tomar Historical Centre
12:30	Departure to Ourém.
13:00	Lunch in Ourém
14:15	Visit to Ourém Castle
15:30	Departure to Mira D'Aire Caves.
16:00	Visit to the Caves.
17:30	Departure to Fátima.
18:00	End of social day.
<b>December 9, 2021</b>	
9:30	Lecture and workshop 3D Print use and potential – ISICOM company.
12:00	Lunch at school canteen.
13:15	Workshop "2D Printing in Printed Circuit Board".
17:00	End of working day
20:00	Farewell dinner.
<b>December 10, 2021</b>	
9.30	Workshop video editing
11:30	Evaluation of the meeting.
12:00	Lunch at school canteen.
12:30	Free time for students
13:15	Teachers' meeting.
17:00	End of working day.
11 December 2021	Departure of partners schools

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***Day 1 – December 6, 2021 - Day of socialization and intercultural knowledge***

The agenda included "ice breaking" activities, the presentation of schools and partner countries, a country-specific music and film festival. After completing the stability program, we visited the Sanctuary and Basilica of Fatima, the city nicknamed "the holy place of Portugal".



***December 7, 2021 - Digital Education Day***

Today's agenda included two workshops: digital graphics and 3D modeling, workshops organized by groups of students. Instructive-educational activities contributed to the development of students' computer skills, skills necessary for successful integration into the labor market upon completion of high school.



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### *December 8, 2021, Day of historical discoveries and natural beauties in Portugal*

During the thematic excursion, the most significant local tourist objectives with a strong educational and cultural impact were visited:

\* **The Monastery of Christ and the Castle of the Templars in Tomar** - originally a fortress belonging to the Templars, built in the twelfth century. Following the dissolution of the Order of the Templars (14th century), it was transformed into the Order of Christ. The monastery is one of the most important historical monuments in Portugal and has been a UNESCO World Heritage Site since 1983.

\* **Ourém Castle** - one of the most innovative works of military architecture of the 15th century in Portugal, built by the Count of Ourém and having a compact structure with modern defense systems.

\* **Mira de Aire Cave** - one of the seven natural wonders of Portugal, located in a limestone area, under rivers and underground lakes, and the formations of stalactites and stalagmites offer a stunningly beautiful picture.

It was a special Erasmus day, which left a strong mark on our spirit, emphasizing once again the importance of exchanging scientific and cultural experience. All these forays add value to the professional and personal development of students and teachers!



### *December 9, 2021, Technical-scientific day*

During the working day, the digital and technical skills of the students were developed, through the training of 2D and 3D printing skills and abilities. We worked in mixed teams during the 2 workshops:

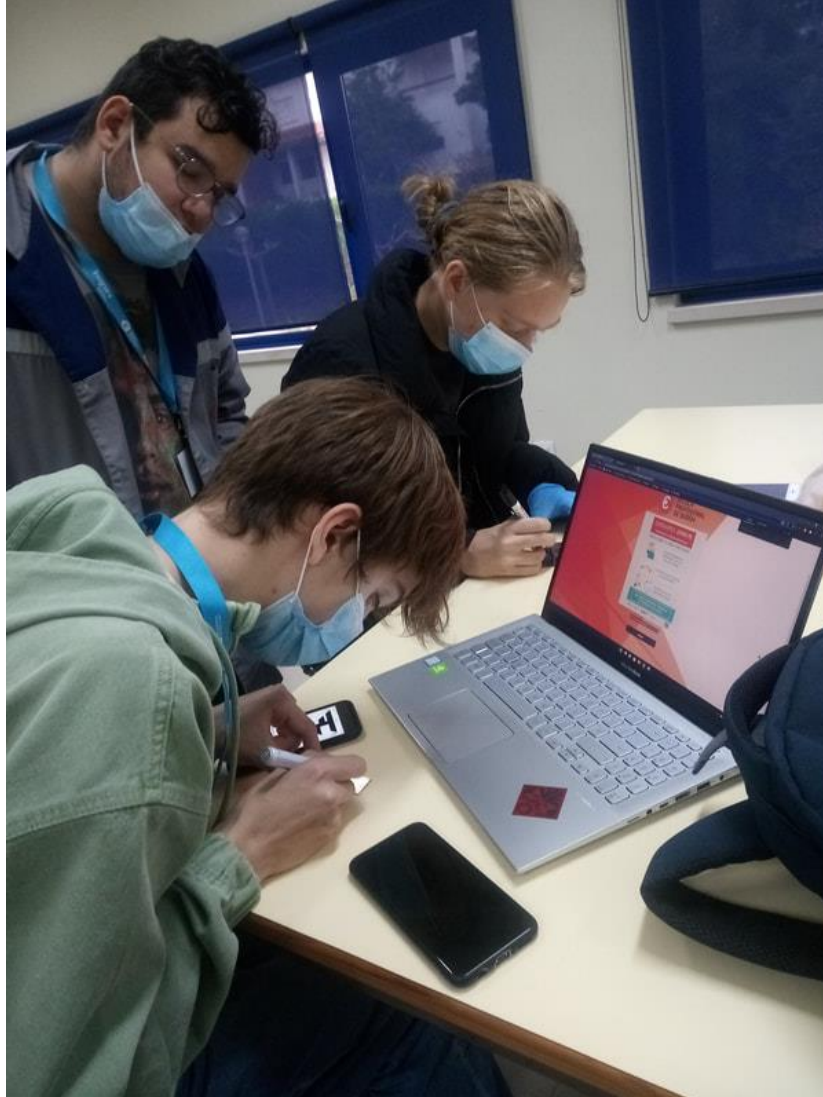
- 3D printing technologies;
- 2D printing on circuit boards.

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At the end of today's activities, it turned out that the students' practical experience has the best impact on fixing the theoretical knowledge acquired both in class and in Erasmus mobility. The students showed enthusiasm and involvement in the successful completion of the tasks received.

After a day of hard work, the hosts organized a farewell dinner, which we enjoyed with traditional Portuguese dishes.



***December 10, 2021 - Feedback day, handing out certificates of participation, discussion of the next mobility.***

Following the exchange of experience, all of us, students and teachers, have developed our professional and personal skills!

We thank our hosts for their special involvement in carrying out the activities!

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## 2. Certiport Authorized Test Center

*Gabriela-Brândușa Horlescu, teacher  
"Gheorghe Cartianu" Technical College*

"Gheorghe Cartianu" Technical College is a CERTIPORT Authorized Test Center for IC3-GS4 International Certification (Internet and Computing Core Certification - Global Standard 4). This certification provides adults, students, students, employees, job seekers with the knowledge to use personal computers and the Internet. Certiport develops, markets and distributes education and certification testing programs for computer users in the academic, corporate and workforce segments worldwide

The IC3-GS4 certification consists of 3 exams that are taken online. An exam lasts 50 minutes, can be taken at any time and the result is displayed immediately after taking it.

- Basics of using a computer
- Key applications
- Online activities

### **1. Basic of using a computer**

- Getting started with system operating
- Concepts related to hardware
- Concepts related to software
- Solving problems (troubleshooting)

### **2. Key applications**

- Features common applications Office
- Word processing
- Table calculation
- Presentations
- Using a base data
- Collaboration

### **3. Online activities**

- Browsers
- Concepts about networking
- Digital communications
- Digital citizenship
- Use under conditions safety a computer
- Online research efficiency

In order to obtain the certification it is necessary to pass all the 3 exams.

IC3-GS4 is recognized by the Ministry of National Education and with its help it can be equivalent to the Bacalaureate Exam the Digital Competences test with the Experienced level.

More details: <http://www.certipro.ro/certification-ic3-gs4/>

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### 3.Measures at European level on increasing key competences and digital competences

Văideanu Claudia, teacher  
Gheorghe Cartianu Technical College

According to a study, 90% of future jobs require some level of digital skills, but 44% of Europeans lack basic digital skills. The European Commission has adopted three initiatives to improve the key and digital competences of European citizens in order to promote common values and raise awareness of how the European Union works. The digital age is spreading to all areas of our lives, and it is not only those working in IT who will need to be up to date with the digital transformation. The digital skills gap is real. Although 90% of future jobs already require some level of digital skills, 44% of Europeans lack basic digital skills. The Digital Literacy Action Plan we are now proposing will help European citizens, education institutions and education systems to better adapt to living and working in increasingly digital societies.

The three initiatives proposed by the EC are the following:

1.A proposal for an EU Council Recommendation on key competences for lifelong learning. The aim is to improve the development of key competences within education systems, of people of all ages throughout their lives and to provide guidance to Member States on how to achieve this. This is an important aspect in helping people to be better prepared for changing labor markets and for active citizenship in more diverse, mobile, digital and globalized societies.

Digital lifelong learning concerns all citizens and is indispensable in a world that European action plans thus aim to extending digital competences to advanced ones among as many citizens as possible, with especially those involved in education and training. In response to the new challenges, but also as part of European policy cycles, the European Union institutions have been working to considerable efforts to update the common vision on education and training lifelong learning and, in particular, the digital component. Understanding technology also requires critical relation to it from the perspective of potential ethical issues, sustainability protection and privacy, children's rights, discrimination, including gender and disability bias and ethnic and racial discrimination. In doing so, education must be complemented by non-formal education in partnership with libraries, industry and research institutions.

2. The second initiative is a Digital Literacy Action Plan, which sets out a series of initiatives to help people and organizations cope with the rapidly changing digital world. The Action Plan focuses on developing the digital competences (skills, knowledge and competences) needed to be able to work and participate in the wider society, on the effective use of technology in the education process, and on using data and foresight to improve education systems. Measures will include supporting schools to access high-speed broadband connections, greater use of SELFIE, a new self-assessment tool developed by the EC to help schools make better use of technology for teaching and learning, and a public awareness campaign on online safety, cyber 'hygiene' and media literacy.

The Action Plan has three key objectives:

- a. better use of digital technologies for teaching and learning;
- b. developing the digital skills needed to live and work in an age of rapid digital change;

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c.higher quality education through better data analysis and prediction.

The European Commission is also proposing a framework for digitally certified qualifications. Digital technologies offer new ways to increase the credibility and transparency of qualifications and to protect against document forgery. Digital qualifications are more mobile than 'paper' certificates and can be stored on multiple servers or in multiple institutions. They can include comprehensive metadata, be more easily displayed in CVs, on social media platforms and personal web pages, and can be viewed by stakeholders. The creation of a European Learning Area means that even qualifications from small providers are recognized and can be trusted, especially in a cross-border context. "A framework for digitally signed qualifications will enable greater coherence and provide support for quality assurance, enhance transferability and comparability and support mobility, cooperation and exchange," say the Brussels authorities.

3. The third initiative concerns an EU Council Recommendation on promoting shared values, inclusive education and the European dimension of teaching. This initiative proposes ways in which education can help young people understand the importance of and respect for the common values set out in the Treaty on European Union. The European Commission has adopted measures to increase virtual exchanges between schools, notably through the successful e-Twinning network, to increase school mobility through the Erasmus+ programs.

Studies show that before the pandemic, teenagers spent an average of 9 hours a day in front of screens, and children aged 8-12 spent 6 hours a day. One study shows that during the pandemic, the average time spent online per day increased by one hour from 6 hours, 49 minutes to 7 hours, 50 minutes compared to the previous year. One thing is certain: Young people are familiar with the online environment, but that doesn't mean they automatically have digital skills.

Are digital skills really necessary? Digital skills are not only necessary, they are vital in today's society. They need to be learnt especially from adolescence, and then continuously developed. They help young people to succeed in both academic and professional environments, giving them a big advantage when looking for a job - whatever their chosen field. They can be taught on their own, they can be included in school subjects, they can be supervised by parents. But the easiest way to develop digital skills quickly is with a mentor, someone who knows exactly what information is needed and how to present it in an engaging way. It is recommended that the development of digital skills should start at an early age, be carried out under the guidance of a mentor or school, and develop throughout life, bearing in mind that digitization is and will be present in every field of activity.

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## 4.3D printing technology

Carlos Mendes, teacher

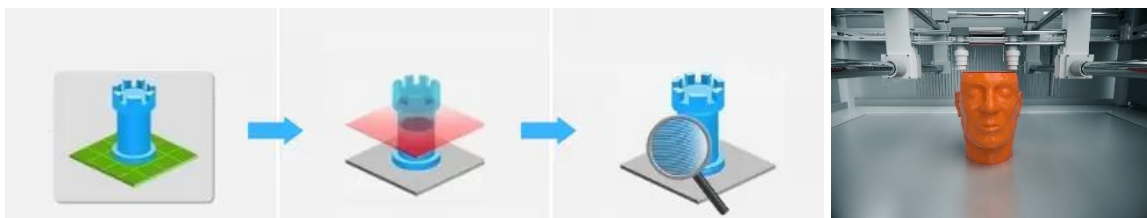
3D printing is the name given to a series of techniques that reproduce objects in three dimensions. Also called rapid prototyping, the process allows for the printing of models through additive manufacturing. ... Machine parts, decorative objects, jewelry, organs and even food can be printed using this process.

Best known 3D printing processes:

- *Fused Deposition Modeling (FDM)*;
- *Stereolithography (SLA)*;
- *Selective Laser sintering (SLS)*;
- *Digital Light Processing (DLP)*;
- *Multi Jet Fusion (MJF)*;
- *PolyJet*;
- *Direct Metal Laser Sintering (DMLS)*.

Just like a common printer, which releases ink jets in specific quantities and formats to form images and letters, the 3D printer injects different materials into a tray, in which these modern machines form three-dimensional models using a technique that superimposes thin layers, until the object is ready.

But it all starts with the design of the part in 3D modeling software, and for that, there are different types of software, generally aimed at the sector of the product that will be printed – civil construction, stationery, medicine and so on.



This process shortened the path to a test version of any product, called a prototype.

Previously, it was necessary to idealize, design the object and develop a project for the prototype to be built. With a 3D printer, you simply design the item in specific software and convert the file to a format compatible with the machine to obtain a prototype, in 3 steps.

1. **3D Model:** The first step is the development of the three-dimensional design in computer software (CAD software), defining the design and measurements.

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Some software examples are:

- ✓ *SolidWorks*;
- ✓ *SketchUp*;
- ✓ *Autodesk Fusion 360*.

**2. Cutting in layers:** In this step, the 3D model will be divided into layers/slices. For this, the project must be exported from the CAD software, to be processed in the software called a slicer. After defining the parameters in the slicer, a file in G-code format will be generated.

Best known slicers are:

- ✓ *Cure*;
- ✓ *Slic3r*;
- ✓ *OctoPrint*;
- ✓ *MakerBot Print*;
- ✓ *Repeat*.

**3. Additive manufacturing process:** The g-code file is sent to the 3D printer, which will respond to the pre-configured coordinates and deposition the material in layers, until the complete production of the object. This process can take anywhere from a few minutes to a few days, depending on project variables.



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## 5.Digital painting

**Carlos Mendes, teacher**

Art has always been present in Humanity as a means of communication. One of the oldest expressions in this sense is painting.

As it is quite traditional in the history of art, painting has gone through practically all historical periods and, in each one, portrayed behavior, beliefs, social and political life, among other aspects of societies.

As a means of expression in itself, it has adapted over time, in content and technique. Thus, understanding the customs and ideas of different times and places in the world.

With technical and technological evolution, digital painting is itself an emerging art form, in which traditional painting techniques such as watercolors, oils, impastos, etc. they are applied through digital tools through a computer, a digitizing tablet and software. ... The artist uses painting techniques to create digital painting directly on the computer.

Currently, this variant of painting, assumes great notoriety in several areas of the job market, namely in Illustration, in "Concept Art", in 2D image creation services for the Gaming industry, advertisements, series, animations etc.



The fundamentals of Digital Painting are not far from the principles of traditional painting. Its exercise is based on the practice of observation; design and structure; materials and creativity.

Observation appears as the first foundation, as it is essential for anyone who wants to work in this area. If I want to paint a landscape, I need to know how to observe it, how to interpret what I'm seeing and then put it on paper, canvas or tablet.

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In the case of a painting with invented characters and scenarios, we can say that an observation works more or less in the same way. It's important for us to have a foundation for how things would work if they existed in the real world. Therefore, exercising and practicing observation is extremely important.

About drawing and painting, when we talk about digital painting, it is not easy to separate the two concepts.

What separates drawing from painting is the technique of each one. Generally speaking (and completely traditional), drawing is the technique of marking a surface by representing something through lines, dots and shading. Painting, as we've already seen, is the technique of coloring a surface with liquid pigments. In digital painting, we can call drawing the process of starting to create or reproduce something that is being observed, sketching the first lines or masses of paintings and then starting the painting itself.



Regarding the representation of materials, what will differentiate wood from stone? And the water glass? How can we differentiate a person's skin and tissue? The answer is actually quite simple: during painting (traditional or digital), in order to know how to work with materials, we can represent them as textures, arranged in layers, and in this process it is essential to know a little about their properties.

Finally, the last of the fundamentals of digital painting, and not the least, is creativity.

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Creativity is one of the most important bases for any artistic creation, and digital painting is no different, because when the subject is related to the entertainment industry, this is a foundation that assumes great relevance.

It works as a way of expression through a creation, but also as an innovation tool, for solving problems. Unlike the other fundamentals that were mentioned, it is not something that can be taught. What you can do is exercise it!



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## II. Other Erasmus+ project



### II.1. Project 2021-1-RO01-KA220-VET-000032924

**DIGIT+ Digitalization for in groups integrative training - international network for support, connection, innovation and know-how share in digital vocational education**



**Kompozer**

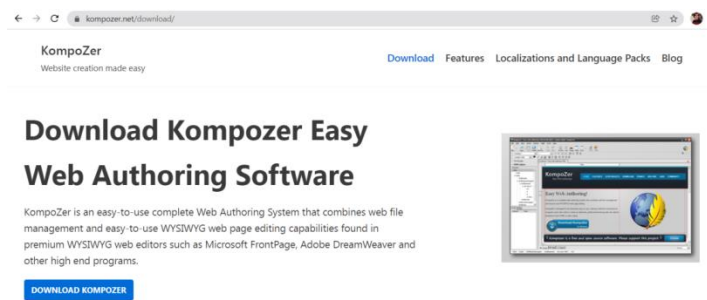
*Gabriela-Brândușa Horlescu, teacher*

Digital education has become a growing need for both teachers and students. For this reason, the paper presents the stages of conducting an online lesson using the Kompozer program.

### 1. Kompozer

#### Step 1: Download Composer

KompoZer is a complete, easy-to-use web design system that can be downloaded from: <https://kompozer.net/>.



#### Step 2: Go to folder and run install

Create a new folder on your desktop or elsewhere. Double-click the zip file you downloaded, extract the archive, and click the kompozer.exe file.

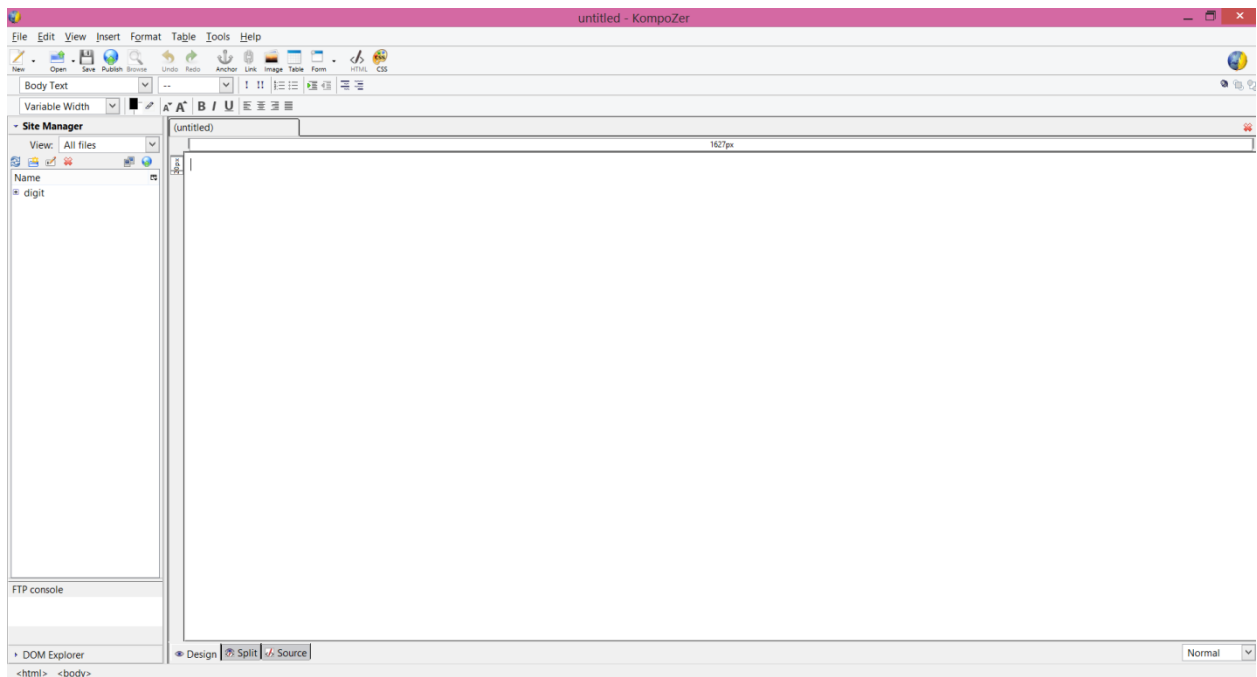


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### Step 3: Open application



**Step 4. You can read a complete tutorial for learn Kompozer.**

<https://www.thesitewizard.com/kompozer/index.shtml>

You can also follow the “Peripherals Devices” lesson creation and learn Kompozer.

### 2.”Peripherals Devices” lesson

This paper presents a structured lesson created in Kompozer with the theme "Peripherals Devices".

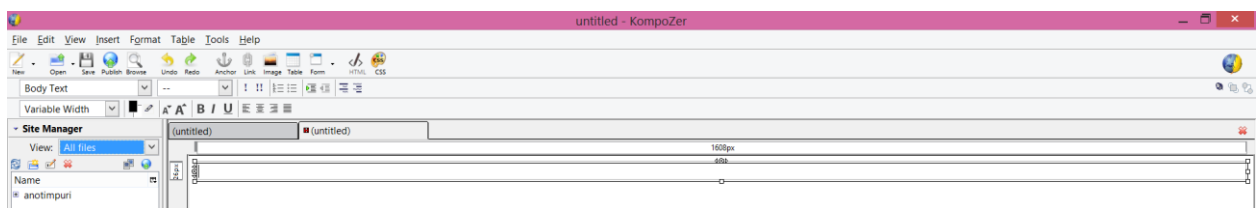
#### 2.1.Creating web pages

File→New→A Blank document→Create.

#### 2.2.Determining the layout of the page

We can structure the page in tabular form.

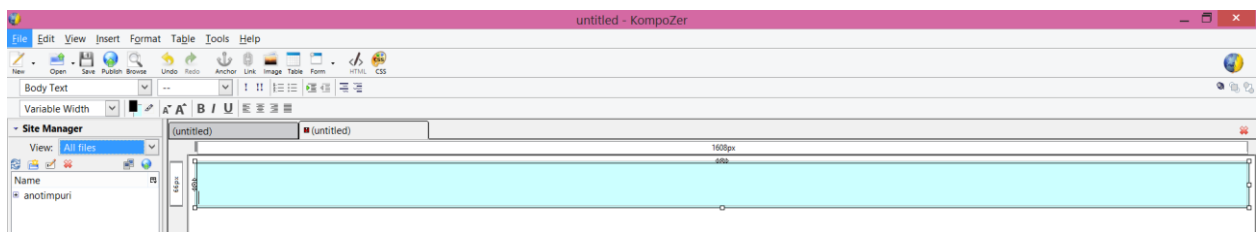
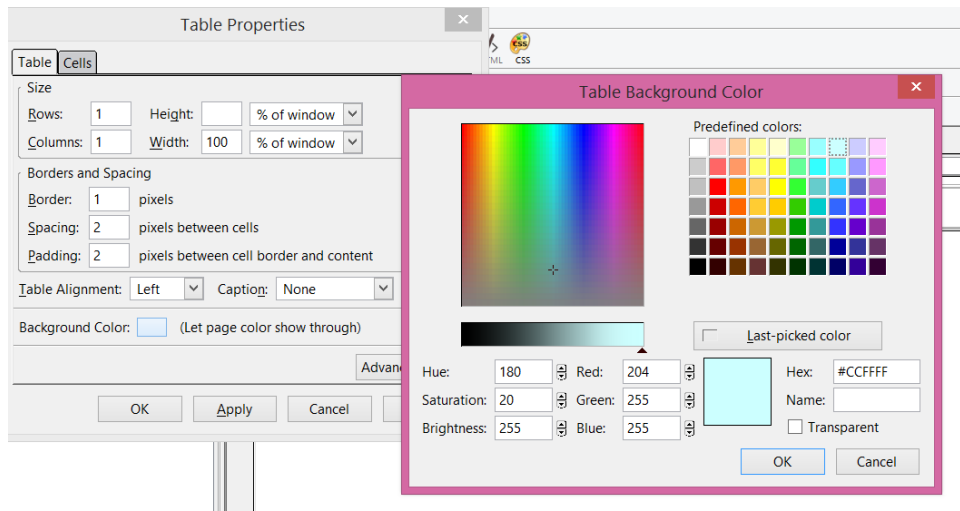
Insert → Table → 1x1→OK



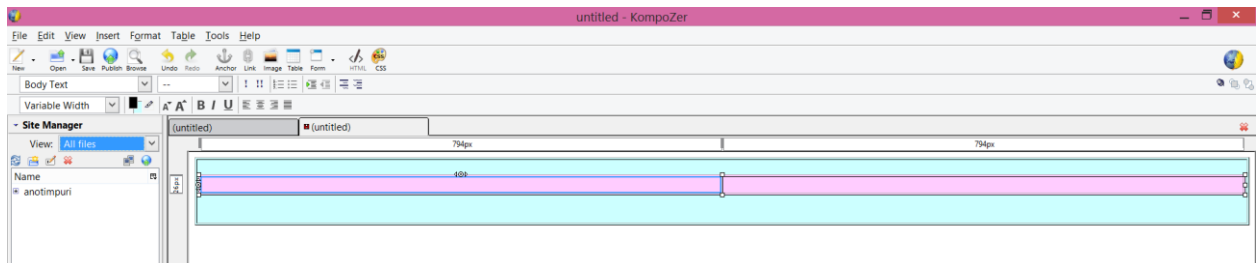
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A table background is set.

Table→Table Properties→Background Color →choose a color from the color palette  
→Ok.



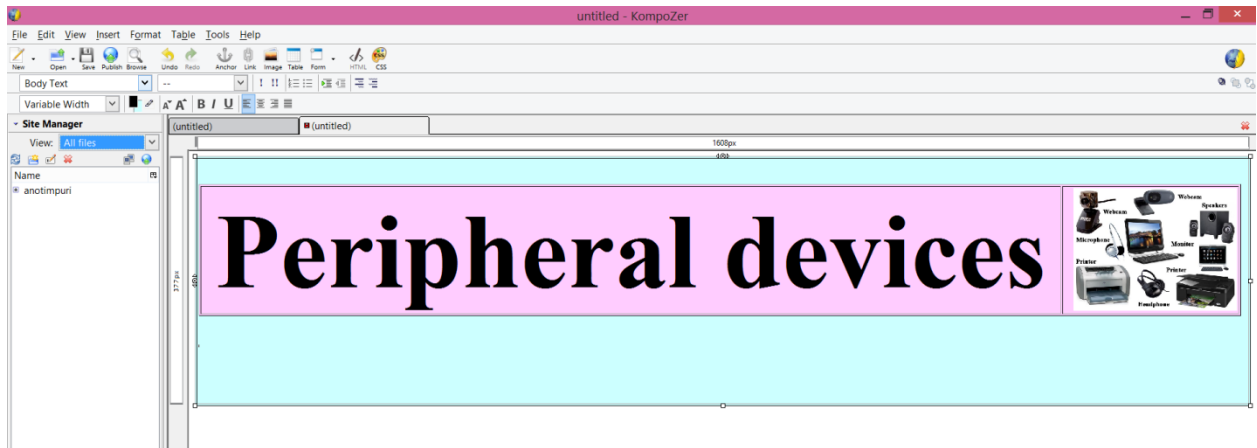
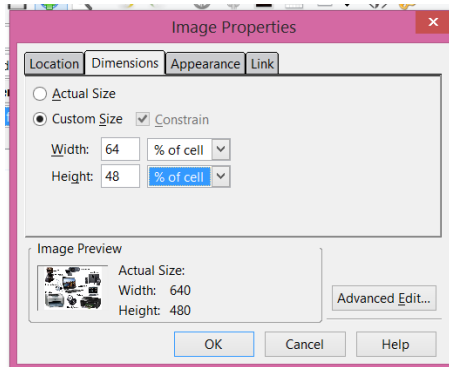
We also insert a table with 2 columns for which we also choose a background.



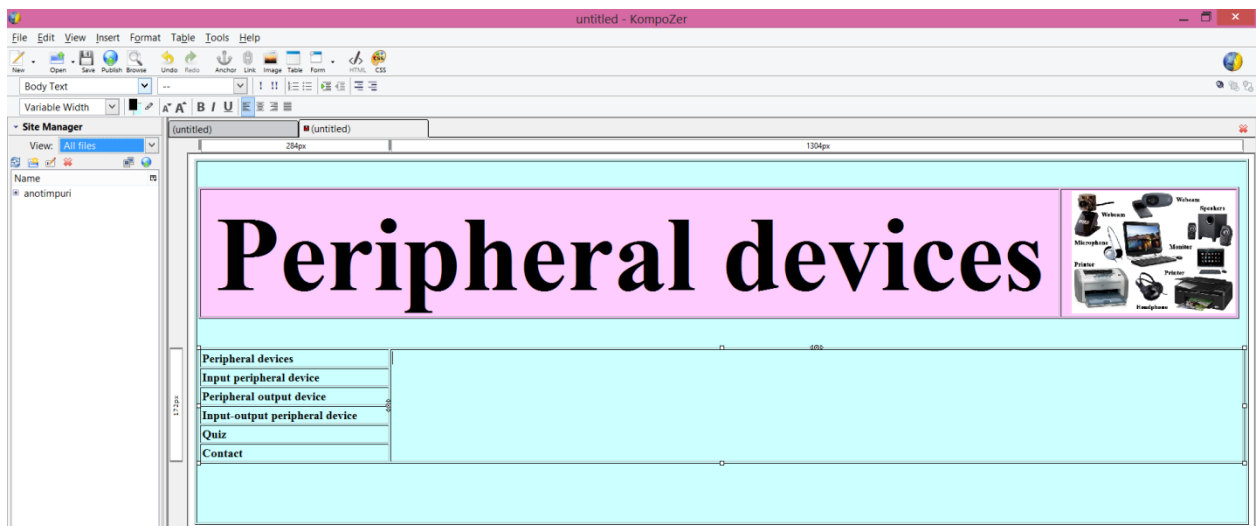
We are adding a representative image for the: Insert→Image→the image is searched→its dimensions are established →OK. We insert the image in column 2 of the table and in the first column we enter the title of the lesson.

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The lesson is structured in tabular form as in the figure:




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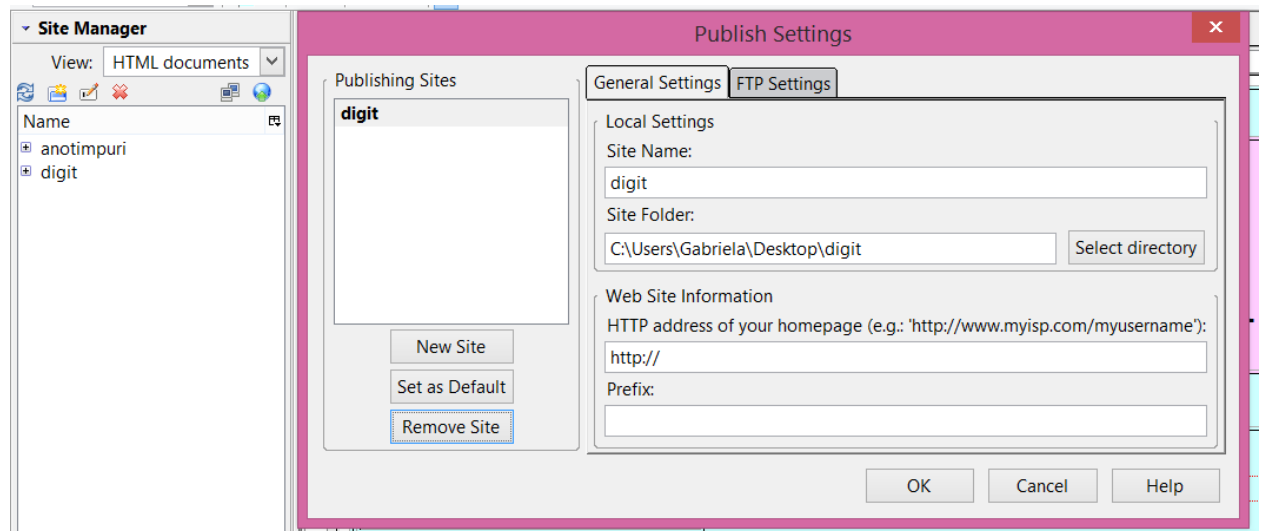
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The file named **index.html** is saved in a folder.

### 2.3.Website creation

Click the **Publish**  button in the **Site Manager**, specify the site name and location.

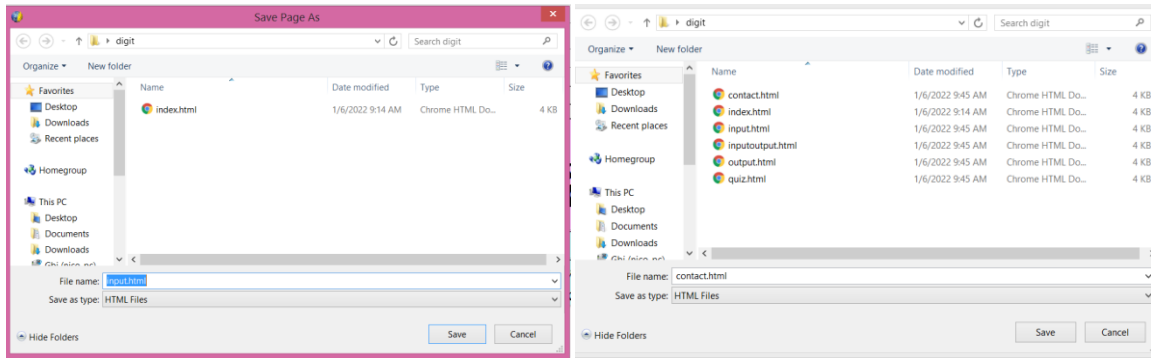


#### 2.3.1.Creating site page content

The **index.html** file is saved as **input.html**, **output.html**, **inputoutput.html**, **quiz.html**, and **contact.html** in the same folder. (File→Save As→input.html).

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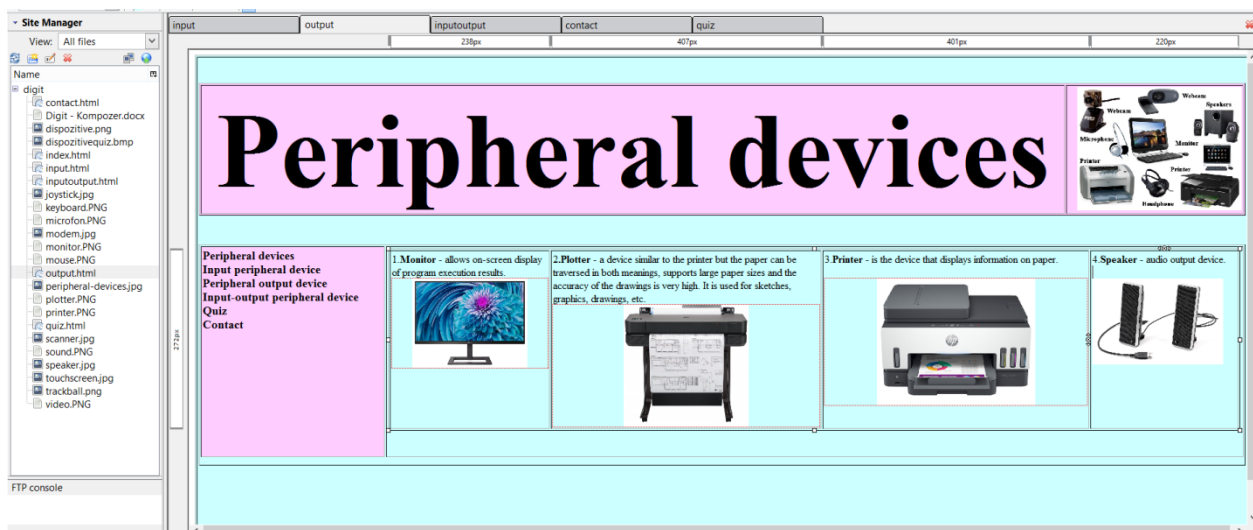


The content of each web page is created.

### input.html



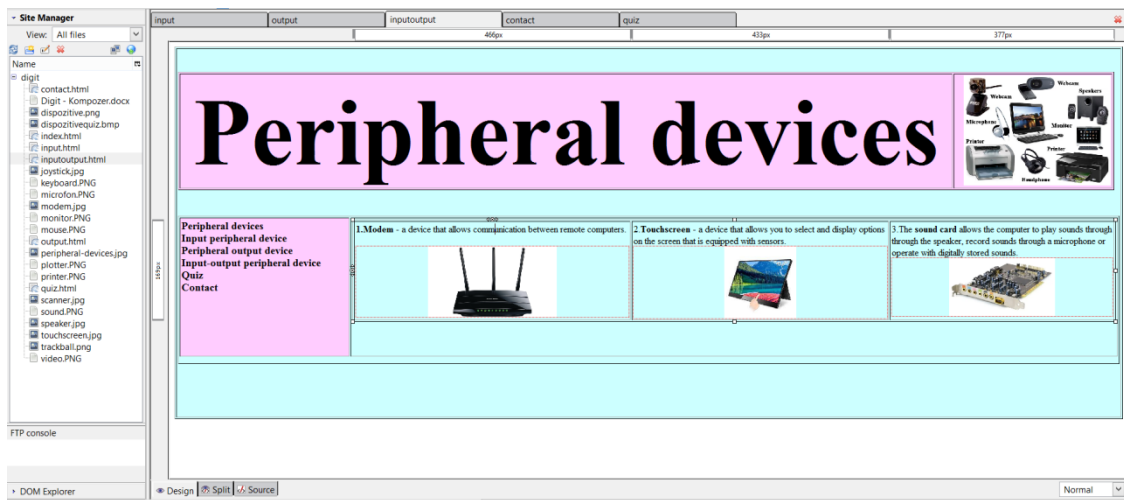
### output.html



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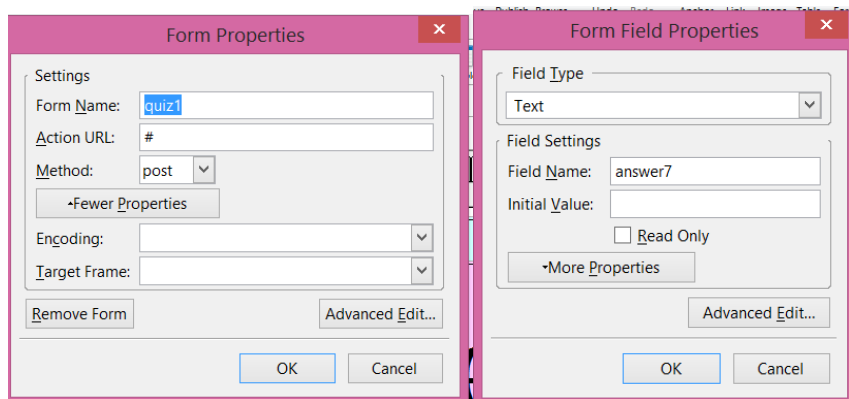


## inputoutput.html



## quiz.html

First, an **Insert→Form→Define Forms** form is created, then a table is inserted in which text fields (**Insert→Form→Form Field**) are entered for students to complete peripheral devices.

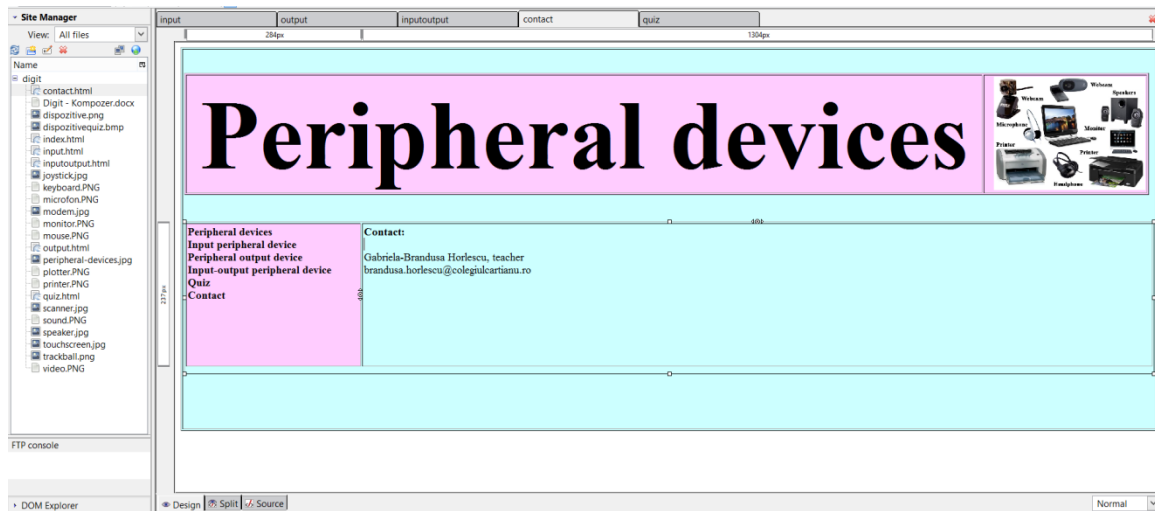


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contact.html



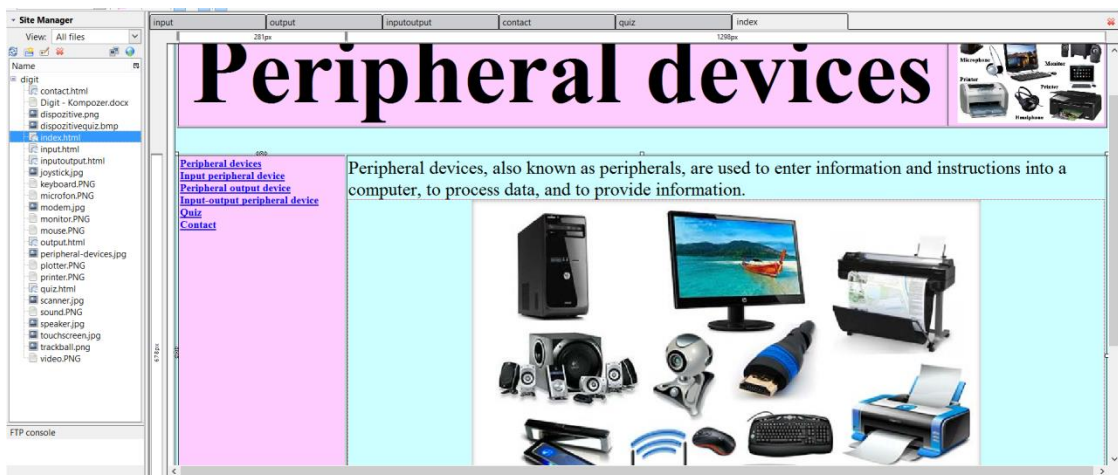
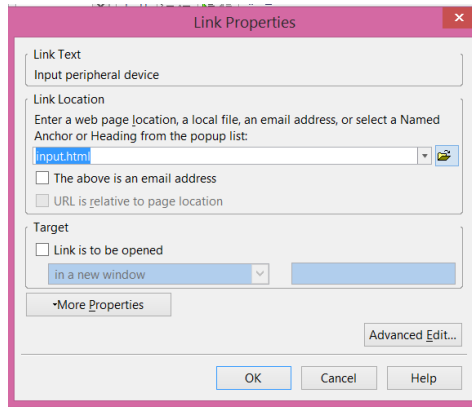
### 2.3.2. Linking web pages

The index.html page opens and links to each page created as follows: Insert → Link → index.html, Insert → Link → input.html, Insert → Link → output.html, Insert → Link → inputoutput.html, Insert → Link → quiz.html, Insert → Link → contact.html.

Do the same with the other pages created.

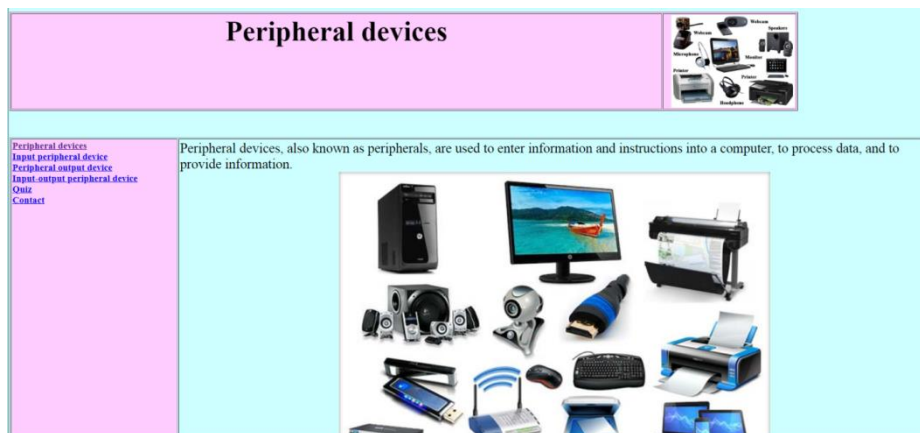
---

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### 2.3.3. Site testing

Open the **index.html** file in a browser and navigate to the left-hand environment on each webpage.

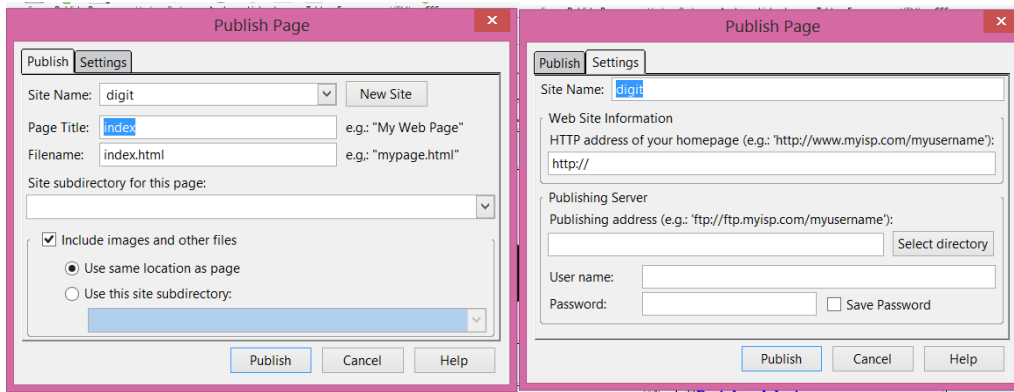


### 2.3.4. Publish web pages

To publish the page, go to File → Publish and a dialog box will appear.

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- **Site Name** is the name that you want to give your website.
- **HTTP address of your homepage** field specifies the actual web address of your website.

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## II.2. Erasmus+ project - Future Language is Robotic Coding

**Reference number: 2019-1-TR01-KA201-077586**

**Learning/Teaching/Training Activities (Ltt)**

**mBot Robot Coding with Mblock**

**13-15 December, 2021**

Partners:

- Denizli Directorate of National Education (Denizli İl Milli Eğitim Müdürlüğü), Turcia, coordinator
- Ataturk Mesleki ve Teknik Anadolu Lisesi, Turcia, partner
- Nezihe Derya Baltali Bilim ve Sanat Merkezi, Turcia, partner
- Istituto Tecnico Settore Tecnologico, Italia, prtener
- Escola Secundária com 3.º Ciclo D. Dinis – Coimbra, Portugalia, partner
- Srednja škola Valpovo, Croatia, partner
- The Federation of Swedish Ostrobothnia for Education and Culture/YA-Vocational College of Ostrobothnia, Finlna, partner
- Colegiul Tehnic „Gheorghe Cartianu” Piatra-Neamț Romania, partner

### **December 13, 2021 - Robotics Day**

The agenda of the day included the activities:

- 1.presentation of schools and partner countries
- 2.mBot robot code use MakeBlock program

mBot is a STEM coding robot that makes teaching and learning robot programming simple and fun.

<https://www.makeblock.com/>

3. Cultural excursion in Piatra Neamt and around the city

- Gondola - in the 22 gondolas tourists can see a beautiful panorama of Piatra Neamț, with its surroundings: Bâta Doamnei accumulation lake, Pietricia Mountain but also Ceahlăul which can be seen in all its splendor on clear days.

<https://www.telegondolapiatrameamt.ro/>

-Almaș Monastery - The construction of the church began on an unknown date, by Constantin Mavrocordat, the voivode of Moldavia, being completed in 1715 by Vasile Almaș. Fate causes him to lose his wife and two children. He will find peace in the service of God as a monk of this monastery.

"I recommend a state of inner joy, from the heart, a state that means unceasing prayer."  
(Archimandrite Arsenie Papacioc)

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<https://almas.mmb.ro/>

-Valley of the Twelve - "I created a village that does not remember that happiness comes from small things, a place of inspiration for body and soul, built for rest and relaxation. We make friends with nature in houses built of earth and wood lit by a lamp and heated by the wood in the stoves. "

<http://www.valeacelordoisprezece.ro/>



### December 14, 2021 - Diversity Day

A day ended successfully, a day full of instructive-educational and cultural activities.

#### 1. Robotics workshop

Students from the Neamț County Center of Excellence, the Electronics and Robotics group presented applications made in robotics using Arduino, Lego Mindstorm EV3 and Micro:bit. We continued with applications made with the MBlock program for coding mBot robots. The activity of the students was moderated with the support of our former student, Bădingă Alexandru, currently a student at the Faculty of Engineering in Bacau, Department of Computers and Information Technology.

**2. Cultural excursion** - visit to the Neamț Fortress, where we rediscovered the legends, mysteries and secrets that surround this beautiful medieval fortress.

<http://monumenteneamt.ro/cetatea-neamtului>

**3. Transnational festive dinner organized at Casa Moldoveana**, an evening with music and folk dances, an evening full of joy and good cheer! The Toporașul ensemble, under the choreography of Mr. Adrian Gheorghiu, performed an exceptional show!

"Life can only be understood by looking back, but it must be lived by looking forward."

Soren Aabye Kierkegaard

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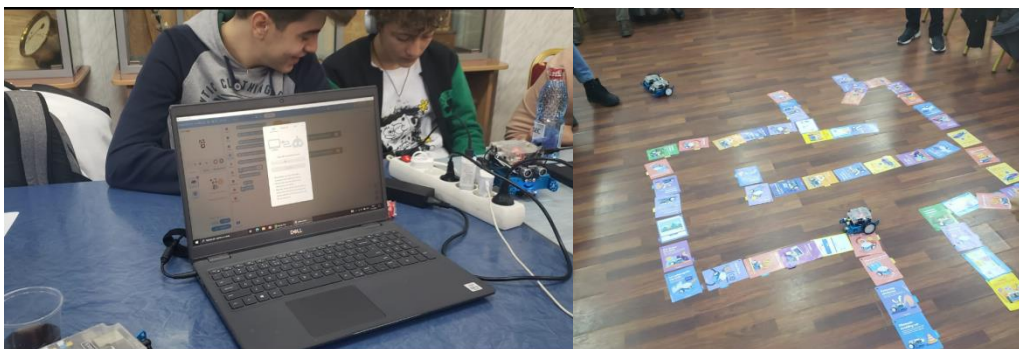


### **December 15, 2021 - Football and Friendship Day**

On the last day of the transnational meeting, our students prepared for the football game with the help of mBot robots. They all played "different" football, a sport that had the role not only of developing professional skills but also of making lasting friendships.

The mobility ended with the handing over of the participants' certificates.

Thank you to all the students, teachers and school staff who supported us and got involved in the activities!



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### **II.3.Erasmus+ project**

#### **Technology Addiction and Internet Dependency Syndrome (T-AIDS)**

**Reference number: 2019-1-TR01-KA229-076936**

**Short-Term Joint Staff Training Events**

**C4.Modern Loneliness, 15-19 November, 2021**

**November 15, 2021**

Presentation of the partner schools in Romania, Turkey, Lithuania, Spain and Portugal, of the educational system, of the way in which the formal, informal and non-formal education targeting high school students is carried out in their countries, according to the legislative rules and administration.

Cultural excursion - Neamt region, Bicaz Dam, Bicaz Gorges, Red Lake, spectacular places full of legends, realms where the greatness of nature knows no bounds!

<https://www.youtube.com/watch?v=xNKi-4k8bTY>

<https://www.youtube.com/watch?v=9aWNAN6ffYQ>

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**November 16, 2021**

Activities:

1. Presentation of the practical applications made by the students of the school within the event Night of European Researchers 2021.

2. Workshop - Friendship bracelet.

Objective: to emphasize the value of friendship, to create a beneficial chemistry between people who work together and share the pleasure of producing something beautiful and personal with the meaning of friendship and support against loneliness even if communication is remote or participants come from long distances to work together .

3. Presentation of modern loneliness

4. Sample of studies to prevent modern loneliness (in class and at school)

5. Examples of effective methods to prevent modern loneliness

6. School and family cooperation to prevent modern loneliness

7. Transforming modern loneliness into CyberBullying

8. Participants' thinking about cyberbullying

9. Studies to be done by the participants about Modern Loneliness.

10. Cultural visit:

-Neamt Fortress - a sheet of living history full of legends

-Agapia Monastery - the largest nunnery in Romania, ancient hearth of faith, culture and art

<https://www.tinutulzimbrului.ro/product/cetatea-neamt/>

<https://agapia.mmb.ro/>

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**November 17, 2021**

Activities:

1. Study visit to the “Ștefan cel Mare” University of Suceava, one of the most dynamic universities in Eastern Europe, which offered a university and post-university education at high quality standards. Over time, our high school has collaborated in numerous partnerships with the university, training a large number of students in the "Student for 1 day" contest, thus contributing to the career guidance of students.

<https://usv.ro/1zi/>

2. Cultural visit to Bucovina, magical land, a place of story where time does not rush to pass! Cities, museums, places of worship, legends, folk costumes, all preserve the picturesque landscape of yesteryear.

-Voronet Monastery - the church of Voroneț Monastery is nicknamed "Eastern Sistine Chapel" due to the fresco on the west facade that illustrates the "Last Judgment".

-Bukovina Village Museum

-The equestrian statue of Stephen the Great

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**November 18, 2021**

Activities:

1. Study visit to the Faculty of Engineering within the "Vasile Alecsandri" University of Bacau

Since 1990, the Faculty of Engineering has developed its area of fields and programs for undergraduate and master's studies, currently reaching 12 undergraduate programs in 9 fields of engineering sciences and 12 master's degree programs;

The Faculty of Engineering also develops other forms of education, such as:

- postgraduate training and professional development courses;
- adults training courses for adults;
- ECDL and CISCO certifications;
- training courses at the request of various employers.

<https://www.ub.ro/inginerie/en/>

A special moment, a pleasant surprise was the reunion with former students of our school, today students in the faculty!

Faculty of Engineering - The first step towards a successful career!

2. Visit to Targu Ocna Salt Mine - Sprinkled through the mist of time sifts the history of salt - "white gold"...

<https://salina.ro/>

3. Cultural evening, an evening with folk music and dances, an evening full of joy and good cheer!

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**November 19, 2021**

Activities:

1. Gastronomic festival - culinary dishes prepared by students and teachers of the school.

Purpose of the activity:

- training students in culinary arts activities;
- training students to use tools specific to the art of gastronomy.

2. Discussions about mobility and future project activities.

The project management team thanks all the students, teachers, auxiliary teachers and non-teaching staff in our school who supported us in carrying out the mobility activities!




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## II.4. Erasmus Project - VOCATIONAL WEB LEAP

### An Open Source e-Learning Platform for Training Vocational Students, Apprentices and Graduates on Web Design and Development 2019-1-TR01-KA202-076828

#### Web Design and Development for Beginners – course

*Gabriela-Brandusa Horlescu, teacher*

Website: <http://vocwebleap.org/>

Platform: <https://webleap.eu/moodle/>

#### Partners:

- Düzce University
- PanepistimioIoanninon
- Universitatea de Medicina, Farmacie, Stiintesi Tehnologie, Targu Mures
- Colegiul Tehnic Gheorghe Cartianu
- 2o (Esperino) EpalIoanninon
- Sou Jane Sandanski Strumica
- Duzce Ticaret Ve Sanayi Odasi
- Instalofi Levante SI
- Kentro Epagelmatikis Katartisis Dias Epe

The Project objective is the design and development of 3 eCourses on a Moodle platform for the subject of “Web Design & Development”, targeted to IT students of the Vocational Secondary School, as follows:

• “Web Design and Development for beginners”, for the 2nd year IT students of Vocational Secondary School (10th grade).

• “Advanced topics for Web Design & Development”, for the 3rd year IT students of Vocational Secondary School (11th grade)

• “More advanced topics in Web Design and Development”, for the 4th year IT students of Vocational Secondary Upper School. This eCourse can also be used by IT VET graduates, IT employees and IT internships of Vocational Secondary School.

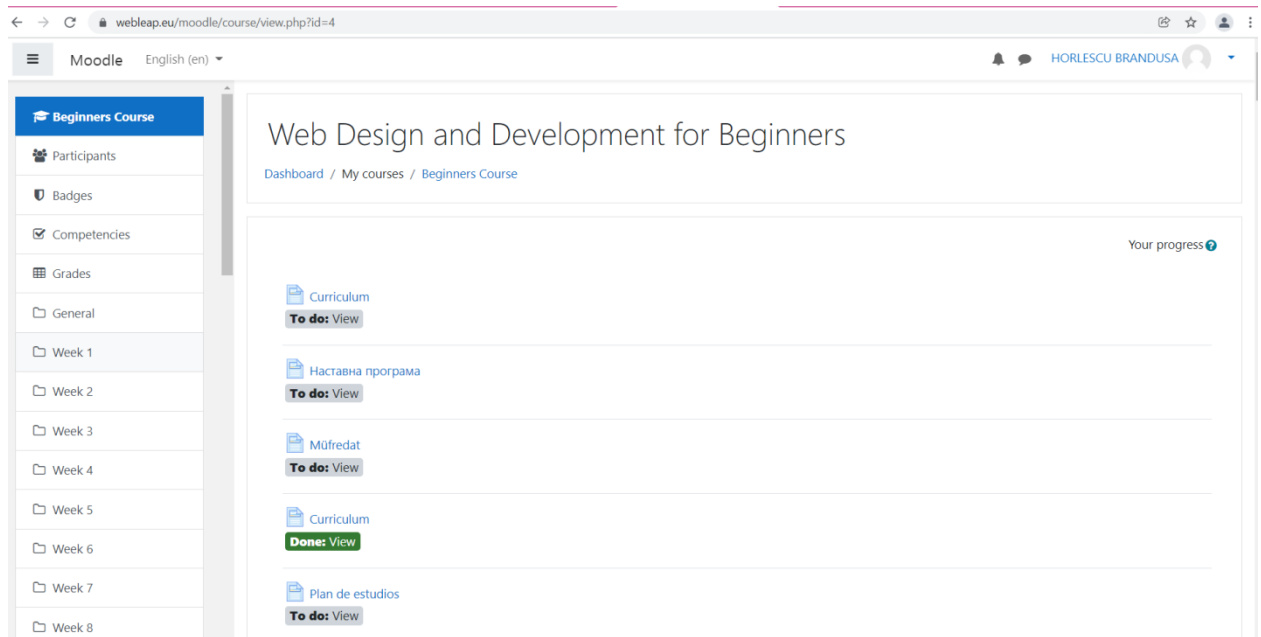
Between October and December 2021, students from the Gheorghe Cartianu Technical College attended the course "Web design and development for beginners".

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With an innovative IT VET curriculum for the "Web Design and Development" subject, suitable for IT VET beginners, the course covered the following concepts:

- Internet and web pages
- World Wide Web & Browsers
- Creating web pages using HTML
- HTML Editors - Notepad - KompoZer
- The KompoZer Web Editor
- The HTML language - attributes, colors, formatting text, inserting images, creating links, creating lists, tables, frames, creating forms, creating a website in HTML.



For a good in-depth knowledge, each content was followed by online evaluations along the way. At the end of the course each student took a final online assessment after which the graduation certificate was issued.



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1. <http://www.certipro.ro/certification-ic3-gs4/>

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