



APPLICATION FOR AWARD

Academic Year 2020-2021

*Faculty of Engineering, Lusófona University of
Humanities and Technology*

Lisbon

Elisabete Maurício & Joana Lage

OUTDOOR SPACES - ACTIONS THEME

- **Organic vegetable garden**
- **Identification of species on campus**
- **Expansion of green areas**
- **Rehabilitation of Construction Sites**
- **Campaign to collect and characterize butts**

Topic(s) covered: Outdoor spaces; valorization of arid soils; plant species diversity

Date: March – June 2021

THEME - OUTDOOR SPACES

Organic vegetable garden



Topic(s) covered: Outdoor spaces; valorization of abandoned soils; plant species diversity

Date: March – July 2021



ORGANIC GARDEN PROJECT

Brief description of the activity:

In March 2021, prospecting for available areas on the University campus for the construction of an organic vegetable garden began.

The direction of the University and the direction of infrastructures were contacted to study the best place for the birth of the 1st biological garden on the Campus. After consulting the plans for the construction of green spaces, the area where the vegetable garden would be created was selected. The results were presented to the students in the form of a webinar. Where the students and teachers of the eco-advice.

Topic(s) covered: Outdoor spaces; soil valorization

Date: March 2021



CHOOSING THE PLACE TO IMPLEMENT A BIOLOGICAL GARDEN

Brief description of the activity:

After approval of the implementation site, the students of the eco-advice together with the teachers, they identified through the *Google Earth Pro*, the area corresponding to the implementation of the project. The organic vegetable garden is located on the east side of the campus of the Universidade Lusófona de Lisboa, in an arid terrain measuring 160 m.^{two}. The project will have two phases, this year the 1st phase will be carried out - revitalization of 76 m^{two}. The necessary deforestation works were carried out to reuse an abandoned land.

Topic(s) covered: Outdoor spaces; valorization of arid and abandoned soils

Date: March 2021



CONSTRUCTION OF THE ORGANIC VEGETABLE GARDEN

Brief description of activity:

In March 2021, the construction of our vegetable garden began. This will be in the form of beds made of rustic wood by the University's maintenance team. In this 1st phase, two flowerbeds were built, each 2 meters long and 1 meter wide.

In order to prevent the soil from leaving the beds. These were waterproofed with natural canvas, filled with stone and in the last two layers filled with biological soil. Students from the council actively participated in this activity.eco-schools and the maintenance team at the University.

Two more equal construction sites are planned to be prepared in a 2nd phase to be implemented in the 2021-2022 school year.

Topic(s) covered: Outdoor spaces, teamwork, appropriate choice of recyclable and biological materials

Date: March 2021



PLANTING THE BIOLOGICAL GARDEN AND IDENTIFYING THE SPECIES

Brief description of activity:

After applying the biological fertilizers, the plants were chosen to plant by Professor Ana rois, and professor Anabela Cruzes and and students in the field of plant biology and land use planning. The plants chosen were mainly aromatic and leguminous such as lemongrass,oregano, mint, mistand thyme, pumpkin, green beans and tomatoes. Students also participated in an activity carried out on site about the identification and use of aromatic plants.



Topic(s) covered: Outdoor spaces, teamwork, appropriate choice of recyclable and biological materials

Date: May-July 2021

ORGANIC VEGETABLE GARDEN NEWS

Brief description of activity:

The news of the construction of the organic vegetable garden was disseminated to the academic community through the various digital media available from the Faculty of Engineering and University

Link : <https://www.facebook.com/u.lusofona>

<http://fe.ulusofona.pt/noticias/1a-horta-biologica-na-universidade-lusofona/>

Topic(s) covered: Outdoor spaces, teamwork, news.

Date: May-July 2021

ULHT - Universidade Lusófona de Hum...

Serviço Social na ULHT
Carla Isabel Silva Monteiro
Ensino superior

Escola de Psicologia e ...
Mariana Martins gosta disto
Negócio local

Necpee
Blogue pessoal

Traz o teu negócio para o Facebook
Apresenta o teu trabalho, cria anúncios e comunica com clientes ou apoiantes.

Criar Página

Informações sobre os dados estatísticos da Página

ULHT - Universidade Lusófona de Humanidades e Tecnologias
13 de julho às 10:31

A Universidade Lusófona reajustou um dos espaços do campus, para criar a sua 1.ª Horta Biológica. O projeto foi realizado pelos estudantes sob a coordenação de docentes da instituição, ao abrigo da candidatura ao programa eco-escolas.

Sabe mais em <https://bit.ly/3yKJZ5>



Depois

Antes

fe faculdade de engenharia

INÍCIO FACULDADE ENSINO LABORATÓRIOS INVESTIGAÇÃO CANDIDATURAS CONTACTOS

Início / Notícias / 1ª Horta Biológica na Universidade Lusófona!

1ª Horta Biológica na Universidade Lusófona!



No âmbito da candidatura ao programa eco-escolas da faculdade de engenharia, foi criada a 1ª Horta Biológica na Universidade Lusófona. O Projeto foi realizado pelos alunos do conselho eco-escolas com a coordenação das Professoras Elisabete Maurício, Joana Lago, Anabela Cruzes, com o apoio da Eng. Ricardo Pinheiro do departamento de manutenção da ULHT.

O local escolhido para a implantação corresponde a uma área de solos áridos sem qualquer utilização com cerca de 160 m² situado na zona este do campus, que se pretende revitalizar transformando-a numa área útil para alunos e professores. O projeto irá ser desenvolvido em duas fases, este ano foi realizada a 1ª fase de revitalização com a criação de dois canteiros em madeira rústica construídos pela equipa de manutenção da Universidade, onde foram cultivadas ervas aromáticas e legumes. O objetivo será no próximo ano a revitalização da restante área, com a plantação de mais espécies de aromáticas e legumes. Esta horta pretende ser um local de estudo e exploração das diversas características e aplicações das plantas para desenvolvimento de futuros projetos com alunos em diversas disciplinas da faculdade.

Identification of species on the university campus

Brief description of the activity

Within the scope of the spatial planning course, a group of students developed a field research work on the biodiversity of trees existing on the campus, in order to quantify and identify the main existing species.

With the help of the tool *Google Earth Pro* the perimeter of the flowerbeds and From spots Where if find located at trees.



Topic(s) covered: Outdoor spaces, Identification of species of trees and shrubs, teamwork.

Date: June 2021

Identification of species on the university campus



Topic(s) covered: Outdoor spaces, Identification of species of trees and shrubs, teamwork.

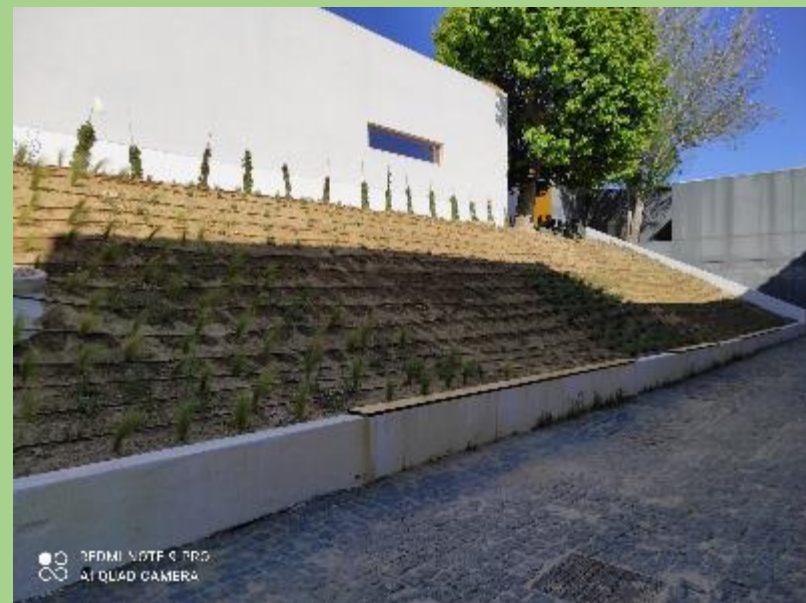
Date: June 2021



Expansion of green areas

Brief description of the activity:

In March 2021, prospecting for available areas on the University campus for the expansion of green areas began.



Topic(s) covered: Outdoor spaces; valorization of abandoned soils, planting of new green areas

Date: March 2021

Campaign to collect and characterize butts

Brief description of the activity

the students of eco-advice together with the students in the final project chair, they proceeded with the collection of butts on the University campus. Objective this action was to sensitize the school community to the dangers of depositing the butts and their leached on soils and beds. The butts collected were then forwarded to the laboratory where several studies were carried out on their toxicology and the dangers to public health were identified. These results were then presented in the project chair and will be published later in a scientific publication for the entire community.



Topic(s) covered: Outdoor spaces, teamwork.

Date: June 2021

Estudo da toxicidade de lixiviados das beatas de cigarro de tabaco aquecido

Projeto | Biotecnologia | 2021
Orientador: Elisabete Muchato Mauricio
Aluno: Paulo Daniel Guimarães Ferreira (Nº21805343)

www.lusofona.pt

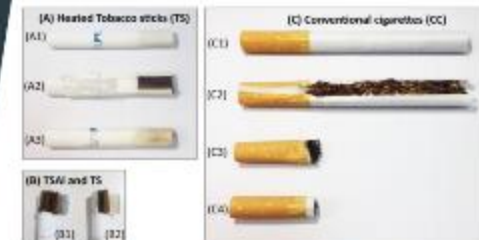
Estudo da Toxicidade de lixiviados de cigarros

Projeto | Biotecnologia | 2021

www.lusofona.pt

Tabaco Aquecido por baterias IQOS

- Os cartuchos de tabaco aquecido consistem em: [Aspera-Werz, 2020]
1. Tabaco, tratado com glicerina, com 0,5 mg de nicotina
 2. Papel externo cobrindo fina folha de alumínio à volta do tabaco
 3. Um filtro de refrigeração em biopolímero
 4. Um bucal oco de acetato de celulose em torno do filtro



Um cigarro de tabaco aquecido (A1) não utilizado, (A2) como exemplo de um cigarro de tabaco aquecido mostrando os três componentes (papel, filtro e tabaco), e (A3) cigarro de tabaco aquecido utilizado (A) como exemplo de um cigarro de tabaco aquecido (B1) cigarro de tabaco aquecido e mostrar o filtro de alumínio por baixo do papel de revestimento e (B2) cigarro de tabaco aquecido sem folha de alumínio e (C) um cigarro convencional (C1) e (C2) e (D) um cigarro (D1) como exemplo de um CT mostrando os três componentes (papel, filtro e tabaco), (D2) CT usado e (D3) CT e (D4) CT usado mostrando as diferenças nos componentes (papel, filtro e tabaco).

Campaign to collect and characterize butts



Amostra N



Amostra F



Amostra P

Preparação das Amostras

UNI EN 12457-2 : 2004 modificado

- ▶ Lixiviado N - lixiviado realizado com cigarros não fumados acabados de comprar
- ▶ Lixiviado F - lixiviado realizado com cigarros fumados
- ▶ Lixiviado P - lixiviado realizado com apenas os filtros dos cigarros que foram fumados

Brief description of the activity

In these projects, two types of tobacco leachate were analyzed, the so-called “normal” and the “heated” to verify if there is toxicity associated with the deposition of butts in the soil and in the aquatic environment. Both types of tobacco showed toxicity in these trials.

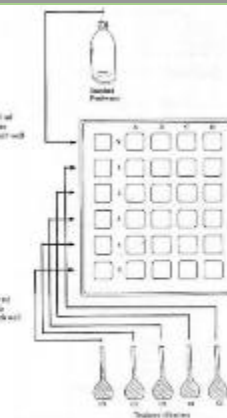
Topic(s) covered: Outdoor spaces, teamwork.

Date: June 2021

Metodologia

Foram apenas duas beiras de cigarros da marca Marlboro no chão da universidade lusófona. Foi comprado um pacote de cigarros Marlboro para se obter cigarros limpos não fumados. Todas as amostras foram pesadas (30g todas). As várias amostras são:

- Amostra F - Fumados com tabaco
- Amostra P - Fumados sem tabaco
- Amostra N - Não fumados com tabaco



Testes de toxicidade em crustáceos - artêmias

OECD teste No. 202 modificado



Diagrama de verificação do teste toxicológico em plantas: C1 = concentração de 30g/L de dejetos, C2 = concentração de 15g/L de dejetos, C3 = concentração de 7,5g/L de dejetos, C4 = concentração de 3,75g/L de dejetos, C5 = concentração de 1,875g/L de dejetos

Resultados - Testes Fitotoxicológicos

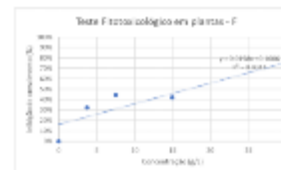


Gráfico 4 de inibição da amostra F no ensaio em relação à massa

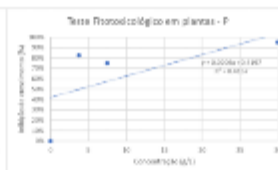


Gráfico 5 de inibição da amostra P no ensaio em relação à massa

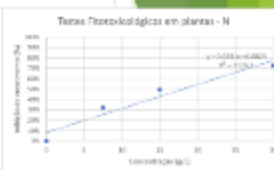


Gráfico 6 de inibição da amostra N no ensaio em relação à massa

GLS0 requerido das várias amostras

Lixiviado	GLS0 (g/L)
F	19,1
P	3,9
N	20,0

Rehabilitation of Construction Sites

Brief description of the activity

Students and teachers of eco-advice, identified some flowerbeds where some of the trees located on the campus grow, which unfortunately are used as ashtrays, for the disposal of garbage and butts.

In this action, the students were asked to clean and restore these spaces, transforming them into more aesthetically beautiful and caring places, in order to discourage the launch of butts for these places.



Topic(s) covered: Outdoor spaces, teamwork, removal of butts, rehabilitation of green areas.

Date: June 2021

Campaign to collect butts and posters

Brief description of the activity

Within the scope of the spatial planning course, several posters were developed by the students, with the aim of sensitizing the academic population to the need for the correct disposal of the butts in the appropriate ecopoints. These posters will be displayed and distributed around the campus in places considered to be more sensitive. Specific ecopoints were also acquired and distributed for butts, in order to try to reduce the negative impacts of their deposition on campus.



Universidade Lusófona de Humanidades e Tecnologias
Faculdade de Engenharia

Impactes do descarte de beatas no Campus da Universidade

Henrique Garcia De Sousa | N.º 2189/212
Licenciatura em Engenharia do Ambiente | Projecto Eco-Schools | Ano lectivo 2020/2021 | Maio 25 de Maio 2021

INTRODUÇÃO

É actualmente impossível ignorar o impacto do descarte de beatas no meio ambiente. Devido aos poluentes que lhes são inerentes as beatas são altamente tóxicas para os seres vivos, contaminando o solo, a água e o ar. Estas beatas são, além disso, a maior fonte de poluição do ar, sendo a principal causa de problemas respiratórios. Devido a estes impactos, a beatas são consideradas uma das maiores ameaças à diversidade e à saúde pública.

As beatas são a maior ameaça à vida marinha pois os seus filtros absorvem diversos e variados contaminantes do oceano como o arsénio, o chumbo, níquel, zinco, cádmio, entre outros, contaminando o oceano e os organismos marinhos. Os seus filtros também absorvem diversos e variados contaminantes do oceano como o arsénio, o chumbo, níquel, zinco, cádmio, entre outros, contaminando o oceano e os organismos marinhos. Os seus filtros também absorvem diversos e variados contaminantes do oceano como o arsénio, o chumbo, níquel, zinco, cádmio, entre outros, contaminando o oceano e os organismos marinhos.

BEATAS E A ULHT

A Universidade Lusófona de Humanidades e Tecnologias (ULHT) é constituída por diferentes Faculdades constituindo uma instituição de elevada importância de ensino superior, com mais de 50 anos, sendo assim considerada por milhares de alunos e professores. A ULHT é constituída por diferentes Faculdades constituindo uma instituição de elevada importância de ensino superior, com mais de 50 anos, sendo assim considerada por milhares de alunos e professores.

Figura 1 - Trabalho realizado por alunos do curso de Engenharia do Ambiente, no âmbito do Projecto Eco-Schools.

Figura 2 - Trabalho realizado por alunos do curso de Engenharia do Ambiente, no âmbito do Projecto Eco-Schools.

Figura 3 - Trabalho realizado por alunos do curso de Engenharia do Ambiente, no âmbito do Projecto Eco-Schools.

Figura 4 - Trabalho realizado por alunos do curso de Engenharia do Ambiente, no âmbito do Projecto Eco-Schools.

Topic(s) covered: Outdoor spaces, Impact of butts on the environment. team work.

Date: June 2021

THEME: AIR - ACTIONS

- Participation in the Map project
- Work done by students
- webinar about air pollution
- Published news



Topic(s) covered: indoor and outdoor air quality

Date: April – June 2021



PARTICIPATION IN THE PROJECT MAP

Brief description of activity:

In April 2021, the Faculty of Engineering joined, as a participating element, a national project, the Map, partnership between ASPEA (Portuguese Association of Environmental Education) and ABAE. This project intends to carry out a characterization of air quality at a national level, with the collaboration of educational institutions. In this sense, an equipment (sensor) was made available to the FE to continuously monitor particulate matter, namely PM10 and PM2.5, along with the temperature and relative humidity parameters throughout the day.



Topic(s) addressed: Air quality assessment
(pollutants physicochemical)

Date: April 2021 to date

Work done by students

Brief description of activity:

The data obtained through this equipment can be consulted on an online platform, allowing the monitoring of the influence of some pollution sources close to the ULHT campus.

This action, in addition to being an action integrated in the application to Eco-Schools of FE, also allowed for a research study to be carried out by a group of students from the 3rd year of Environmental Engineering, from FE, who are carrying out a study to assess the quality of indoor and outdoor air on the ULHT campus, with use of other complementary physicochemical and microbiological assessments for this purpose. The presentation of the final project and conclusions were presented in July to the other colleagues.

Date: May-July 2021

Qualidade do Ar Exterior

Análise da concentração de PM₁₀ e PM_{2,5}



Identificação de fungos filamentosos

Detecção	Fungo	Condições ambientais em que se encontra
Detecção em ambientes interiores	Aspergillus spp.	Alumina
Detecção em ambientes exteriores	Aspergillus spp.	Alumina
Detecção em ambientes interiores	Aspergillus spp.	Alumina
Detecção em ambientes interiores	Aspergillus spp.	Alumina
Detecção em ambientes interiores	Aspergillus spp.	Alumina

Fungos filamentosos identificados	Local de amostragem
Aspergillus spp.	Entrada ULHT, Exterior Lab
Cladosporium spp.	E04
Penicillium spp.	E04, Exterior Lab, Entrada ULHT
Alternaria spp.	E04
Fusarium spp.	E04, E04



Figura 10: Imagem de microscópio de Aspergillus sp.



Figura 11: Imagem de microscópio de Cladosporium sp.



Figura 12: Imagem de microscópio de Penicillium sp.



webinar about air pollution

Brief description of activity:

On June 2nd as part of a series of webinars that took place between May 21 and June 8, it was possible for the entire academic community to attend a webinar about indoor air quality. Where the main pollutants and the importance for public health of controlling these pollutants within confined spaces such as classrooms were presented.

Topic(s) addressed: Indoor air quality assessment (pollutants physicochemical and microbiological)

Date: June 2021 to date



Avaliação da Qualidade do Ar Interior (QAI)

Gerard Bailey
AAA – Análises do Ar Ambiente, Lda
www.aaalda.com

Porquê avaliar a qualidade do ar interior?

- Tempo de permanência das pessoas no interior
- Existência de edifícios cada vez mais estanques
- Utilização generalizada de sistemas de climatização (AVAC)
- Aumento das queixas associadas com a qualidade do ar interior – diminuição produtividade
- Necessidade de controlar a qualidade do ar como medida de proteção da saúde dos ocupantes dos edifícios.



Dióxido de Carbono

Equipamento: Airflow Base Unit
Concentração máxima de referência:
1250 ppmV

Indicador da eficiência de ventilação.

Radão

Equipamento: Dosimeter ITN
Concentração máxima de referência: 300 Bq/m³
Decreto-Lei 108/2018

(em edifícios construídos em zonas graníticas, nomeadamente nos distritos de Braga, Vila Real, Porto, Guarda, Viseu e Castelo Branco)



Published news

Brief description of activity:

The news about participation in the project was disseminated Map with the academic community through the various digital media available from the Faculty of Engineering and University

Link : <https://www.facebook.com/u.lusofona>

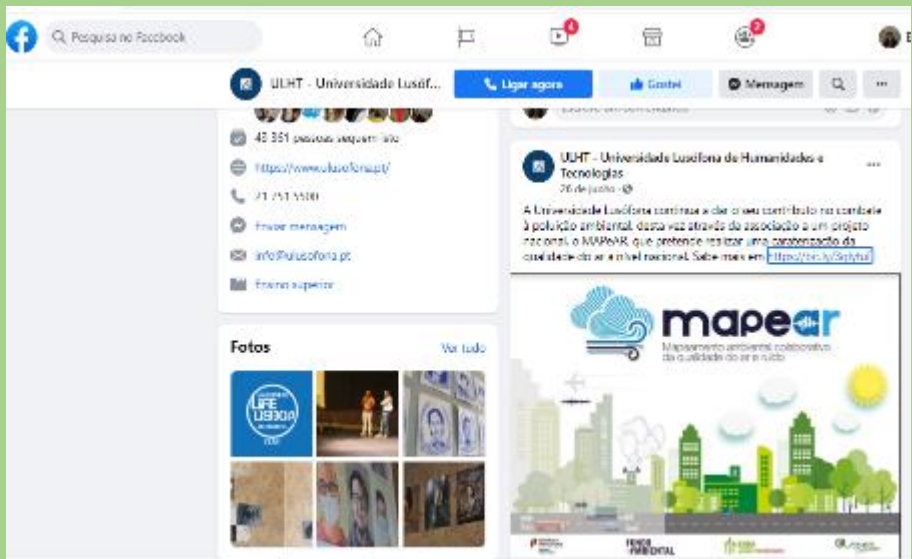
<https://fe.ulusofona.pt/noticias/avaliacao-da-qualidade-do-ar-na-ulht/>

Topic(s) addressed: Air quality assessment (pollutants physicochemical and microbiological)

Date: April 2021 to date



The screenshot shows the website of the Faculty of Engineering (FE) of the University of Lisbon (ULHT). The header includes the FE logo and navigation links: INÍCIO, FACULDADE, ENSINO, LABORATÓRIOS, INVESTIGAÇÃO, CANDIDATURAS, CONTACTOS. The main content area features a news article titled "Avaliação da qualidade do ar na ULHT". The article includes a photograph of a building and a graphic with the "mapear" logo, which stands for "Mapeamento ambiental colaborativo da qualidade do ar e ruído". The text describes a project initiated in April 2021, involving the Faculty of Engineering, the Portuguese Association of Environmental Education (ASPEA), and the ARAS. The project aims to characterize air quality at the national level through a collaborative mapping effort. It mentions the use of a sensor (PM10 and PM2.5) and the development of a platform for data collection and analysis.



The screenshot shows a Facebook post from the page "ULHT - Universidade Lusófona de Humanidades e Tecnologias". The post is dated June 26 and features the same "mapear" logo and graphic as the website screenshot. The text of the post describes the project's goal to contribute to the fight against environmental pollution through a collaborative mapping effort. It mentions the use of a sensor (PM10 and PM2.5) and the development of a platform for data collection and analysis. The post includes a link to the project's website: <https://fe.ulisboa.pt>. Below the text, there is a section titled "Fotos" showing a grid of images related to the project.

THEME: WASTE - ACTIONS

- Construction and implementation of ecopoints on campus
- Work done by students
- webinar about waste
- Published news

Topic(s) addressed: Ecopoints and selective waste collection, training of students and employees

Date: April – June 2021



CONSTRUCTION AND IMPLEMENTATION OF ECOPOINTS

Brief description of activity:

As part of the application of the Faculty of Engineering at ULHT to the Eco Schools program, a partnership was promoted with the labtec- Lusófona's Prototyping Laboratory and the maintenance team, for the production of three sustainable, easy-to-use and long-lasting Ecopoints. These Ecopoints made of wood, combine digital production technologies and the knowledge of manual work, in a piece that is easy to produce and use. They were strategically distributed in order to ensure an increase in the separation of waste in the fields.



Date: March-June 2021

IDENTIFICATION OF TRAINING NEEDS

Brief description of activity:

This year, training/awareness actions were promoted on the academic population, in the shape of webinar and about the employees under the theme, Waste Management. the contents focused mostly on the importance of proper waste management and how we can all contribute for recycling, reducing the amount of unsorted waste.

Another action was promoted with the students belonging to the eco-advice, in order to verify if the separation in the recycling bins was being carried out correctly. Thus, the contents of each recycling bin were analyzed, verifying that in some cases, the waste was not correctly separated. In this way training needs in the area of waste management were identified.

Topic(s) addressed: Waste and its management at ULHT, training of students and staff

Date: June 2021



WASTE MANAGEMENT TRAINING

Brief description of activity:

On June 8, under the Faculty of Engineering's application to the program Eco-Schools and in order to promote training/awareness for a correct management/separation of waste on the university campus, two face-to-face awareness actions were carried out for cleaning services at the Lusófona University of Humanities and Technologies.

Professor Cândida Rocha, professor at the ULHT Engineering Faculty and her Master's Degree student in Environmental Engineering, Bruno Dionísio, explained to 20 employees various waste management concepts and good practices that can be applied on a daily basis and in work context. The content of the training focused mainly on the importance of proper waste management and how we can all contribute to being well prepared for recycling.

Topic(s) addressed: Waste and its management at ULHT, training of students and staff



Date: June 2021

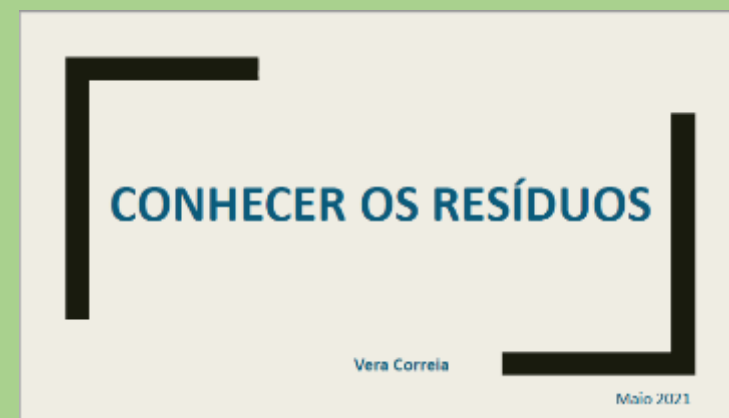
webinar about waste management

Brief description of activity:

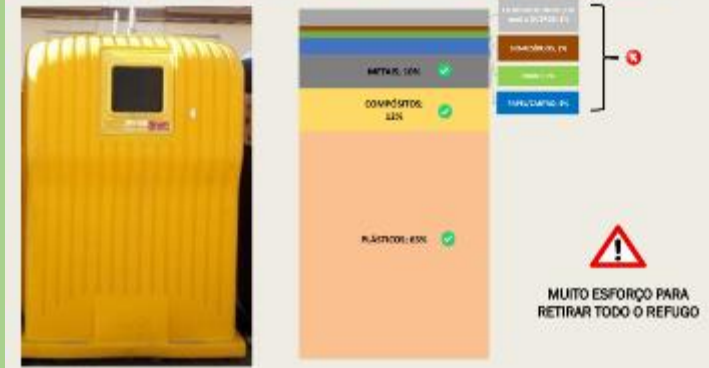
On May 28th as part of a series of webinars which took place from May 21st to June 8th, it was possible for the entire academic community to attend a webinar on waste management, where the main wastes were presented and how we should separate them in the recycling bin. There was also talk of recycling targets proposed in PERSU 2020 until the year 2035.

Topic(s) addressed: waste separation, recycling, forests, training.

Date: June 2021



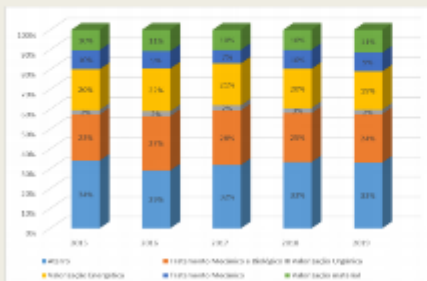
COMPOSIÇÃO MÉDIA – CONTENTOR DAS EMBALAGENS



COMPOSIÇÃO MÉDIA – CONTENTOR DO INDIFERENCIADO



DESTINO DOS RESÍDUOS URBANOS PRODUZIDOS EM PORTUGAL



EM 2035 APENAS 10% DO TOTAL DE RESÍDUOS PODERÁ SER DEPOSITADO EM ATERRO

Fonte: PERSU 2020

Published news

Brief description of activity:

The dissemination of news about the construction of ecopoints and the action to employees in the academic community through the various digital media available from the Faculty of Engineering and University

Link : <https://www.facebook.com/u.lusofona>

[https://www.ulusofona.pt/noticias/lusofona-produz-ecoponto-labtec?](https://www.ulusofona.pt/noticias/lusofona-produz-ecoponto-labtec)

<https://fe.ulusofone.pt/noticias/page/3/>

Topic(s) addressed: Waste and its management at ULHT, training of students and staff

Date: April 2021 to date



THEME: ENERGY-ACTIONS

- Replacement of conventional fluorescent lamps with LED lighting
- Awareness raising action regarding energy saving
- webinar about alternative energy
- Published news

Topic(s) covered: energy management, training of students and staff, energy saving.

Date: March – June 2021



Replacement of conventional fluorescent lamps with LED lighting

Brief description of activity:

the university Lusófona, with the objective of reducing energy consumption and becoming more sustainable, started this year the replacement of high consumption lamps by low consumption LED lamps, through the process "flashing".

This one procedure consists essentially in the replacement of fluorescent lamps, keeping the original lamp, by lamps with LED technology (*light Emitting Diode*) of greater durability, thus contributing to a approximately 90% effective reduction in total energy consumption.

By the end of the next school year, it is a goal to replace all conventional light bulbs with this process.



Topic(s) covered: Energy consumption management, process description Relamping,

Date: March – July 2021

"Relamping" at ULHT- Action awareness campaign on energy saving

Brief description of activity:

the month of June, as part of the implementation of the action plan Eco-Schools of the Faculty of Engineering, an awareness-raising action on the management of energy consumption was promoted among the students of the faculty, where it was possible to demonstrate the process of "flashing".

This action involved teachers Elisabete Mauricio and Joana Lage, with the support of Engineer Ricardo Pina and the ULHT maintenance team.

Topic(s) covered: Energy consumption management, process description Relamping,

Date: March – July 2021



webinar about renewable energy

On May 21st as part of a series of webinars that took place between May 21 and June 8, it was possible for the entire academic community to attend a webinar on renewable energies, where alternatives to the current most used energy sources were discussed

IN+ CENTER FOR INNOVATION, RESEARCH AND POLICY RESEARCH

Rui Costa Neto

A nova revolução industrial: da energia solar fotovoltaica ao hidrogénio e oxigénio verdes

Rui Costa Neto

Comparação de Propriedades dos gases, Energia

	Hidrogénio	Gás Natural	Gasolina
Color	Não	No	
Toxicity	nenhuma	alguma	
Odor	Sem odor	Mercaptano	
Flutuabilidade Relativa ao Ar	14X leve q ar	2X leve q ar	Mais pesado
Energia por Peso (MJ/kg)	120 MJ/kg	52 MJ/kg ~1.2X >	43 MJ/kg
	2.8X >	Gasolina	
Energia por Volume (MJ/L)	8 MJ/L	21 MJ/L 1.5X <	32 MJ/L
	4X <	Gasolina	

Topic(s) addressed: Indoor air quality assessment (pollutants physicochemical and microbiological)



Date: May 21, 2021

Published news

Brief description of activity:

The dissemination of news about the process was carried out "flashing" and awareness-raising action with the academic community through the various digital media available from the Faculty of Engineering and University

Link : <https://www.facebook.com/u.lusofona>

<https://fe.ulusofona.pt/noticias/relamping-na-ulht-accao-de-sensicao-sobre-poupanca-energetica>

<https://www.facebook.com/FaculdadeEngenhariaULHT>

Topic(s) covered: Energy consumption management, process description
Relamping, awareness of students and community

Date: April 2021 to date



THEME: WATER - ACTIONS

- **Measurement of water consumption at the University. water saving plan**
- **Work done by students**
- **webinars about water resources**
- **Published news**

Topic(s) covered: water consumption management. Study of alternative water saving systems,

Date: March – June 2021



Measurement of water consumption at the University. water saving plan

Brief description of activity:

In the context of implementing the action plan Eco-Schools at the Faculty of Engineering, an action was carried out to measure flow rates and water consumption per minute, mainly in the bathroom taps used by students.

The audit was carried out by the team of students from the eco-advice, where Faround 33 faucets with above average consumption were identified.

Topic(s) covered: water consumption management.
Study of alternative water saving systems

Date: March – July 2021



Measurement of water consumption at the University. water saving plan

Minimum reference values for washbasin taps are three to four liters per minute;

For kitchen faucets, five to six liters per minute.

Values above demonstrate excessive water consumption. Protest Source, 2021

Topic(s) covered: water consumption management.
Study of alternative systems for saving water, auditing water consumption.

Date: March – July 2021

UNIVERSIDADE LUSÓFONA			
Localização	Tipo de torneira	Consumo em Lts/minuto	
E-Masculino	Pressão	3,2	
E-Feminino esquerda	Pressão	6,6	
E-Feminino direito	Pressão	7	
S-Deficientes	Elevação	12,3	
S-Masculino 1	Pressão	7	
S-Masculino 2	Pressão	7	
S-Masculino 3	Pressão	5,8	
S-Masculino 4	Pressão	4,8	
S-Masculino 5	Pressão	7,6	
S-Feminino 1	Pressão	7,4	
S-Feminino 2	Pressão	6,8	
S-Feminino 3	Pressão	1,4	
S-Feminino 4	Pressão	6,6	
I-Masculino Exterior	Pressão	3,2	
I-Masculino Interior	Elevação	11,7	
I-Feminino Interior	Rosca	Avariada	
I-Feminino Exterior	Pressão	8,7	
C-Professores Exterior 1	Pressão	9,6	
C-Professores Exterior 2	Pressão	12	
C-Professores Feminino	Rosca	15,6	
A-3* Piso-Feminino 1	Rosca	16,8	
A-3* Piso-Feminino 2	Rosca	21	
A-3* Piso-Feminino 3	Rosca	16,2	
A-3* Piso-Feminino 4	Pressão	5,7	
A-3* Piso-Masculino 1	Rosca	15,6	
A-3* Piso-Masculino 2	Rosca	10,8	
A-3* Piso-Masculino 3	Rosca	8,4	
A-3* Piso-Masculino 4	Pressão	2,5	
A-2* Piso-Feminino 1	Pressão	3,4	
A-2* Piso-Feminino 2	Pressão	8	
A-2* Piso-Feminino 3	Rosca	20,4	
A-2* Piso-Feminino 4	Rosca	15	
A-2* Piso-Masculino 1	Rosca	7,8	
A-2* Piso-Masculino 2	Rosca	7,2	
A-2* Piso-Masculino 3	Pressão	5,7	
A-2* Piso-Masculino 4	Pressão	5,1	
A-1* Piso-Deficientes	Elevação	12	
A-1* Piso-Feminino 1	Pressão	2	
A-1* Piso-Feminino 2	Pressão	3,8	
A-1* Piso-Feminino 3	Pressão	7	
A-1* Piso-Masculino 1	Pressão	4,6	
A-1* Piso-Masculino 2	Pressão	3,8	

Measurement of water consumption at the University. water saving plan

To make Universidade Lusófona more sustainable, around 12 faucets complete with reducers and around 15 reducers to apply directly to the faucets were acquired.

participated in this Action the Engineer Ricardo Pina and the ULHT maintenance team.

Topic(s) covered: water consumption management. Study of alternative water saving systems,

Date: March – July 2021



Work done by students

Brief description of activity:

Associated with the theme Thewater of the action plan eco-schools and within the scope of the project chair, a Work of investigation by a group of students of the 3rd year of Environmental Engineering, from FE, on the theme “environmental characterization of paul de Mthe Intendente and its hydrographic basin”. This work was accompanied by several field trips to collect water and sediments in order to characterize the quality of water and sediments in the region. The presentation of the final project and conclusions were presented in July to the other colleagues. It is intended that the results are later published in a scientific publication for the entire community.

Topic(s) covered: water consumption management. Water and sediment quality.

Date: May-July 2021



webinars on coastal zone management and conservation of sensitive areas

Brief description of activity:

On March 12th and April 15th, within the scope of the planning disciplines, it was possible for the academic community of the faculty, professors and students to attend two lectures on the management of sensitive aquatic areas.

CURSO: Licenciatura em Engenharia do Ambiente
UC: Ordenamento do Território

Palestras

15 ABRIL / 2021 Sexta-feira
16h – 18h - <https://videoconf-colibri.zoom.us/j/85618620345>

Dr. VÍCTOR ENCARNACIÓN**

Gestão de áreas ambientalmente sensíveis
ÁREAS CLASSIFICADAS
** Centro de estudos e migração e protecção de aves - Campani CNF

Universidade Lusófona (Campo Grande)
Faculdade de Engenharia - Engenharia do Ambiente



Grupo Lusófona | Construir FUTURO

Saída Técnica

(VIRTUAL – ZOOM)

Engenharia do Ambiente

RESERVA NATURAL DAS LAGOAS DE SANTO ANDRÉ E DA SANCHÁ

12 de Março/2021 (6ª feira) – 16h
<https://videoconf-colibri.zoom.us/j/81291692420>

9/3/2019, A. Messias



ABERTURA ARTIFICIAL DA BARRA DE MARÉ
(acompanhamento em directo com imagens de drone – YouTube)

Universidade Lusófona de Humanidades e Tecnologias
Faculdade de Engenharia (Campo Grande)



Topic(s) covered: water consumption management. Water and sediment quality.

Date: March-April 2021

Published news

Brief description of activity:

The dissemination of news about the process was carried out "flashing" and awareness-raising action with the academic community through the various digital media available from the Faculty of Engineering and University

Link : <https://www.facebook.com/u.lusofona>

<https://www.ulusofona.pt/noticias/lusofona-esta-maisverde?fbclid=IwAR3BUKvDnYTMaadVAfnX7YR>

know more about the project at

<https://bit.ly/3riwxDP>

Meet Lusófona Verde: <http://bit.ly/2Ynlpp2>

Topic(s) covered: Energy consumption management, process description
Relamping, awareness of students and community

Date: April 2021 to date

Início: Notícias Lusófona | A Universidade Lusófona está mais verde

Universidade Lusófona

A Universidade Lusófona está mais verde

Envolver e re-educar a comunidade académica, no âmbito da candidatura ao programa Eco-Escolas.

As atividades pretendem sensibilizar os mais jovens, os mais velhos e todos aqueles que desconhecem algumas das boas práticas ambientais que podem fazer toda a diferença na proteção do meio ambiente.

Neste momento, estão a decorrer as seguintes atividades sustentáveis no campus da Universidade Lusófona: horta biológica onde é possível fazer agricultura sem prejudicar o ambiente; a produção de um ecoponto; redução de água através de redutores de caudal ou da forma mais caseira com garrafas que permitem a diminuição dos 15 litros gastos em cada recarga.



OTHERS ACTIVITIES COMMON AND COMPLEMENTARY TO THE THEMES UNDER STUDY

DISSEMINATION ECO-WEBINARS

Disclosure of Eco-Webinars through a promotional poster, placed at the college and campus, as well as disseminated via email/social media/website/ mailing lists for the academic community.

5 were performed *webinar* on different themes. A maximum of 44 participants was reached and the *webinar* had the approximate duration between 1.5h/2h. In all sessions the participants were very enthusiastic and participative in the open discussion.

Topic(s) covered: Energy, waste, citizenship active, environmental education.

Date: May - June 2021



ECO WEBINARS
Ambiente & Sustentabilidade

21 MAI 17H30 "A nova revolução industrial: da energia solar Fotovoltaica ao hidrogénio e oxigénio verdes"
Orador: Rix Heto - Investigador no iM, IST, Lisboa, Professor FE/UAUT

26 MAI 18H00 "Participação pública: o direito à informação e o dever de o fazer"
Orador: Isabel Azevedo Santos - Investigadora no MAPE, Nova, Nova, School of Science & Technology, NDA, Professora FE/UAUT

28 MAI 18H30 "Conhecer os resíduos"
Orador: Vera Camela - Assessor, Técnico e especialista na gestão de resíduos na SED - Environment Global Facilities

02 JUN 17H30 "Avaliação da Qualidade do Ar Interior em Edifícios de Serviços"
Orador: Gerard Bailey - CEO na empresa AAA - Analises do Ar Ambiente, Lda / Mestre em Environmental Sciences na Trinity College em Dublin e Certified Energy Auditor UK and Valencia

08 JUN 17H00 "O papel dos investigadores na transferência de conhecimento para as comunidades locais - a importância da EDUCAÇÃO AMBIENTAL"
Orador: Anabela Oliveira - Investigadora no IC, UNL, Lisboa e no DREANS-LUTH, Engenheira e Professora da 1ª Ciclo de Engº Ambiente FE/UAUT

Moderadores:
Elisabete Mourão
& Joana Lage coordenadoras FE
Pro-rector, Professora FE-UAUT

Inscrição obrigatória, Contacto: Fabiano Queiroz (967964454@ua.pt)

Logos: LUSOFONA, Eco Escola, FE

EVALUATION FORM OF ECO-WEBINARS



Creation of *Google form* for evaluation of *webinars* performed. All registrants were invited to give their opinion on the *webinars*, as well as the suggestion of future topics to be addressed. The possibility was offered to deliver a certificate to whoever referred it in the form.

Topic(s) covered: Energy, waste, citizenship active, environmental education.

Date: June 2021

Avaliação dos Eco-Webinars

Muito obrigada pelo seu interesse nos Eco-Webinars promovidos pela equipa Eco-Escolas da Faculdade de Engenharia. Uma vez que a sua opinião é muito importante para nós, para garantirmos a melhoria contínua nos próximos eventos, pedimos o favor de nos dar a sua opinião muito breve sobre os webinars em que participou.

Email *

Email válido

Este formulário está a recolher emails. [Alterar definições](#)

Nome próprio e apelido *

Texto de resposta curta

Afiliação (ex: instituição, faculdade e curso, etc) *

Texto de resposta curta

Quais foram os webinars que teve a oportunidade de participar? *

	Participei	Não participei
A nova revolução industrial: da en...	☐	☐
Participação pública: o direito à in...	☐	☐
Conhecer os resíduos. (28 maio'21)	☐	☐
Avaliação da qualidade do ar inte...	☐	☐
O poder dos investigadores na tra...	☐	☐

DISSEMINATION ECO-WEBINARS

Average number of participants 35 .



Avaliação da Qualidade do Ar Interior (QAI)

Gerard Bailey
AAA – Análises do Ar Ambiente, Lda
www.aaalda.com

CONHECER OS RESÍDUOS

CONTEST ECO-CODE

To carry out the Eco-Code of FE, a competition was created, extending to students, teachers and non-teaching staff. This contest was based on filling out an online form, in which the participant entered up to 5 sentences they considered important to be included in the eco-code. There was good adherence, mostly by students from the FE, from which the phrases included in the final poster were selected. Eco-Code. The phrases selected were awarded.

Eco-Código

Todas as Eco-Escolas devem criar o seu próprio código de conduta. O Eco-Código deverá expressar uma declaração de objetivos, traduzidos por ações concretas, que todos os membros da comunidade deverão seguir - Código de conduta ambiental da FE.

Para prepararmos o Eco-Código da FE precisamos do contributo dos alunos! Para tal, identifica atitudes e comportamentos conducentes à melhoria do ambiente na faculdade, como se fossem "regras" pelas quais a comunidade da FE deve respeitar. Posteriormente será realizado um póster que permitirá a comunicação e divulgação dos princípios que cada Eco-Escola se compromete a respeitar.

Cada aluno pode sugerir/escrever até 5 frases e as frases selecionadas para o Eco-Código final serão premiadas! Participa e cria a mudança na tua FE! No final, o Eco-Código produzido pela FE estará em competição com as restantes eco-escolas nacionais, onde os 3 primeiros lugares recebem um prémio para a faculdade.

Obrigada!
Equipa Eco-Escolas da FE

Email *

Email válido

Este formulário está a recolher emails. [Alterar definições](#)

Nome do aluno

Texto de resposta longa



DISCLOSURE OF THE NATIVE TREES OF PORTUGAL EXHIBITION

Dissemination of the exhibition "Native Trees of Portugal", through a poster, placed on the faculty and campus, as well as disseminated via email/social networks/website/mailling lists for the academic community.

The exhibition was for 2 weeks in a room next to the pateo ULHT campus, having been visited by more than 100 people.



EXPOSIÇÃO "ÁRVORES NATIVAS DE PORTUGAL" | ECO-ESCOLAS FE |

SALVA O MUNDO. UMA ÁRVORE DE CADA VEZ.

*Conheces a
Floresta
nativa?
Sabes a sua
importância?*

VEM DESCOBRIR A FLORESTA NATIVA DE PORTUGAL!
VISITA A EXPOSIÇÃO PROMOVIDA PELA ECO-
ESCOLAS/FACULDADE DE ENGENHARIA, EM
PARCERIA COM A ABAA.

De 15 de junho a 18 junho • Sala C013 na "parada"
na tua ULHT !



Para mais informações:
ecoescolas.fe@ulusofona.pt

Organizado pela coordenação Eco-Escolas
Faculdade de Engenharia.

Date: June 2021

EVALUATION FORM NATIVE TREES OF PORTUGAL EXHIBITION

Creation of Google form for evaluation of the exhibition "Árvores Nativas de Portugal", provided by ABAE. A poster created with a QR Code so visitors could provide feedback via an online form as well as a feedback log book. This form asks the importance of this type of exposure in college, as well as what other topics they would like to see addressed.

EXPOSIÇÃO "ÁRVORES NATIVAS DE PORTUGAL" | ECO-ESCOLAS FE |

Dá-nos a tua opinião



“Elevar a sensibilização para as questões ambientais mais prementes atualmente, é mais importante do que nunca.”

LEONARDO DE DICAPRIO



Para mais informações:
ecoescolas.fe@ulusofona.pt

Organizada pela coordenação Eco-Escolas
Faculdade de Engenharia

Formulário de opinião - Exposição "Árvores Nativas de Portugal"

Obrigado por ter assistido à exposição "Árvores Nativas de Portugal", promovida pela Eco-Escolas FE. Para avaliarmos o impacto que esta exposição teve na comunidade académica da ULiF, pedimos que preencha o presente formulário onde pode classificar a exposição. A sua opinião é importante!

Muito obrigado,
A Coordenação Eco-Escolas FE

A exposição foi de encontro com os seus interesses pessoais? 1 - Muito pouco | 5 - Muito

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

obrigado a esperar lá ver actually árvores.

Excelente trabalho!
Parabéns
11/06/2021

Que exposição tão interessante
+ informativa Parabéns!
11/06/2021

Muito interessante Parabéns pela iniciativa
e exposição.
18/06/2021

Deixe a sua opinião!
Realmente achei a exposição
muito interessante. Pode ensinar
muitas espécies de árvores que estão
na cidade.
Devo destacar que uma das
espécies neste caso é a *Pinus pinaster*,
devido a sua capacidade de crescer
e ainda absorver de poluentes atmosféricos
em áreas urbanas.

Muito interessante a informação de
após de uma forma muito interessante
e rápida. Obrigada da minha parte
a possibilidade de conhecer o ambiente.
Uma questão que se põe em relação
de um humano e o seu lado da
de dentro do filme e também uma
ação muito de trabalho de cada um.

Superinteressante e muito
a sempre não esquecer a
contribuição da natureza do nosso
país, especialmente pela portugal.

CERTIFICATE OF PARTICIPATION

At actions developed under the eco-schools, as well as the integration of the EWC, will be certified based on a model created by the coordination.



Certificado de Participação



Eco-Webinar

«Webinar»

«Nome»

«Datas» | Duração 1,5h

**Em reconhecimento da sua participação no webinar promovido pela
coordenação da Eco-Escolas da FE.**

Joana Lage e Elisabete Maurício
Coordenadoras Eco-Escolas

Cristina Guerra
Diretora Faculdade Engenharia

LUSÓFONA NEWS

During the implementation of the action plan of the Eco-Schools, the ULHT communication office, also with members in the CEE, was publishing news prepared by the coordinators, about the evolution and activity of the program in the FE.

However, in partnership with the Communication course and the marketing department at ULHT, some elements of the CEE were interviewees, namely the coordinators eco-schools, a headmistress from the faculty and the colleague from the department of infrastructures of ULHT. These videos are prepared and will be disseminated by the academic community.

In addition to the interviews carried out, a summary video of some interventions carried out at ULHT, within the scope of the program was made, which will be used for dissemination and promotion of the program at FE and ULHT, for the knowledge of the entire academic community.

Link:

<https://www.facebook.com/u.lusofona/videos/561853548306712>

Topic(s) covered: The program Eco-Schools in FE, ULHT.

Date: June 2021





Eco-Escuelas

Good Luck FE!!

2020/21 Evidence Report

Eco-Schools Council Team: total of 37 people

- **Teachers: 7 participants**
 - Degrees in Environmental Engineering, Biotechnology and Civil Engineering.
- **Students: 24 participants**
 - Degrees in Environmental Engineering (1st and 2nd cycles), Biomedical Engineering, Civil Engineering and Biotechnology.
- **Direction and administration: 2 participants**
- **Other ULHT departments: 4 participants**
 - Marketing and Communication Department: 2 participants
 - Infrastructure, Studies and Projects Department: 2 participants

Actions developed in 2020/2021:

Included in the presentation we sent and which will be shared tomorrow at the opening session of the FE.

Activity Plan 2021/22

Actions planned for the year 2021/2022:

In this school year, we will follow up on the areas that worked in the previous school year, namely the areas of Water, Energy, Waste (mandatory area), along with the two options from the previous school year - Air, Organic Agriculture - and the optional ones for this school year – Outdoor spaces, Biodiversity.

In this sense, we share some activities planned at this time:

- Valorization of outdoor spaces;
- Beginning of the ecological path tracing within the university;
- Amplification of the organic garden;
- Start-up of the composting system;
- Continuation of the study on air quality on the ULHT campus;
- ULHT's internal and external community awareness actions will continue, focusing on the themes covered in the above-mentioned Eco-Schools program.