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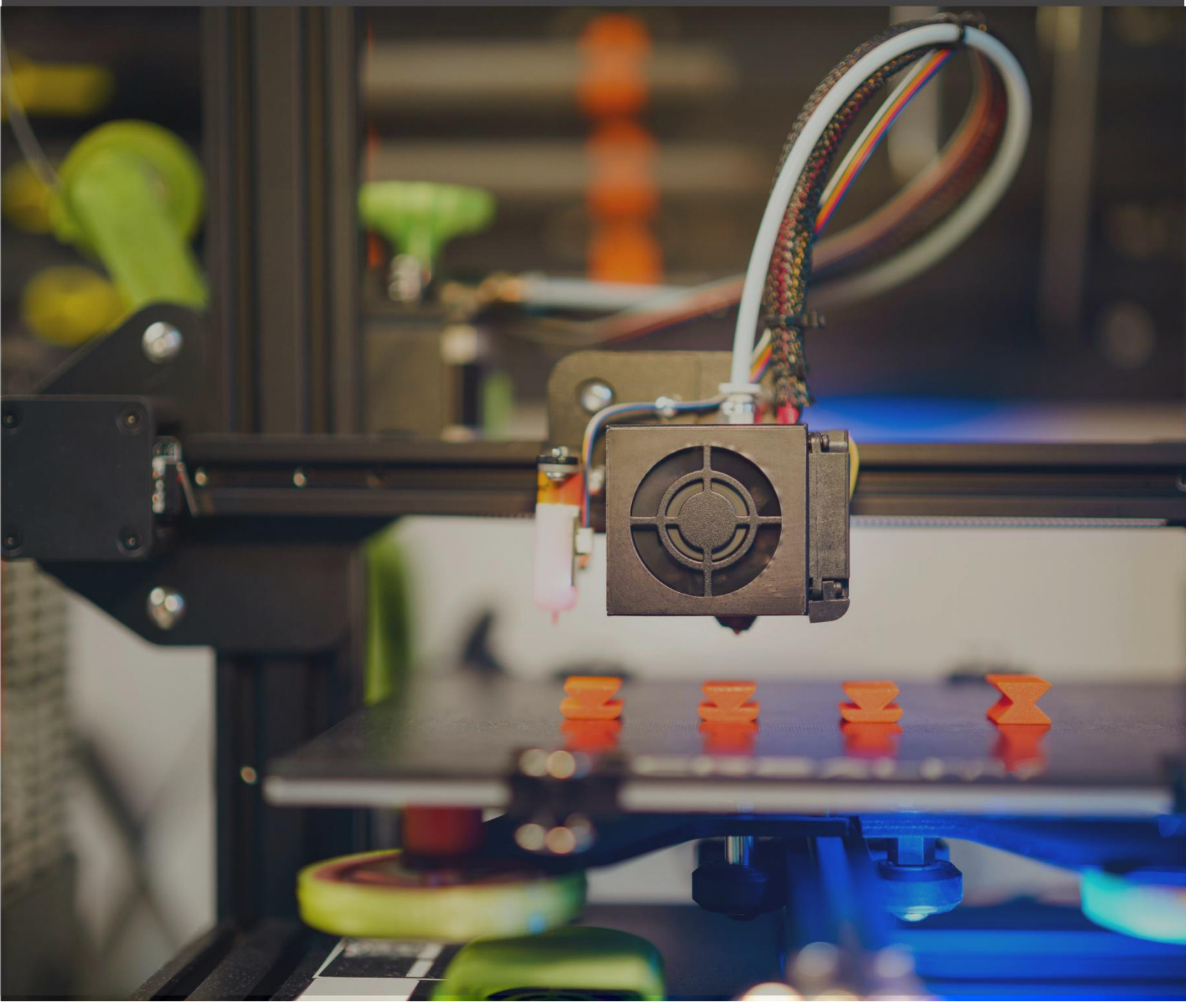
# TRAINING PLAN
## IKASIA TECHNOLOGIES SL



This document is a result of the project:

# BUILDING THE VOCATIONAL TRAINING OF THE FUTURE: COMPANIES AND EDUCATIONAL CENTERS FACING THE CHALLENGE OF THE ORGANIZATION AND INTEGRATION OF A MORE INCLUSIVE AND DIGITAL VET

This project has been funded with support from the European Commission.



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**Programming and monitoring notebook of the training plan**

**Student:**

**Educational Center:**

**Company:** IKASIA TECHNOLOGIES SL

**Training start date:**

Co-funded by the European Union

| **PART 1** | | **TRAINING PLAN** | | |
|---|---|---|---|---|
| 2nd year | | Company: IKASIA TECHNOLOGIES SL | | |
| Training degree/specialization course/professional certificate | | Microcomputer Systems and Networks Technician | | |
| Student | | | Email: | Telephone |
| Training Center | | | Email: | |
| Tutor at the training centre | | | Email: | Telephone |
| Tutor in the company | | | Email: | Telephone |
| Particular features | | | | |
| In-house training period | | Calendar/Schedule/Period | | |
| Total hours | **260h** | | | |

| Learning outcomes in in-house training periods | | | |
|---|---|---|---|
| Módulo professional | Code | Learning Outcomes | Evaluation criteria |
| Network Services | 0227 | Ra1 Installs dynamically configured services, describing their features and applications. | a) The operation of the automated mechanisms for configuring the |

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| | | | network parameters has been recognized.<br>b) The advantages they provide have been identified. c) The procedures and guidelines involved in a request for configuration of network parameters have been illustrated. d) A dynamic configuration service for network parameters has been installed. (e) The service has been prepared to map the basic configuration to systems on a local network. f) Dynamic and static assignments have been made. (g) Additional configuration options have been integrated into the service. h) The correct assignment of the parameters has been verified. |
| | | Ra3 Installs file transfer services, describing their features and applications. | a) The usefulness and mode of operation of the file transfer service has been established. |

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| | | | b) A file transfer service has been installed. c) Users and groups have been created for remote access to the server. d) Anonymous access has been configured. e) Limits have been established in the different modes of access. f) Access to the server has been checked, both in active and passive mode. g) Tests have been carried out with clients on the command line and in graphic mode. |
| | | A5. Manage web servers by identifying usage requirements and applying configuration criteria. | a) The fundamentals and protocols on which the operation of a web server is based have been described.<br>b) A web server has been installed. c) Virtual sites have been created. d) The existing possibilities to discriminate the destination site from incoming traffic to the server have been |

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| | | | verified. e) Server security has been configured. f) The access of users to the server has been checked. g) Code execution on the server and on the client has been differentiated and tested. h) Modules have been installed on the server. (i) Mechanisms have been established to secure communications between the client and the server. |
| | | A7. Deploy secure wireless networks justifying the chosen configuration and describing the deployment procedures. | (a) A wireless access point has been installed within a local area network.<br>b) The protocols, operating modes and main configuration parameters of the access point have been recognized. c) The most suitable configuration has been selected for different test scenarios. (d) An adequate security mechanism for wireless communications has |

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| | | | been established. e) Various types of wireless devices and adapters have been used to check coverage. f) A wireless router with connection to the public network and local network wireless services has been installed. g) The router has been configured and tested from the computers on the local network. |
| Web Applications | 0228 | Ra1 Installs content management systems, identifying their applications and configuring them according to requirements. | a) The necessary requirements to install content management systems have been identified.<br>b) Users with different roles have been managed. c) The content manager interface has been customised. d) Functional tests have been carried out. e) Tasks have been carried out to update the content manager, especially those of security. f) The |

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| | | | necessary modules and menus have been installed and configured. g) The security mechanisms provided by the content manager itself have been activated and configured. h) Forums have been set up and access rules have been established. i) Functional tests have been carried out. j) Backup copies of the manager's contents have been made. |
| | | Ra3 installs web file management services, identifying your applications and verifying their integrity. | a) The usefulness of a web file management service has been established.<br>b) Different web file management applications have been described. c) A web file management tool has been installed and adapted. d) User accounts have been created and classified according to their permissions. e) Files and |

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| | | | directories have been managed. (f) Additional information files have been used. g) Indexing criteria have been applied to files and directories. h) The security of the file manager has been checked. |
| | | Ra5 Installs desktop web applications, describing their features and usage environments. Evaluation criteria | a) Different desktop web applications have been described.<br>b) Applications have been installed to provide web access to the e-mail service. c) Applications have been configured to integrate with a mail server. d) User accounts have been managed. e) Access to the email has been verified. f) Web calendar applications have been installed. g) The specific features of the installed applications (appointments, tasks, among others) have been recognized. |

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| Signed: Tutor in the company | Signed: Student | Signed: Tutor at the training centre |

| **PART 2.- Workplace. Overview** | | |
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| **Task Title:** design and production of a simple website | **Folder / Server**: | **Date**: |
| **Brief Description**<br>Design and development of a website able to stablish Wi-Fi communication with a 3D printer and send text files upon user's request. | | |
| **Area of the company or project in which it is framed**: | | |
| **Objectives** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Equipment / Machinery** | | |
| **Elements of occupational risk prevention:** | | |
| **Waste management.** | | |
| **Available Procedures** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br>*Include as many pages as needed* | | |

| **PART 2.- Workplace. Conceptual issues.** |
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| Explain the concepts in a clear and concise way and solve the exercises in the following cells. |
| **Question 1.** Explain briefly the concepts and differences between additive and subtractive manufacturing |

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| **Question 2.** In which of the before mentioned categories does 3D printing fall? Justify your answer. |
| **Question 3.** Enumerate the most common 3D printing techniques and their basic working principles. |
| **Question 4.** Describe the working mechanism of extrusion based 3D printing. |
| **Question 5.** What are the main steps in the 3D printing process, from the parts CAD model to the final object? |
| **Question 6.** It is commonly said that 3D printing is in facts “2.5 D printing”, what is meant by this affirmation? |
| **Question 7.** In what consists the slicing process? |
| **Question 8.** What is GCODE? |
| **Question 9.** What function is performed by the printer firmware? |
| **Question 10.** A GCODE file is not universal, explain its tailoring from both the hardware and the software perspective. |
| **Question 11.** How 3D printers are usually operated and controlled? |
| **Question 12.** What options are available for the remote operation of 3D printers? |
| **Question 13.** 3D printers are seldom prepared for their connection to remote networks. What hardware changes are commonly needed? |
| **Question 14.** Name the ready available mechanisms allowing the operation of a 3D printer from a mobile device. |

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| **Question 15.** Explain how said mechanisms work to stablish a wireless connection to a 3D printer. |
| **Question 16.** What are their main advantages, drawbacks and limitations? |
| **Bibliography search:** *Include here the reference where you have studied these concepts, it can be a web page or a chapter of a textbook or some notes of a subject from your training center.* |

| **PART 2.- Workplace. Technical Information.** |
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| Look for the following data or technical characteristics. |
| **Question 1.** Look for the rep rap wireless communication protocols. |
| **Question 2.** Find which web programming languages are able to operate/implement said protocol. |
| **Question 3.** Find which of the languages can be universally run and optimized for mobile devices. |
| **Question 4.** Design and define the webpage menu and button layout. |
| **Question 5.** Define which compiler should be used to program the language in Question 2. |
| **Question 6.** Verify the software used is free of charge and/or open source. |
| **Question 7.** Look for online communities able to back you up and aid you if needed. |
| **Question 8.** Find programming libraries for your language. |
| **Question 9.** Look for means of protecting and encrypting files saved in an online database. |

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| **Question 10.** Search the libraries for precompiled functions on how to stablish a wireless connection with rep rap printers. | |
| **Question 11.** Search the libraries for precompiled functions on how to connect a database to the webpage. | |
| **Question 12.** Search the libraries for precompiled functions on how to encrypt of ensure the anonymity of the stored files. | |
| **Question 13.** Search the libraries for precompiled functions on how to implement a password enabling the wireless connection. | |
| **Question 14.** Search the libraries for precompiled functions on how to send information through wireless. | |
| **Question 15.** Search the libraries for precompiled functions on how to display a warning signal requiring an input from the user before printing starts. | |
| **Question 16.** Search the libraries for precompiled functions on how to implement a panic button function. | |
| **Bibliography search:** *Include here the reference where you have studied these concepts, it can be a web page or a chapter of a textbook or some notes of a subject from your training center.* | Think and write very briefly how you decided on one type of bibliographic source or another. |

| **PART 2.- Workplace. Processing, storage, and presentation of results.** | |
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| Carry out the following exercises. | |
| **Exercise 1.** Write a table summarizing the suitable programming languages. | |
| **Exercise 2.** Produce a scheme with the physical layout for the application. | |
| **Exercise 3.** Create and organize an offline database to store all produced data. | |
| **Question 4.** Produce a scheme synthetizing the steps needed for the application programming. | |
| **Question 5.** Demonstrate the application functioning on a mobile device. | |
| **Bibliography search:** *Include here the reference where you have studied these concepts, it can be a web page or a chapter of a textbook or some notes of a subject from your training center.* | Think and write very briefly how you decided on one type of bibliographic source or another. |

| **PART 3.- Activities.**<br>**Task 01** | | |
|---|---|---|
| **Task Title:** Produce the webpage layout preview | **Folder / server** *: | **Date**: |
| **Brief description** Produce a preview of the webpage layout of the various menus. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br><br>*Include the pages you need* | | |

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| **PART 3.- Task results 01** | | |
| **Title:** Produce the webpage layout preview | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 01** | | |
| **Title:** Produce the webpage layout preview | **Folder / server** *: | **Date:** |
| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* | | |
| **PART 3.- Analysis of the results of task 01** | | |
| **Title:** Produce the webpage layout preview | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | | **Is the result accepted?** |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

| **PART 3.- Activities. Task 02** | | |
|---|---|---|
| **Task Title:** Program the webpage according to the layout | **Folder / server** *: | **Date**: |
| **Brief description** Program a webpage with the predefined layout and implement its buttons. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
| | | |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br><br>*Include the pages you need* | | |

| **PART 3.- Task results 02** | | |
|---|---|---|
| **Title:** Program the webpage according to the layout | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 02** | | |
| **Title:** Produce the webpage layout preview | **Folder / server** *: | **Date:** |

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| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* |

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| **PART 3.- Analysis of the results of task 02** | | |
| **Title:** Program the webpage according to the layout | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | **Is the result accepted?** | |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

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| **PART 3.- Activities. Task 03** | | |
| **Task Title:** Build the database | **Folder / server** *: | **Date**: |
| **Brief description** Build an online database and upload the corresponding GCODE files. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
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| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br>*Include the pages you need* | | |

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| **PART 3.- Task results 03** | | |
| **Title:** Build the database | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 03** | | |
| **Title:** Build the database | **Folder / server** *: | **Date:** |
| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* | | |
| **PART 3.- Analysis of the results of task 03** | | |
| **Title:** Build the database | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | | **Is the result accepted?** |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |
| **PART 3.- Activities. Task 04** | | |
| **Task Title:** Connect the database | **Folder / server** *: | **Date**: |

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| **Brief description** Connect the database and the webpage so the contest of the former can be used by the latter. |
| **The problem at hand.** |
| **Hypotheses, solutions that can be anticipated, and expected results**. |
| **Methodology and work plan:** |
| |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br><br>*Include the pages you need* |

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| **PART 3.- Task results 04** | | |
| **Title:** Connect the database | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 04** | | |
| **Title:** Connect the database | **Folder / server** *: | **Date:** |
| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here) | | |

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| *(add as many pages as needed, copying the entire table)* | | |
| **PART 3.- Analysis of the results of task 04** | | |
| **Title:** Connect the database | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | | **Is the result accepted?** |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

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| **PART 3.- Activities. Task 05** | | |
| **Task Title:** Implement the online connection | **Folder / server** *: | **Date**: |
| **Brief description** Connect the webpage to the 3D printer so files can be sent through the network. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
| | | |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br>*Include the pages you need* | | |

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| **PART 3.- Task results 05** | | |
| **Title:** Implement the online connection | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 05** | | |
| **Title:** Implement the online connection | **Folder / server** *: | **Date:** |
| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* | | |
| **PART 3.- Analysis of the results of task 05** | | |
| **Title:** Implement the online connection | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | | **Is the result accepted?** |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

| **PART 3.- Activities. Task 06** | | |
|---|---|---|
| **Task Title:** Attribute button functions | **Folder / server** *: | **Date**: |
| **Brief description** Attribute the webpage button functions with the information to sent to the printer. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
| | | |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br><br>*Include the pages you need* | | |

| **PART 3.- Task results 06** | | |
|---|---|---|
| **Title:** Attribute button functions | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 06** | | |
| **Title:** Produce the webpage layout preview | **Folder / server** *: | **Date:** |

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| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* |

| **PART 3.- Analysis of the results of task 06** | | |
|---|---|---|
| **Title:** Attribute button functions | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | **Is the result accepted?** | |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

| **PART 3.- Activities. Task 07** | | |
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| **Task Title:** Test the webpage | **Folder / server** *: | **Date**: |
| **Brief description** Test the webpage and demonstrate its functioning by sending GCODES to the machne. | | |
| **The problem at hand.** | | |
| **Hypotheses, solutions that can be anticipated, and expected results**. | | |
| **Methodology and work plan:** | | |
| | | |
| **Initial information available** (include a brief summary or notes of the documents already available, include the documents in annexes in the work folder, indicating here the name or reference of the file)<br>*Include the pages you need* | | |

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| **PART 3.- Task results 06** | | |
| **Title:** Test the webpage | **Folder / server** : | **Date**: |
| **Additional information** obtained during the task: Alternative testing methodologies, sources in which to contrast the data obtained, etc. Include the related files as attachments in the folder, indicating here the name or reference of the file. | | |
| **Experimental protocol** (if there is already a written protocol in the company, just indicates its reference; if not, briefly detail the steps of the experimental procedure) | | |
| **PART 3.- Results of task 06** | | |
| **Title:** Test the webpage | **Folder / server** *: | **Date:** |
| **Experimental results** (if written by hand or printed by the device, photocopy or scan and copy them here as an image. Videos, photographic images, and other material will be added as attachments in the work folder, writing the name or reference of the file here)<br><br>*(add as many pages as needed, copying the entire table)* | | |
| **PART 3.- Analysis of the results of task 06** | | |
| **Title:** Test the webpage | **Folder / Server** *: | **Date:** |
| **Assessment of the result:** Assess the reproducibility of the assay; does it match what was expected? If so, what is the reason why a result very different from the one found was expected? | | **Is the result accepted?** |
| **Notes on conversations with the supervisor or other team members** | | |
| **Conclusions** (propose here the solution to the problem posed, but also the detailed conclusions about the task itself, about the experimental procedure, suggestions for new tests, etc.) | | |

| **PART 4.- Training contents** | |
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| Explain the concepts in a clear and concise way and solve the exercises in the following cells. The questions are sorted by topics related to the training outcomes we hope to achieve during your stay at the company. Before you start writing, you'll need to look up information on the topic and study that information. | |
| **Topic 01: Module "Software installation".** | **Bibliography search:** *Include in this cell the reference where you have studied this topic, it can be a web page or a chapter of a textbook or some notes of a subject from your training center.* Think and write very briefly how you decided on one type of bibliographic source or another. |
| **Before connecting your 3D printer over Wi-Fi, what information do you need to get about your network and device?**<br><br>Think about things like network type, router configuration, IP address, and printer compatibility with the network. | |
| **Research the steps to set up Wi-Fi on a 3D printer. What differences might you find depending on the printer model or operating system?**<br><br>Think about how processes can vary depending on the software interface or operating system you're using (Windows, macOS, Linux). | |
| **To connect the web application to the 3D printer over Wi-Fi, how would you configure a DHCP server to dynamically assign an IP address to the 3D printer within the network?**<br><br>Explains the steps and justifies the advantages of using DHCP in this context versus a static configuration. | |
| **What problems can you encounter when trying to connect a 3D printer over Wi-Fi, and how would you fix them?**<br><br>Consider common difficulties such as no signal, network password errors, or interference with other devices. | |
| **What are the advantages and disadvantages of connecting a 3D printer over Wi-Fi instead of using a USB cable or SD card?**<br><br>It evaluates factors such as ease of use, file transfer speed, and connection stability. | |
| **Imagine that the 3D printer does not appear in the software despite being connected to the Wi-Fi network. What steps would you take to diagnose and fix the problem?**<br><br>Think about diagnostic tools such as network pings, firewall configurations, and checking the printer's IP address. | |
| **How does the security of the company's Wi-Fi network affect the connection of 3D printers? What measures could you implement to protect the printer and corporate data?**<br><br>Reflect on the impact a security breach can have on the company's systems and what security and encryption policies could be implemented. | |
| **Considering a business environment, how does Wi-Fi signal quality influence remote 3D printing productivity? What solutions could you propose to improve connectivity in the company?** | |

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| Research solutions such as improving network infrastructure, using additional access points, or deploying enterprise private networks. |
| **The web application needs to send print files to the 3D printer. Which file transfer protocol (FTP, SFTP, FTPS) would you recommend for this task?**<br><br>Describe the installation and configuration process for the file transfer service you have chosen and justify why it is best suited to ensure security and reliability in transmission. |
| **Your web application should handle print requests and connect to the 3D printer efficiently. How would you set up a web server that ensures good traffic management and low latency for communication between the application and the printer?**<br><br>Explain how you would optimize the web server to handle multiple simultaneous requests and avoid bottlenecks. |
| **Since the 3D printer connects to the network using Wi-Fi, what configurations would you implement to secure the wireless network and protect communications between the web application and the printer?**<br><br>Describe the security standards you would apply (e.g., WPA2 or WPA3) and justify why they are needed in this project. |
| **Imagine that you want to integrate a content management system (CMS) into the web application that connects with the 3D printer to manage documents or files related to printing. Which CMS would you choose for this purpose and why?**<br><br>Describe the installation and configuration process of the chosen CMS, adapting it to the requirements of the project. |
| **To enable users to upload and manage 3D print files from the web app, which web file management service would you install?**<br><br>It explains the steps required for its installation and configuration, identifying the functionalities it offers and verifying how you would ensure the integrity of the files transferred to the 3D printer. |
| **The web application you have developed to control the 3D printer could benefit from a desktop version. What framework or technology would you use to create a desktop web application based on your current application?**<br><br>It describes the installation process of this desktop application, its main features, and in which environments it would be most efficient to use. |

| **PART 5.- Self-assessment** | |
|---|---|
| The following questions are based on the evaluation criteria set out in the Royal Decree establishing the title of your training cycle. Think about whether what you have studied in relation to each question and the exercises you have done seems sufficient for you to master each of these aspects. Enter a comment to this effect in the box on the right. | |
| Can you explain how the DHCP protocol works and what role it plays in connecting the web application to the 3D printer over Wi-Fi? | |
| Could you describe the steps required for the 3D printer to request its network configuration via DHCP and how that request is handled on your network? | |
| Have you tested file transfer server access using both command-line clients and graphical interfaces? | |
| Do you understand the fundamentals and protocols (HTTP/HTTPS) that your application's web server relies on to control the 3D printer? | |
| Have you implemented adequate security measures on the web server (e.g., SSL certificates)? How did you verify them? | |
| Have you successfully installed a Wi-Fi hotspot for the 3D printer to connect to the network? | |
| Have you tested wireless router connectivity from devices on your local network? | |
| Have you identified the requirements needed to install a CMS in your web application? How did you adapt them to the project? | |
| Have you run tests to make sure the CMS is working properly in your project? | |
| Have you clearly established the usefulness of implementing a web file manager to handle 3D printing files in your project? | |