



## **Materials for the e-learning course on how to incorporate Open Science (D4.1)**

Research infrastructures cooperation for energy transition between European and Latin American and the Caribbean countries.



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The access to the online course is available in [this link](#).

## EXECUTIVE SUMMARY

This deliverable presents the materials developed for the Energytran e-Learning Course on Open Science, “*Environmental challenges and open science – an approach from innovation and technology*”, aimed at training researchers and professionals to apply Open Science principles in energy transition, natural capital, and climate change research.

Developed under WP4 “Mobilities for sustainability”, the course supports European Union (EU) and Latin American and Caribbean (LAC) cooperation, enabling the transfer of knowledge and skills while fostering open, transparent, and reproducible research practices. The course materials translate some of the project’s technical outputs developed under WP5 into practical resources, providing a tangible demonstrator of Open Science in action.

The course is organized into four modules covering global challenges, monitoring and evaluation of science, open scientific knowledge, and participation of social actors. Each module includes presentations, case studies, readings, and self-assessment activities, hosted on a Moodle platform with multilingual support (Spanish and English).

The pilot edition in San José, Costa Rica (22–26 September 2025) validated the materials and structure, with participants reporting high satisfaction (96% rated the course good or very good). Feedback confirmed the relevance, clarity, and usability of the content, as well as the value of the hybrid and multilingual format (simultaneous translation to Spanish, Portuguese and English).

The deliverable demonstrates Energytran’s capacity to produce reusable, scalable training materials that promote Open Science adoption, enhance research capacity, and strengthen EU-LAC collaboration in sustainable energy and environmental research.

## 1. INTRODUCTION

The Energytran project aims to strengthen scientific cooperation between the EU and LAC by advancing the exchange and co-creation of knowledge on the energy transition. In line with the project’s overarching goal of promoting sustainable and inclusive research systems, Energytran places particular emphasis on the adoption of Open Science principles as a means to foster transparency, collaboration, and innovation across regions.

Open Science represents a transformative approach to research, encouraging the sharing of data, methodologies, and results, and the active participation of diverse social actors in the scientific process. Within the fields of energy and environmental sustainability, Open Science plays a key role in accelerating the transition towards low-carbon systems, enhancing the reusability and accessibility of knowledge, and bridging the gap between science, policy, and society.

Within this framework, the present deliverable documents the development and implementation of the e-learning course “Open Science for the Energy Transition”, designed as part of Work Package 4 “Mobilities for sustainability”. The course provides researchers and professionals with conceptual and practical tools to integrate Open Science practices into their work, with particular relevance to topics such as climate resilience, natural resource management, and sustainable energy systems.

The e-learning programme has been developed as a modular training resource, combining theoretical content with applied examples. It is hosted in a Moodle-based virtual learning environment and supported by a hybrid delivery model that accommodates both in-person and virtual participation.

This deliverable presents:

- The objectives, structure, thematic content and materials of the course;
- The technical implementation of the e-learning platform;
- The pilot experience, including the methodology, participant engagement, and feedback collected through a satisfaction survey.

By developing and validating these e-learning materials, Energytran contributes to its expected impact of promoting cross-regional knowledge exchange and capacity building in Open Science, thereby supporting the creation of a more transparent, collaborative, and sustainable research ecosystem between the EU and LAC.

## 2. COURSE OBJECTIVES

### General Objective:

The objective of this e-learning course is to train participants in Open Science principles and practices, focusing on its role in addressing critical issues such as climate change and environmental degradation. Participants can explore tools, platforms, and methods for fostering collaboration, ensuring inclusivity, and accelerating scientific discovery while gaining insights into Open Science's potential to promote sustainable solutions.

### Specific Objectives:

Building on the general goal of promoting Open Science practices within the context of the energy transition, natural capital, and climate change, this course pursues the following specific objectives:

1. **Promote understanding of Open Science principles and policies** within the European and Latin American and Caribbean contexts, emphasizing their role in advancing sustainable research and innovation.
2. **Introduce participants to key Open Science tools and infrastructures**, including open data repositories, collaborative platforms, and open-access publishing systems relevant to environmental and energy research.
3. **Strengthen participants' capacity to apply Open Science methodologies** in their own research, promoting transparency, reproducibility, and interdisciplinary collaboration.
4. **Encourage the integration of citizen science and participatory approaches**, facilitating broader engagement of society in environmental and climate-related research.
5. **Demonstrate practical examples and case studies** that show how Open Science accelerates knowledge transfer, fosters innovation, and supports evidence-based policymaking for the energy transition and environmental sustainability.

### 3. TARGET AUDIENCE

The course is tailored for a diverse range of participants, including researchers, research infrastructure personnel, public administrators, civil society representatives, and private sector stakeholders from LAC and the EU with an interest in Open Science and its applications to the energy transition, natural capital, and climate change.

To maximize accessibility and ensure effective participation, the course materials are offered primarily in Spanish and English.

### 4. COURSE STRUCTURE AND CONTENT OVERVIEW

The course is structured into four modules. The introductory module focuses on UNESCO's Open Science recommendations, and provides an overview of the current state of Open Science in Europe and Latin America and the Caribbean, as well as the role of key research infrastructures in fostering open and collaborative scientific ecosystems.

The following three modules address essential dimensions of Open Science:

- Challenges for monitoring and evaluating science through Open Science sources
- Open scientific knowledge
- Open participation of social actors

Each module is structured around a series of sessions led by distinguished experts in their respective fields, combining conceptual foundations with practical examples. The program features 15 instructors in total: 7 from LAC (Costa Rica, Argentina and Chile) and 8 from the EU (Portugal, Romania and Spain) providing participants with diverse perspectives and hands-on guidance to effectively integrate Open Science principles into their research and professional practice.

#### Module 1: Open Science and major global challenges

This introductory module explores how Open Science practices can act as powerful enablers to address major global challenges, including the climate crisis, environmental degradation, and the pursuit of the Sustainable Development Goals.

Through a series of expert-led seminars focusing on LAC and the EU, participants examine how Open Science accelerates scientific discovery, fosters international collaboration, enhances research visibility and career development, and strengthens the connection between science, policy, and society. The module also highlights the policy frameworks and initiatives shaping Open Science in both regions, offering a comparative view of their progress, priorities, and challenges.

Module 1 consists of three thematic sessions delivered by three experts:

1. **Contribution of Open Science to address major global challenges** – *Guillermo Anlló (UNESCO, Costa Rica)* An overview of the role of Open Science as a transformative mechanism for tackling global environmental and societal issues through openness, inclusivity, and knowledge sharing, including introducing participants to UNESCO's Open Science recommendation.
2. **Status of Open Science in the European Union and OpenAIRE** – *Giulia Malanguarnera (Universidade do Minho / OpenAIRE, Portugal)* Presentation of the European Open Science framework, including policies, infrastructures, and the role of OpenAIRE in supporting open access, open data, and reproducible research.

3. **Status of Open Science in Latin America and the Caribbean** – *Andrea Mora Campos (Universidad Nacional de Costa Rica)* Provide an overview of the current state of Open Science regulations and initiatives in Latin America, including key policies, national strategies, and regional programs that promote open access to research outputs, data sharing, and collaborative scientific practices.

## Module 2: Challenges for monitoring and evaluating science through Open Science sources

This module examines the challenges and opportunities associated with monitoring and evaluating scientific progress through Open Science sources, emphasizing how open practices can transform traditional research assessment frameworks. It highlights the need to move beyond conventional metrics, such as impact factors, towards more inclusive, transparent, and impact-oriented evaluation approaches.

Participants explore how Open Science contributes to greater collaboration, knowledge sharing, and visibility within the scientific community, particularly benefiting early-career researchers by creating more equitable and accessible research environments. The module also presents the strategic role of RedCLARA and the BELLA II Project in enhancing digital research infrastructures in Latin America, enabling interoperability, connectivity, and data accessibility essential for Open Science advancement.

Module 2 consists of three thematic sessions delivered by three experts:

1. **Benefits of Open Science for the scientific community and early-career researchers** – *Allan Campos (CeNAT, Costa Rica)* Exploration of how Open Science enhances professional development, fosters inclusion, and provides new avenues for collaboration and recognition among researchers.
2. **Open Science publication impact and methods of quality assessment** – *Radu Vasile (Politehnica University of Timisoara, Romania)* Introduction to the principles and benefits of Open Access publishing. It covers the differences between Open Access and Open Data, explores Gold and Green publishing models, and presents practical examples of implementation to enhance research visibility. It includes a discussion on the advantages and challenges of adopting Open Access in participant's work.
3. **Digital infrastructure and Open Science: RedCLARA and BELLA II as drivers of the scientific ecosystem in Latin America** – *Tania Altamirano (RedCLARA, Chile)* Exploration of the strategic role of RedCLARA and the BELLA II Project in strengthening Latin America's research infrastructure to support Open Science. It also emphasizes the importance of connectivity, advanced computing, and interoperability in fostering a collaborative digital scientific ecosystem.

## Module 3: Open scientific knowledge

This module explores the concept of Open Scientific Knowledge, the unrestricted access to and reuse of scientific outputs, including publications, research data, metadata, educational resources, software, source code, and even hardware. It also addresses the growing importance of transparency in research methodologies and evaluation processes.

Through a combination of theoretical and practical sessions, participants discover key Open Science practices for sharing knowledge across disciplines, focusing particularly on open-access publications, research data sharing, and open-source software development. Real-world examples illustrate how these practices foster collaboration, innovation, and reproducibility in the fields of biodiversity and energy research.

The module also introduces participants to a selection of widely used Open Science tools, platforms, and repositories, highlighting their application in promoting openness, interoperability, and FAIR (Findable, Accessible, Interoperable, Reusable) principles in scientific work.

Module 3 consists of five thematic sessions delivered by five experts in the respective fields:

1. **Open Science and Open-Source software** – *Kevin Moraga García (Instituto Tecnológico de Costa Rica)* An introduction to the principles of Open Science and open-source software, exploring their shared philosophy of transparency, collaboration, and community-driven innovation
2. **Open Science tools and how to use them** – *Diana Andone (Politehnica University of Timisoara, Rumania)* A general overview of open-access tools, repositories, and publication platforms that enable researchers to share and manage their scientific outputs effectively.
3. **Open-Source technological tools: use cases in energy transition (PREDICO, INTERSTORE, INTERCONNECT)** – *Ricardo Andrade, Alexandre Lucas, Carlos Silva (INESCTEC, Portugal)* Presentation of concrete applications of open-source technologies in the field of energy transition, demonstrating how openness accelerates scientific progress.
4. **Open Science and biodiversity: Overcoming challenges and exploring new opportunities** – *Francisco Pando (GBIF, Spain)* An introduction to the role of Open Science in advancing biodiversity research, addressing barriers, and highlighting emerging opportunities for collaboration and data sharing.
5. **Open and FAIR Science tools and use cases** – *Julio Paneque (LifeWatch ERIC, Spain)* An exploration of tools and infrastructures designed to support open and FAIR science, with specific examples on biodiversity and energy transition that demonstrate how these principles enhance the visibility, reproducibility, and long-term impact of scientific research.

#### Module 4: Open participation of social actors

This module examines how Open Science extends beyond the scientific community by fostering collaboration between researchers and diverse social actors, including citizens, local communities, policymakers, and entrepreneurs. It explores how open participation transforms the research process into a more inclusive, transparent, and socially responsive endeavor.

Participants learn how different forms of engagement, such as citizen science, empower society to take part in knowledge generation and shared problem-solving. By integrating scientific, local, and indigenous knowledge systems, Open Science builds trust, promotes co-creation, and ensures that research outcomes reflect real-world needs and values.

The module also emphasizes the role of Open Science in strengthening dialogue among scientists, policymakers, professionals, and communities, giving all stakeholders a voice in shaping the direction and impact of research.

Module 4 consists of two thematic sessions delivered by two experts in the field:

1. **Integration of scientific, local, and indigenous knowledge** – *Rafael Corrales (Associate Project Officer, Natural Sciences, UNESCO, Costa Rica)* An introduction to inclusive knowledge systems and the importance of integrating diverse epistemologies into research processes to enhance relevance, legitimacy, and sustainability. It provides an overview of international legislation on Indigenous Peoples, explores the contribution of nature-based solutions from indigenous perspectives, and analyzes regional case studies to understand how traditional knowledge supports effective and sustainable climate action.
2. **Citizen Science Experiences** – *Valeria Arza (Universidad Nacional de San Martín, Argentina)* An introduction to the citizen science approach, highlighting its potential to generate knowledge and serve as a tool for social and scientific transformation. It explores

citizen science projects across diverse disciplines, examines global policy tools that support its development, and assesses the broader benefits of public engagement in research.

## 5. VIRTUAL LEARNING ENVIRONMENT IMPLEMENTATION

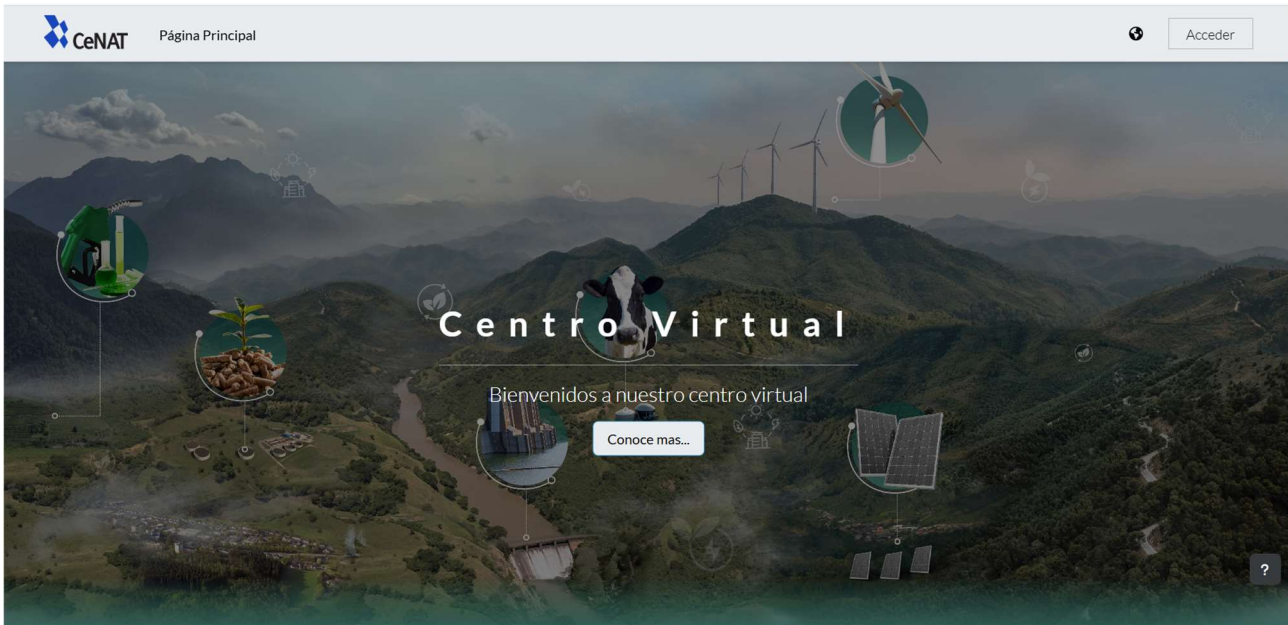
The e-learning course was developed using a blended learning methodology, integrating in-person instructional activities with online learning. The face-to-face sessions enable direct interaction with instructors and peers, the immediate resolution of questions, and the completion of practical activities that require guidance. In parallel, the virtual environment allows students to progress at their own pace, access materials at any time, develop autonomy, and take advantage of interactive digital resources that enrich the learning experience.

The course is supported by Moodle, a robust, scalable, and user-friendly platform selected for its flexibility, compatibility with multimedia resources, and ability to comprehensively manage both the course and student participation. Moodle's interface enables participants to easily navigate modules, track their progress, and access resources in an organized manner. As an online learning platform (LMS, Learning Management System), Moodle is free and open-source software, which allows it to be adapted to the specific requirements of the course.

### 5.1. Platform Structure and Organization

All course materials are organized in Moodle using a modular structure. Each module consists of several sessions that include the following sections (Figures 1 and 2):

- **Instructor profile:** A brief description of the session's instructor, including their institutional affiliation, area of expertise, and role in the course. This provides participants with a clear context about the speakers and their contributions.
- **Session objectives:** A summary of the learning goals guiding each session.
- **Session recordings:** Full videos of live classes and presentations, available for asynchronous review.
- **Presentation slides:** Downloadable materials used during live sessions.
- **Supporting resources:** Supplementary documents, guides, datasets, and links to external resources that enrich the learning process.
- **Assigned readings:** Each module includes high-value readings and resources that complement the content covered in the sessions. These materials allow participants to deepen their understanding of key concepts, consolidate learning, and encourage independent study. All readings are downloadable, facilitating offline access. Their purpose is to provide a solid theoretical foundation, promote critical thinking, and support the development of skills for practical application of the knowledge gained.
- **Quiz:** At the end of each session, a short self-assessment quiz is included to reinforce key concepts. This tool allows participants to immediately gauge their level of understanding, identify areas of uncertainty, and recognize topics that require further review. Additionally, it provides valuable feedback for course organizers, as it helps evaluate the clarity of the content, the effectiveness of teaching strategies, and the extent to which learning objectives are being met. The results are used to make adjustments, improve future sessions, and ensure that the training process addresses the real needs of participants.



#### Biography

Giulia Malaguarnera is an expert in Open Science policy and infrastructure, currently serving as Outreach and Engagement Officer at OpenAIRE. With a PhD in Neuropharmacology and extensive experience in European research projects, she works at the intersection of science policy, innovation, and community engagement. Giulia leads capacity-building initiatives to help researchers, institutions, and funders implement Open Science practices aligned with European and international frameworks. She is actively involved in the Horizon Europe project *GraspOS*, which focuses on reforming research assessment through open and responsible practices. Giulia also collaborates with partners in Latin America, North America, and Asia to promote global dialogue and the adoption of Open Science across diverse research systems.

#### Biografía

Giulia Malaguarnera es experta en políticas de Ciencia Abierta e infraestructuras, actualmente se desempeña como Responsable de Difusión y Participación en OpenAIRE. Con un doctorado en Neurofarmacología y una amplia experiencia en proyectos de investigación europeos, trabaja en la intersección entre política científica, innovación y participación comunitaria.

Giulia lidera iniciativas de capacitación para ayudar a investigadores, instituciones y financiadores a implementar prácticas de Ciencia Abierta alineadas con marcos europeos e internacionales. Participa activamente en el proyecto *GraspOS* de Horizonte Europa, que se centra en la reforma de la evaluación de la investigación mediante prácticas abiertas y responsables. Colabora con socios en América Latina, Norteamérica y Asia para promover el diálogo global y la adopción de la Ciencia Abierta en diversos sistemas de investigación.

#### General Objective:

Enable participants to understand and implement Open Science practices within the European research ecosystem, with a focus on policy, infrastructure, and practical tools.

#### Specific Objectives:

- Identify key components and goals of the European Open Science strategy.
- Distinguish between open access, open data, and open software in research workflows.
- Explore the role of OpenAIRE as a support infrastructure for Open Science.
- Learn how to discover and share open research outputs relevant to climate change and sustainability.
- Understand the broader societal and economic benefits of open, transparent, and reproducible science.

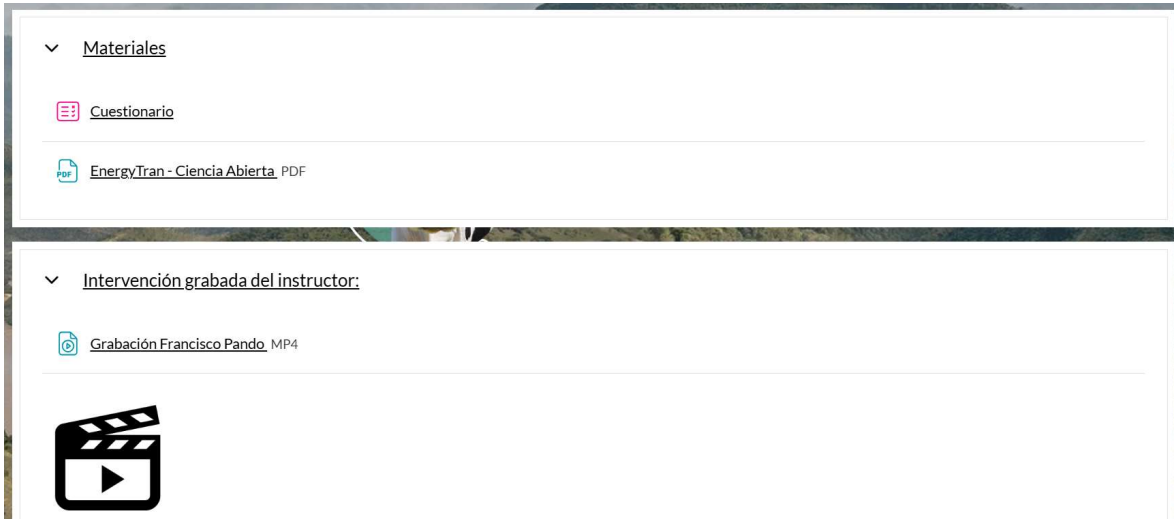
#### Objetivo General:

Permitir a los participantes comprender e implementar prácticas de Ciencia Abierta dentro del ecosistema europeo de investigación, con un enfoque en políticas, infraestructuras y herramientas prácticas.

#### Objetivos Específicos:

- Identificar los componentes clave y las metas de la estrategia europea de Ciencia Abierta.
- Distinguir entre acceso abierto, datos abiertos y software abierto en los flujos de trabajo de investigación.
- Explorar el papel de OpenAIRE como infraestructura de apoyo para la Ciencia Abierta.
- Aprender a descubrir y compartir resultados de investigación abierta relevantes para el cambio climático y la sostenibilidad.
- Comprender los beneficios sociales y económicos más amplios de una ciencia abierta, transparente y reproducible.

**Figure 1.** above) Overview of the general Moodle environment; below) section of the Moodle platform displaying the instructor's biography and the session objectives, in Spanish and English.



**Figure 2.** Section of the Moodle platform displaying the materials and recordings of the session.

## 5.2. Access and user management

Participants have individual, secure user accounts to access the Moodle platform. CeNAT (Costa Rica) is responsible for managing the registration and authentication processes, ensuring that only authorized individuals can access the course materials.

To register, users must go to the “Register as a user” section (see Figure 3), complete the required information, and submit their request. The CeNAT team reviews and approves each registration before granting access to the available courses.

User roles are assigned according to Moodle standards. Instructors and administrators have full permissions to create and manage content according to the course structure, while participants have access to all learning materials, resources, and communication tools. Each instructor is provided with a dedicated space within the platform to design and upload content following the established methodology.

To access the online course, users must visit the official website:

<https://moodlecenat.org/moodle/login/index.php?loginredirect=1>

[Español - Internacional \(es\)](#) ▾



### Acceder

[¿Olvidó su contraseña?](#)

### Registrarse como usuario

Para acceder a esta página debe crear una cuenta primero.

[Aviso de Cookies](#)

**Figure 3.** Log-in and registration system

Upon registering or logging in, users gain access to the main page of the Moodle platform, where they can find a description of the course and links to the different modules that make it up (Figure 4).

La pérdida de recursos naturales y su estabilidad fluctuante se han convertido en una preocupación global que debe abordarse como una prioridad, ya que los desafíos ambientales son cada vez más frecuentes cada año. El cambio climático está generando presiones sobre muchos recursos naturales, alterando la funcionalidad de los ecosistemas e influyendo en la pérdida de biodiversidad. En este contexto crítico, la ciencia abierta se destaca como un enfoque transformador que acelera la investigación y fomenta la colaboración para enfrentar los desafíos ambientales, conectando a la comunidad científica con políticas responsables y la participación activa de la ciudadanía.

La ciencia abierta impulsa la innovación, permitiendo el desarrollo de soluciones sostenibles frente a los problemas ambientales más urgentes. Su enfoque colaborativo integra conocimientos científicos de alto nivel entre disciplinas, haciendo que las soluciones sean más accesibles y con mayor impacto. La ciencia abierta garantiza la calidad y la disponibilidad continua de los datos necesarios para monitorear y abordar la degradación ambiental. También permite la participación de la ciencia ciudadana, contribuyendo a la recopilación de datos de interés y a la creación de bases de datos globales. Este curso está dirigido a profesionales de distintas disciplinas, con el propósito de ampliar, comunicar e integrar conocimientos que aborden los desafíos ambientales globales urgentes. A medida que estos desafíos aumentan en escala y frecuencia, el curso ofrece una variedad de herramientas y perspectivas necesarias para impulsar un cambio positivo y fomentar el progreso sostenible.

El proyecto EnergyTRAN tiene como objetivo abordar el desafío común de la transición energética promoviendo el intercambio, la generación y la transferencia de conocimientos entre infraestructuras de investigación de la Unión Europea (UE) y de América Latina y el Caribe (ALC), desde una perspectiva multidisciplinaria que incluye aspectos tecnológicos, ambientales y sociales. Como parte de esta iniciativa, se está organizando un curso en línea para explorar cómo la ciencia abierta puede contribuir a enfrentar los principales desafíos ambientales fomentando la colaboración y el intercambio de conocimientos entre científicos, instituciones y la sociedad en su conjunto.

**Energytran**

**Categorías**

- [Módulo 1: Ciencia abierta y los grandes desafíos globales.](#) <sup>(3)</sup>
- [Módulo 2: Desafíos para el monitoreo y la evaluación de la ciencia a través de fuentes de ciencia abierta.](#) <sup>(3)</sup>
- [Módulo 3: Conocimiento científico abierto Parte A](#) <sup>(3)</sup>
- [Módulo 3: Conocimiento científico abierto Parte B](#) <sup>(2)</sup>
- [Módulo 4: Participación abierta de los actores sociales.](#) <sup>(2)</sup>

Expandir todo

**Figure 4.** Main page of the e-learning course Moodle platform

Once inside a module, users can access the various sessions it contains (Figures 5 to 9). Within each session, they have access to all related information and materials as described in section 4.1., including the instructor's profile, the objective of the session, session recordings, presentation slides, supporting resources and a self-assessment quiz.

[Cursos](#) / Módulo 1: Ciencia abierta y los grandes desafíos globales.

## Módulo 1: Ciencia abierta y los grandes desafíos globales.

Categoría   Papelera de reciclaje   Subir cursos   Más ▾

Módulo 1: Ciencia abierta y los grandes desafíos globales.   Buscar cursos   Q

**Estado de la ciencia abierta en la UE. OpenAIRE**

Estado de la ciencia abierta en la UE. OpenAIRE

Profesor: [Giulia Malaguarnera](#)

**Contribución de la ciencia abierta para abordar los grandes desafíos globales**

CAMBIO CLIMÁTICO   SALUD GLOBAL

Contribución de la ciencia abierta para abordar los grandes desafíos globales

Profesor: [Guillermo Anlló](#)

**Estado de la ciencia abierta en ALC**

Publicaciones de   Datos abiertos

Estado de la ciencia abierta en ALC

Profesor: [Andrea Mora Campos](#)

**Figure 5.** Access to the three sessions within module 1 “Open Science and major global challenges”

[Cursos](#) / Módulo 2: Desafíos para el monitoreo y la evaluación de la ciencia a través de fuentes de ciencia abierta.

## Módulo 2: Desafíos para el monitoreo y la evaluación de la ciencia a través de fuentes de ciencia abierta.

Categoría   Subir cursos   Más ▾

Módulo 2: Desafíos para el monitoreo y la evaluación de la ciencia a través de fuentes de ciencia abierta.   Buscar cursos   Q

**Infraestructura Digital y Ciencia Abierta**

Infraestructura Digital y Ciencia Abierta: RedCLARA y BELLA II como impulsores del ecosistema científico en América Latina y el Caribe

Profesor: [Tania Altamirano](#)

Descripción del curso

**Impacto de las publicaciones en ciencia abierta y métodos de calidad**

Impacto de las publicaciones en ciencia abierta y métodos de calidad

Profesor: [Radu Vasiliu](#)

**Beneficios de la ciencia abierta para la comunidad científica y los investigadores en etapa inicial**

Beneficios de la ciencia abierta para la comunidad científica y los investigadores en etapa inicial

Profesor: [Allan Campos](#)

Descripción del curso

**Figure 6.** Access to the three sessions within module 2 “Challenges for monitoring and evaluating science through Open Science sources”


Cursos / Módulo 3: Conocimiento científico abierto Parte A

**Módulo 3: Conocimiento científico abierto Parte A**

Categoría Subir cursos Más ▾


Módulo 3: Conocimiento científico abierto Parte A

Buscar cursos



**Ciencia Abierta y software de código abierto**


Profesor: [Kevin Moraga García](#)



**Herramientas de ciencia abierta y cómo utilizarlas**

**Herramientas de ciencia abierta y cómo utilizarlas (herramientas, repositorios, publicaciones)**

Profesor: [Diana Andone](#)



**Herramientas tecnológicas de código abierto: casos de uso (PREDICO, INTERSTORE, INTERCONNECT)**

Profesor: [Ricardo Andrade](#)  
Profesor: [Alexandre Lucas](#)  
Profesor: [Carlos Silva](#)

**Figure 7.** Access to the first three sessions within module 3 “Open scientific knowledge”


Cursos / Módulo 3: Conocimiento científico abierto Parte B

**Módulo 3: Conocimiento científico abierto Parte B**

Categoría Subir cursos Más ▾


Módulo 3: Conocimiento científico abierto Parte B

Buscar cursos



**Ciencia abierta y biodiversidad: superando desafíos y explorando nuevas oportunidades**

Profesor: [Francisco Pando](#)



**Herramientas de ciencia abierta y FAIR y casos de uso (Energytran Network4Collaboration y workflows)**

Profesor: [Julio Paneque](#)

**Figure 8.** Access to the last two sessions within module 3 “Open scientific knowledge”

Cursos / Módulo 4: Participación abierta de los actores sociales.

## Módulo 4: Participación abierta de los actores sociales.

The screenshot displays the course selection interface for 'Módulo 4: Participación abierta de los actores sociales'. At the top, there are navigation options: 'Categoría', 'Papelera de reciclaje', 'Subir cursos', and 'Más'. Below this is a search bar containing the module name and a 'Buscar cursos' button. Two course cards are visible:

- Course 1:** 'Introducción general - Integración del conocimiento científico, local e indígena'. The instructor is Rafael Corrales. A 'Descripción del curso' button is present below the card.
- Course 2:** 'Experiencias de ciencia ciudadana'. The instructor is Valeria Arza.

**Figure 9.** Access to the two sessions within module 4 “Open participation of social actors”

## 6. RESULTS OF THE PILOT E-LEARNING COURSE

### 6.1 Pilot overview

The pilot implementation of the Open Science e-Learning course took place in San José, Costa Rica, from 22 to 26 September 2025, following a hybrid format that combined both in-person and virtual participation. The course comprised a total of 20 hours of instruction over five consecutive days (4 hours per day).

Given the participation of instructors and attendees from multiple LAC and EU countries, the schedule was carefully designed to accommodate the time zones of both regions: 8:00 AM – 12:00 PM (GMT-6) / 4:00 PM – 8:00 PM (CET).

### 6.2 Language and accessibility

The main language of instruction was Spanish, ensuring accessibility for most participants from Latin America. However, communication in Portuguese and English was also supported, with simultaneous interpretation available in all three languages throughout the sessions. This multilingual approach promoted inclusivity and strengthened cross-regional collaboration between LAC and EU participants.

### 6.3 Methodology and learning approach

The course was conducted under a blended learning modality through the Moodle platform, combining virtual activities and face-to-face sessions to offer a flexible, dynamic, and student-centered learning environment. This methodology allowed for the integration of synchronous and asynchronous moments, enabling participants to engage actively according to their own schedules, needs, and learning pace.

In the virtual component, the Moodle platform served as the central coordinating hub, providing access to resources, activities, and spaces for interaction. The Zoom tool complemented this environment, facilitating video conferencing sessions, collaborative work, and practical experiences that strengthened the joint construction of knowledge.

The face-to-face activities reinforced the learning developed online, promoting direct exchange and the application of content in real-world contexts. This combination fostered a comprehensive learning experience characterized by flexibility, continuous participation, and ongoing support.

Additionally, each session included a self-assessment questionnaire, allowing participants to monitor their progress, identify strengths and areas for improvement, and consolidate the knowledge acquired. Overall, the blended learning approach not only expanded opportunities for access and participation but also enhanced autonomous learning, meaningful interaction, and the development of digital and collaborative competencies.

### 6.4 Dissemination and communication strategy

The communication and dissemination strategy for the e-learning course held in Costa Rica was designed as a multi-layered effort, activated well before the course began. In the initial phase, project partners were mobilized to support the outreach process within their respective networks, ensuring that information about the course reached relevant academic, institutional, and technical audiences across the region. At the same time, Lifewatch and the OEI amplified the visibility of the event by circulating the course announcement and registration link through its established distribution lists, which significantly broadened the scope of the call.

Because the e-learning course offered both onsite and virtual participation, and places were limited, the communication campaign unfolded over an extended period to reach a wide yet targeted audience. Once the registration deadline closed, a careful selection process was launched to identify participants for both modalities. The overwhelming number of applications received far surpassed the available places—a clear indicator of the course's relevance and the strong interest it generated among professionals and stakeholders. This high level of demand, particularly from those who were ultimately unable to secure a spot, provided organizers with valuable insight into the real market appetite for such training and reinforced the importance of offering similar opportunities in the future.

During the delivery of the course, a dedicated photojournalist was engaged to visually document the launch, the thematic sessions, and the field visits that formed part of the official programme. Beyond capturing the key moments, the photographer also produced a series of short video capsules featuring participants who followed the course throughout its full duration. These testimonials highlighted the value of the training, the commitment of those involved, and the broader significance of promoting open science in the context of global environmental challenges. The audiovisual material served not only as a record of the event but also as an effective communication tool to expand its visibility.

Finally, both the launch and the subsequent sessions were widely disseminated through the communication channels of the consortium partners—particularly LifeWatch, CENAT, and the OEI. Updates were published on institutional websites, shared through social media platforms, and compiled on the project’s official webpage. These publications contributed to maintaining momentum and ensuring that the course’s objectives and achievements reached an international audience.

Examples of this dissemination include:

- <https://energytran.oei.int/the-energytran-project-launches-an-international-course-to-advance-in-open-science-face-of-global-environmental-challenges/>
- <https://energytran.oei.int/gbif-spain-drives-open-science-and-sustainability-within-the-framework-of-the-energytran-project/>

## 6.5 Participant engagement

A total of 115 individuals from more than 20 countries (Latin-American and European countries) expressed interest in participating in the pilot edition of the e-Learning course. After applying the selection criteria, 15 participants attended in person in San José (Costa Rica) while 18 joined online through the Zoom platform. Participants were selected taking into account a brief resume included on the application form ([Application form - Course: Environmental challenges and open science](#)). 83% of applicants wanted to participate in the course in a virtual way.

The target audience comprised a diverse range of stakeholders, including: Researchers and academics (Master’s students, PhD candidates, postdoctoral researchers, and senior scientists), Research infrastructure and data management professionals, Representatives of public administration and policy institutions, Members of civil society organizations, and Private sector actors engaged in Open Science, energy, and biodiversity initiatives.

At the end of the course, a total of 16 participants successfully completed all required activities and received an official Certificate of Completion issued by the project Coordinators (OEI). In addition, 17 researchers, technical and support people were involved in the pilot course.

## 6.6. Participant satisfaction survey

At the end of the pilot e-Learning course, participants completed a satisfaction survey aimed at evaluating the overall quality, relevance, and effectiveness of the training. The survey covered five key dimensions: course content, structure and format, instructors, logistics and communication, and overall impact and usefulness. A total of 22 responses were received (detailed responses to the satisfaction survey can be seen in Annex I).

**Overall assessment:** The results show a high level of satisfaction, with 96% of participants rating the overall quality of the course as “good” or “very good.” Respondents highlighted the relevance of the topics, the quality of instruction, and the impact and usefulness of the course.

**Course content:** Participants positively evaluated the relevance and applicability of the topics addressed, with 72–77% expressing agreement or strong agreement across content-related

indicators. The examples and case studies were considered useful and applicable (72.8%), while the materials and resources available on the Moodle platform were rated as adequate (77.3%).

**Structure and format:** The organization and logical sequence of modules were among the best-rated aspects, with 85.7% of participants agreeing that the progression of topics facilitated understanding, and 77.2% acknowledging the clarity and coherence of the course structure.

The duration of sessions was considered appropriate by 72.7% and the hybrid format was positively received (68.1%). The Moodle platform was valued as a useful tool (72.7%), and simultaneous translation was appreciated by 68.2%, confirming the multilingual approach as an asset for cross-regional participation.

**Instructors:** The performance of instructors received strongly positive feedback, with 81.8% agreeing that explanations were clear and engagement levels appropriate. However, 19% felt that there could be more opportunities for questions and discussion, suggesting that future editions may benefit from extended interactive segments.

**Logistics and communication:** Logistical and communication aspects were generally well evaluated. Participants found coordination adequate (77.3%) and the schedule convenient (81.8%). However, awareness and outreach could be improved: only 54.5% found it easy to learn about the course's existence, and half of the participants heard about it via email, with less visibility through the website, the newsletter, social networks, or other channels.

**Impact and usefulness:** The course achieved its objectives, with 72.7% of participants indicating that it provided new, applicable knowledge and tools. A similar proportion expressed interest in the topics addressed and stated that they would recommend the course to others (72.7%), confirming the perceived value and relevance of the training.

The insights collected through this survey provide valuable input for refining future editions of the e-Learning Course, helping to enhance the learning experience, optimize content delivery, and strengthen participant engagement.

## 7. CONCLUSION

The Energytran e-Learning Course "*Environmental Challenges and Open Science – An Approach from Innovation and Technology*" provides a validated, high-quality training resource that promotes Open Science principles in the context of energy transition and environmental sustainability across EU and LAC regions. The course demonstrates the feasibility of hybrid, multilingual delivery and offers participants relevant, clear, and practically applicable content. As a reusable and scalable resource, it fosters transparency, collaboration, and societal impact in research, supporting cross-regional knowledge exchange and the advancement of Open Science to address global environmental challenges.

## 8. ANNEXES

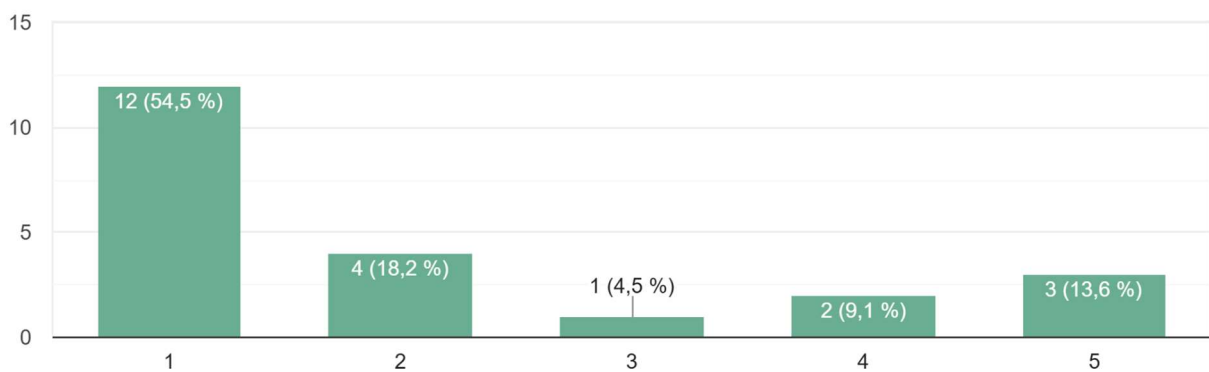
### Annex I. RESULTS OF THE SATISFACTION SURVEY

#### Contents of the course

In the figures below, the y-axis represents the number of responses received, while the x-axis corresponds to the different categories, where 1 means “strongly agree” and 5 means “strongly disagree.”

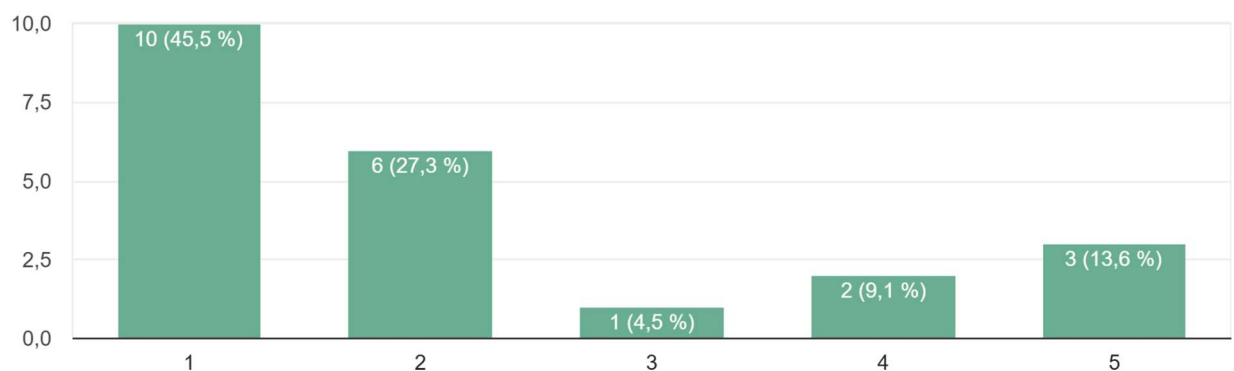
Los contenidos abordaron temas relevantes para mi trabajo o intereses.

22 respuestas



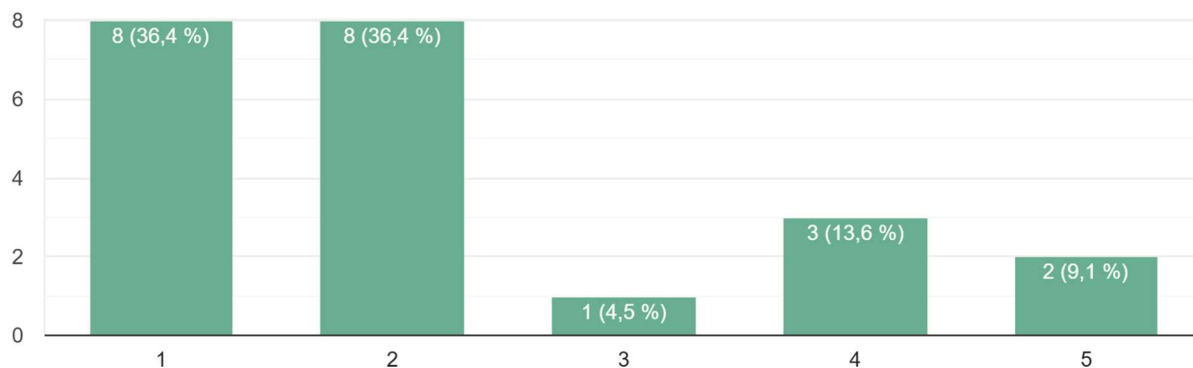
El nivel de profundidad de los contenidos fue adecuado.

22 respuestas



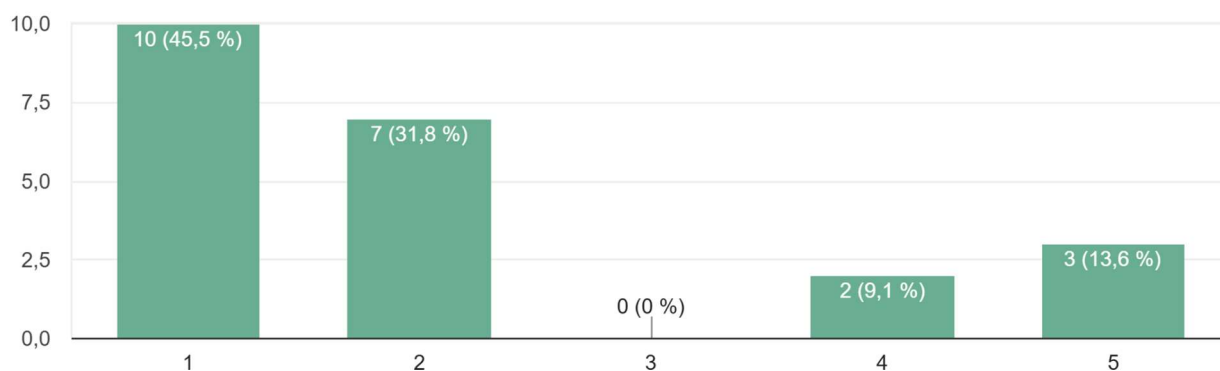
Los ejemplos y casos prácticos fueron útiles y aplicables.

22 respuestas



Los materiales y recursos disponibles en la plataforma de aprendizaje son adecuados.

22 respuestas

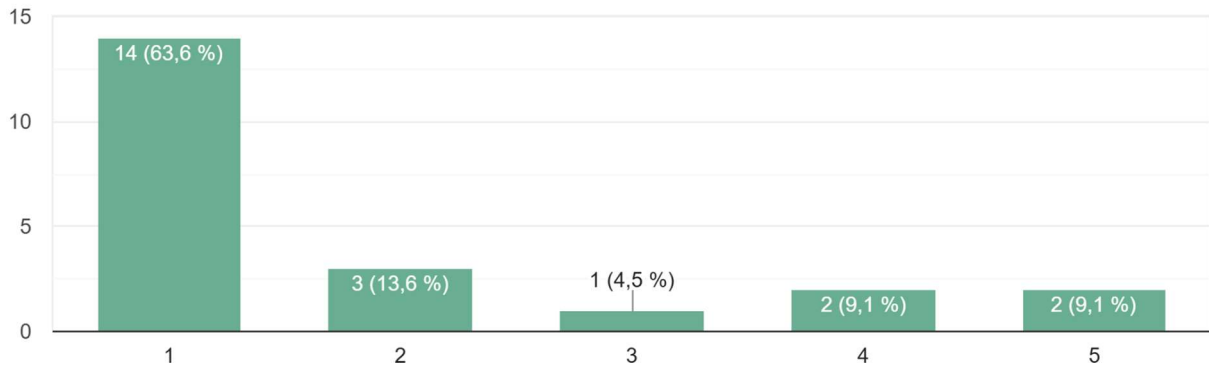


### Structure and format of the course

In the figures below, the y-axis represents the number of responses received, while the x-axis corresponds to the different categories, where 1 means “strongly agree” and 5 means “strongly disagree.”

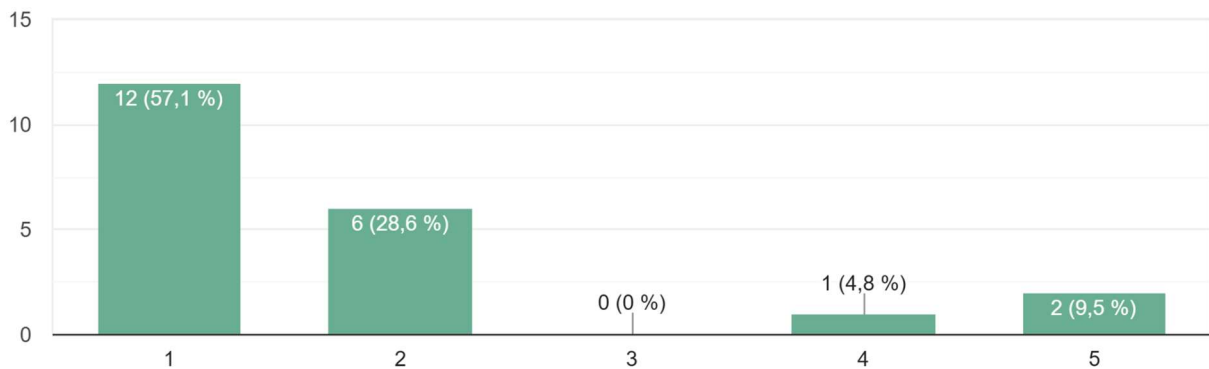
La estructura de los módulos y contenidos fue clara y coherente.

22 respuestas



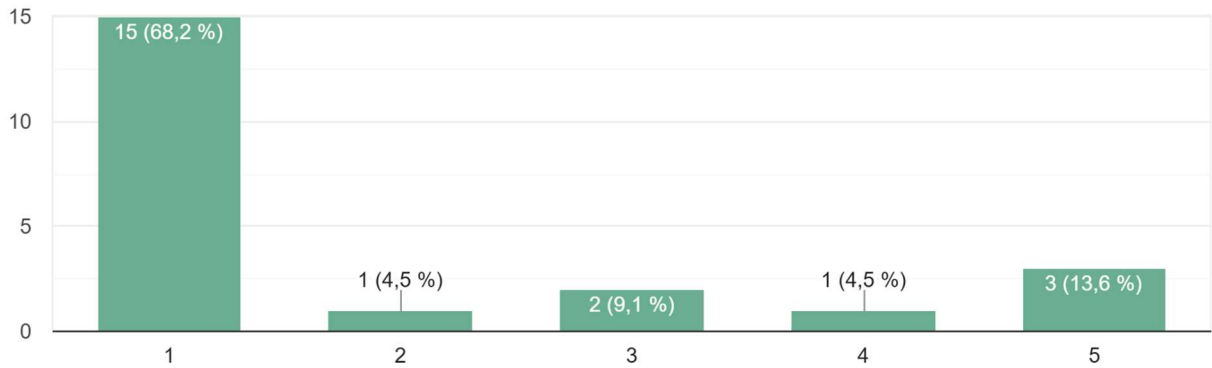
La secuencia de temas facilitó la comprensión global del curso.

21 respuestas



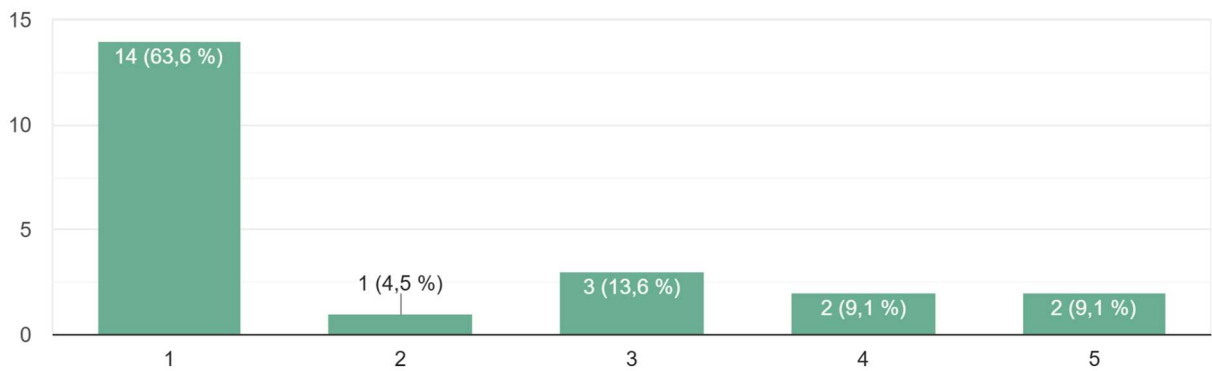
La duración de las sesiones fue adecuada.

22 respuestas



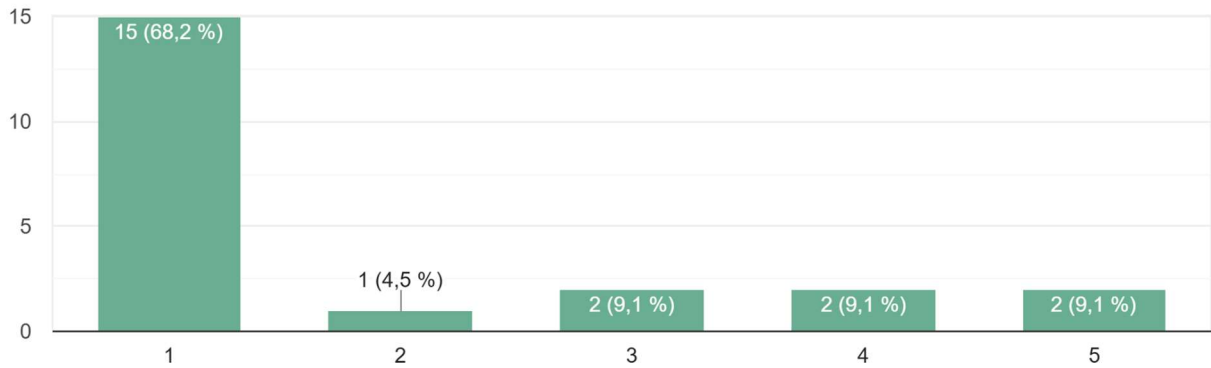
La modalidad híbrida (presencial + online) funcionó bien.

22 respuestas



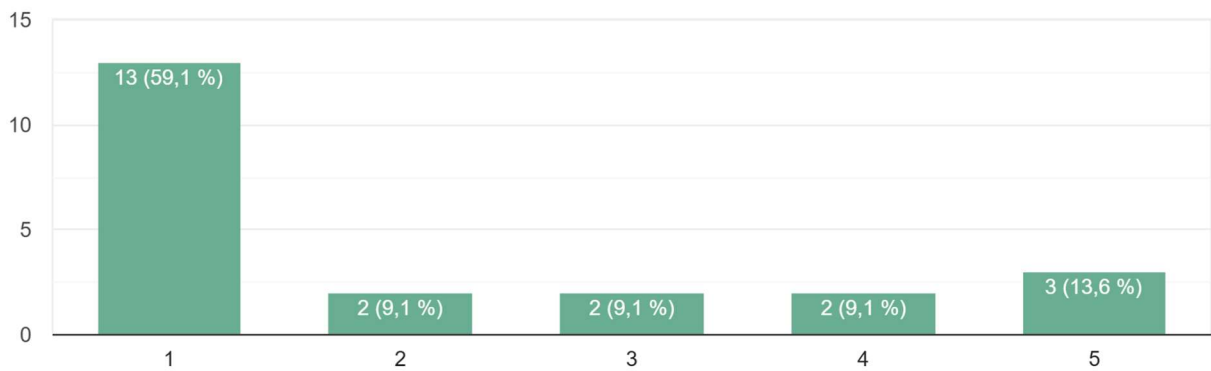
La plataforma de aprendizaje Moodle fue de utilidad.

22 respuestas



El idioma y la traducción simultánea facilitaron la comprensión de los contenidos.

22 respuestas

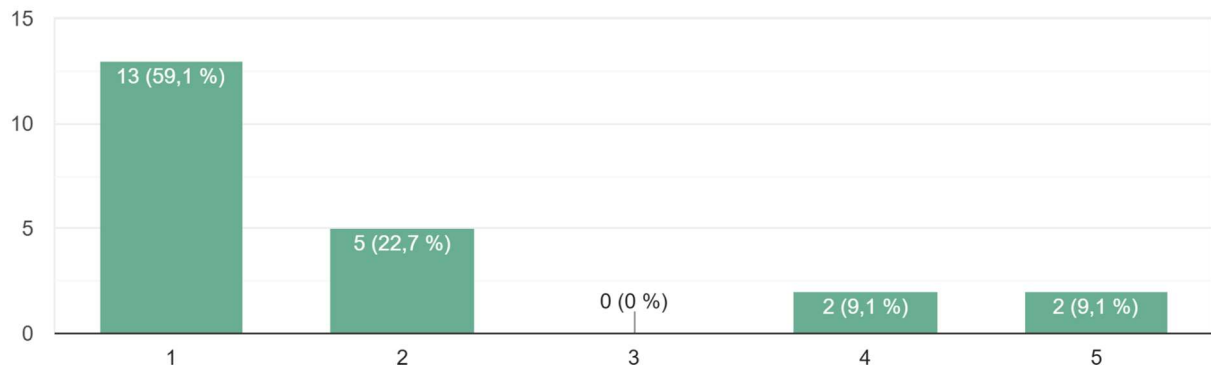


### Instructors of the course

In the figures below, the y-axis represents the number of responses received, while the x-axis corresponds to the different categories, where 1 means “strongly agree” and 5 means “strongly disagree.”

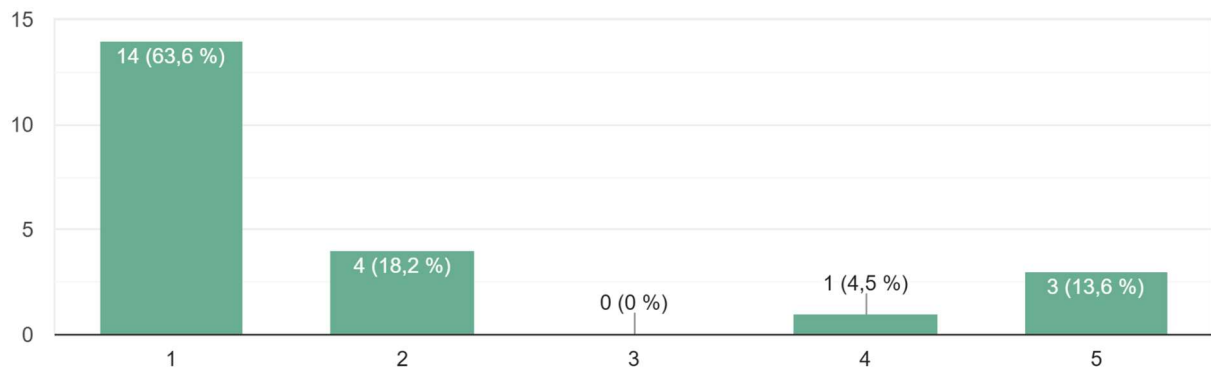
La explicación de los contenidos fue clara.

22 respuestas



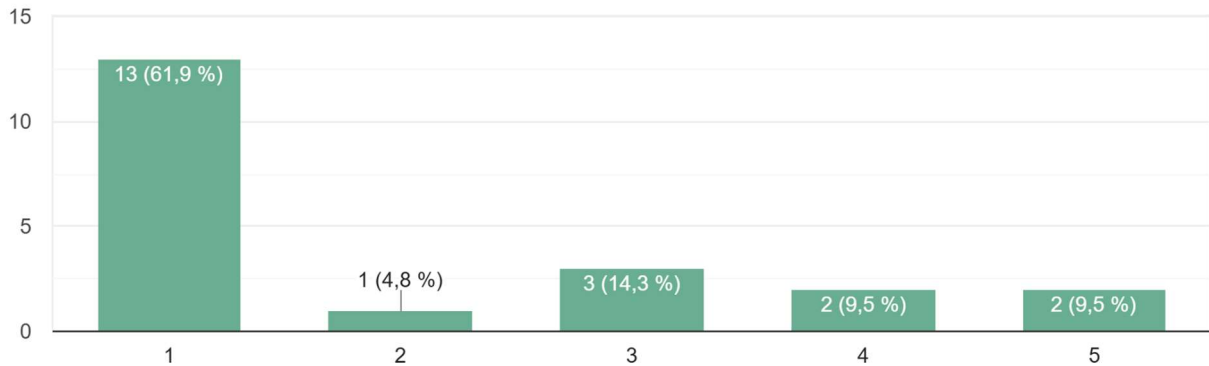
El nivel de implicación fue adecuado.

22 respuestas



Hubo suficiente espacio para preguntas y discusión.

21 respuestas

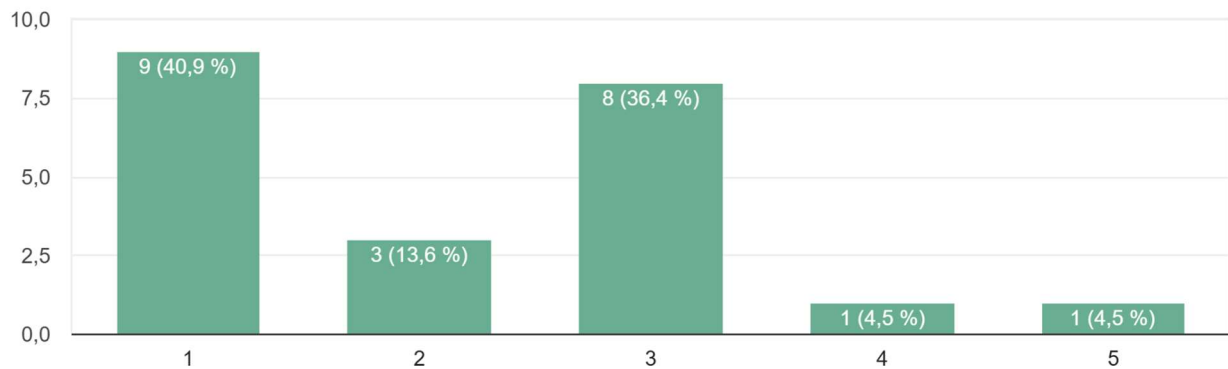


### Communication and logistics

In the figures below, the y-axis represents the number of responses received, while the x-axis corresponds to the different categories, where 1 means “strongly agree” and 5 means “strongly disagree.”

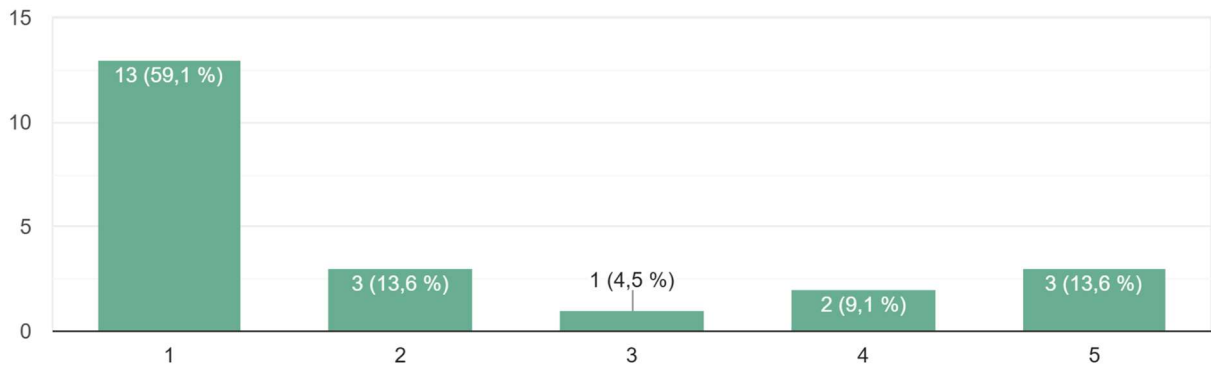
Ha sido fácil conocer la existencia del curso.

22 respuestas



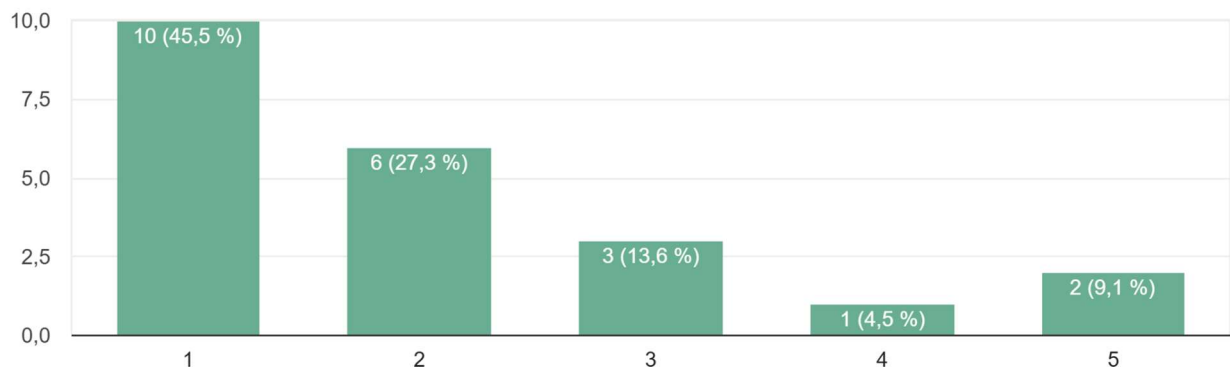
La información previa al curso (programa, agenda, accesos, sistema de inscripción) fue clara y suficiente.

22 respuestas



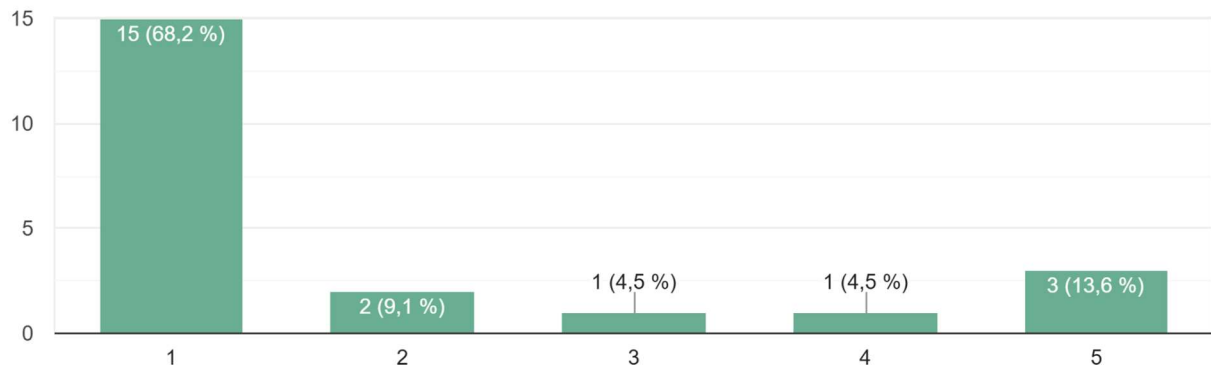
La selección de los participantes siguió unos criterios adecuados.

22 respuestas



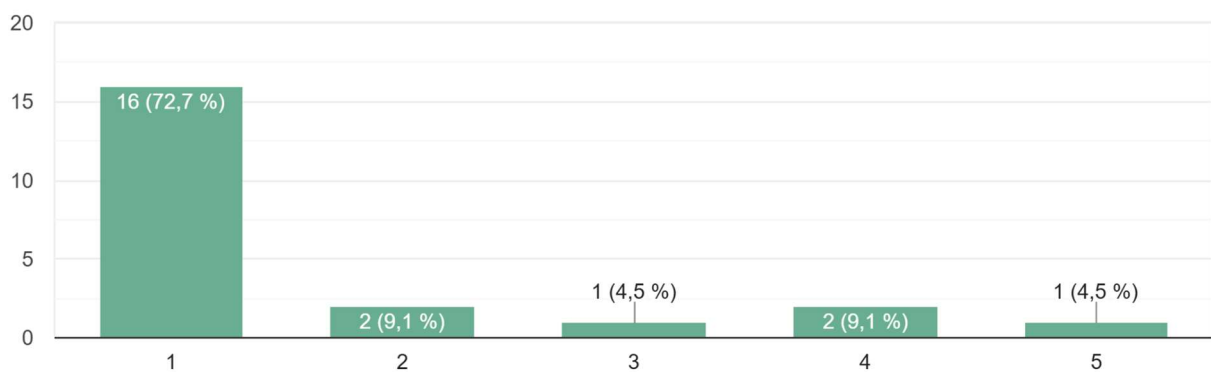
La coordinación general del curso fue adecuada.

22 respuestas

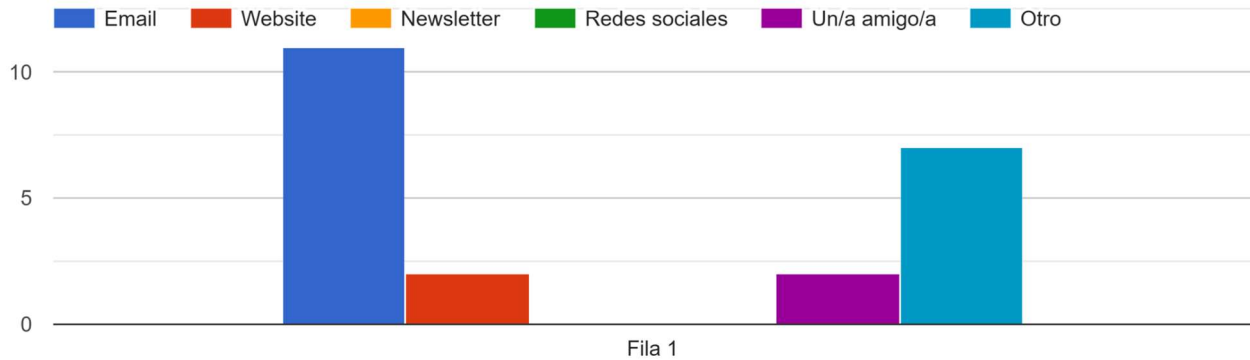


El horario y calendario se ajustaron a mis posibilidades.

22 respuestas



¿Cómo conoció la existencia del curso?

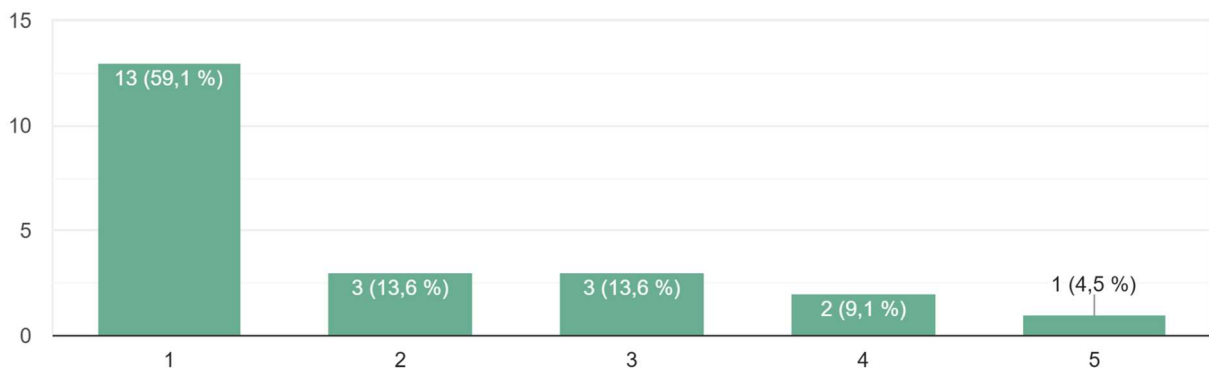


### Impact and usefulness

In the figures below, the y-axis represents the number of responses received, while the x-axis corresponds to the different categories, where 1 means “strongly agree” and 5 means “strongly disagree.”

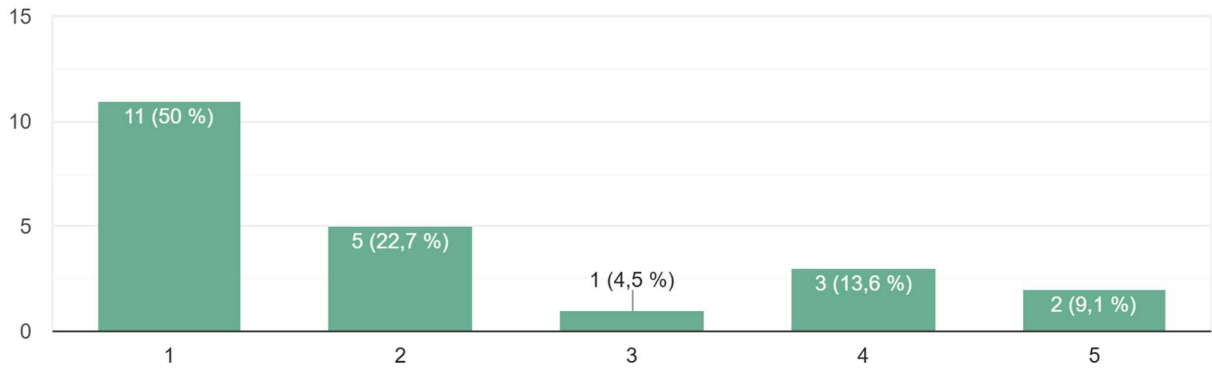
Considero que el curso me ha proporcionado nuevas herramientas y conocimientos aplicables.

22 respuestas



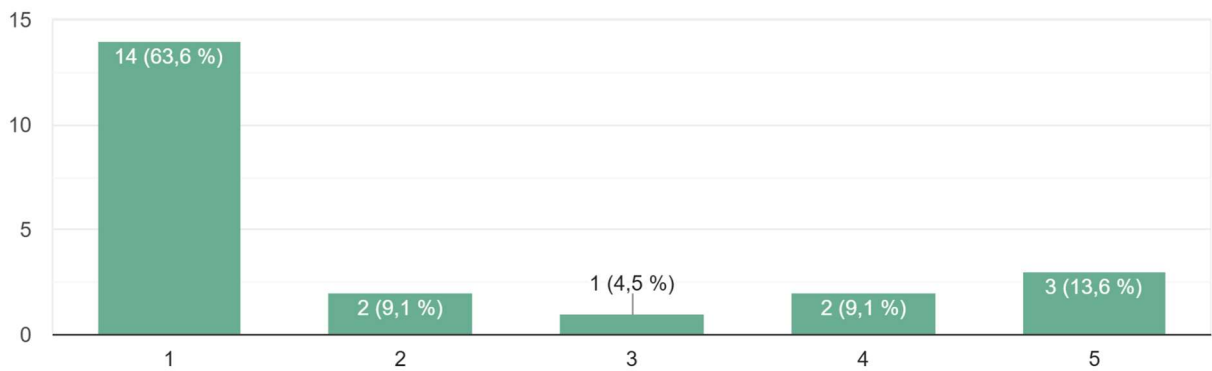
Los temas tratados han sido de interés.

22 respuestas

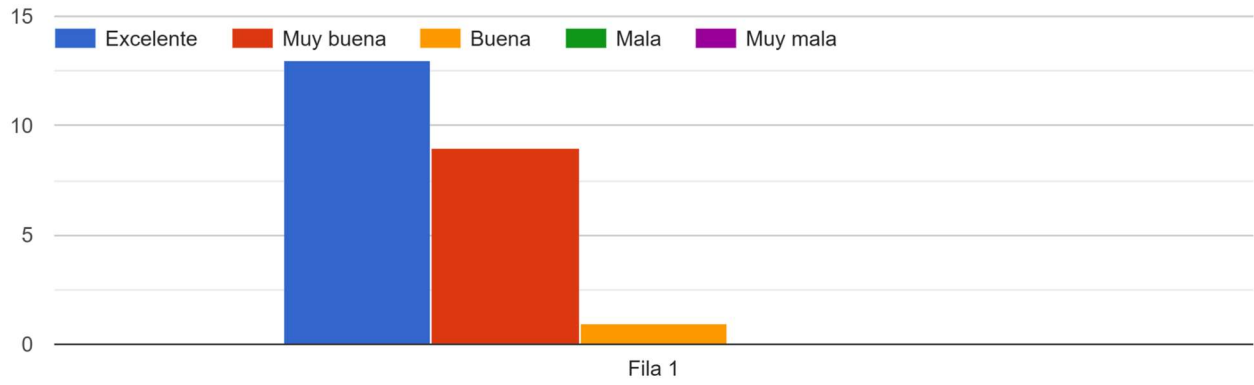


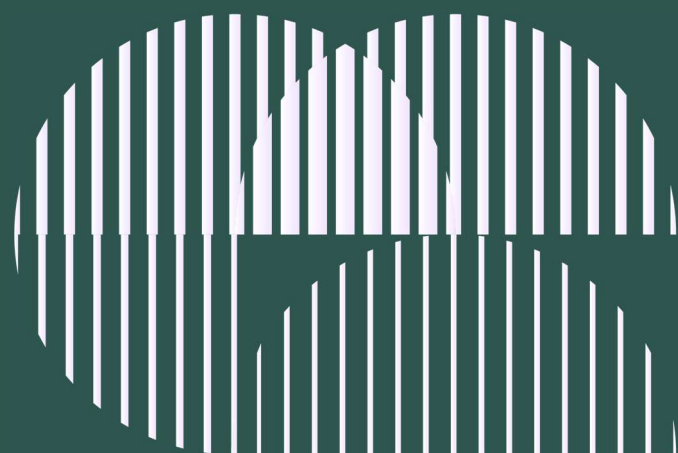
Recomendaría este curso a otras personas.

22 respuestas



¿Cómo valorarías la calidad general del curso?





# Energytran

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