

NEWSLETTER  
UE STEAM  
SCHOOL

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ESCUELA DE ARQUITECTURA,  
INGENIERÍA Y DISEÑO

UE  
**STEAM**  
SCHOOL

NEWSLETTER

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## XI UE STEAM SCHOOL AWARDS

The School has celebrated in September the XI edition of the UE STEAM SCHOOL Awards where the effort made by the students of the school in the design and development of projects throughout the academic year 2022/2023 is rewarded. These projects highlight the degree of understanding and assimilation of knowledge by students, when putting into practice everything learned in the classroom, as well as the challenges they have had to address to solve the difficulties involved in implementing solutions to complex problems. The very high level of projects reflects the value of the project-based learning methodology.

These awards are possible thanks to the magnificent team of professionals that make up the faculty of the school. A team committed to the school and to the implementation of the project-based learning methodology that allows the student to achieve a high degree of specific knowledge in their degree, as well as the development of competencies and skills that enable them for an immediate incorporation into the professional world. And, of course, to the collaborating companies of the School, which act as jurors in the awards and, therefore, as supporters of our methodology. The awards ceremony took place in an auditorium full of students, faculty and representatives from many companies, including the School's three Strategic Allies (HPE CDS; SENER; and TELEFONICA). An absolutely memorable day. »





## REPLACEMENTS AT PROJECT-BASED SCHOOL OFFICE

After many years developing a work as generous as excellent in every way, Ken Gómez leaves his post to Carlos Arroyo, who becomes the representative of the vertical of architecture and civil engineering. With the recent creation of the Creative Campus, Alberto Galindo leaves the leadership of the Project-Based School Office, and Olga Bernaldo takes over. Alberto Galindo has done a fantastic job coordinating the Office, which in 2023 has held the VII Meetings, the XI UE STEAM School, has worked on the preparation of the VI European Workshop on Project-Based Learning, and has managed

The UE STEAM School Showroom, managed by the Office, has vibrated with the multiple exhibitions of works of students of different degrees and clubs, making known the quantity and quality of the work carried out in the School. An exponent of the high intellectual level, both in curricular and extra-curricular life. 2023 has also witnessed the launch of the PBL 2.0 Agenda, which has had a great boost from the Office, in addition to the Academic Directorate and the School Board. The cards that are delivered in the successive Cloister turn the Agenda into a living document that helps to raise the level of the application of the methodology in the School and turns it into an authentic *learning organization*.

## ARTIFICIAL INTELIGENCE IN HIGHER EDUCATION OBSERVATORY

Artificial intelligence is developing rapidly in recent years. In addition to its extraordinary disruptive capacity, there is enormous uncertainty as to its true potential and impact in the various professional fields. To better understand how artificial intelligence can and should be taught at the university, and how it can be applied to improve the efficiency of various processes, the European University of Madrid constitutes, with the leadership of the School of Architecture, Engineering and Design, this Observatory of Artificial Intelligence in Higher Education. The objective is to issue an annual report in which it collects its perception of the state of the art of this discipline and its foreseeable development in the short and medium term, with emphasis on its possible applications in the field of higher education and the risks to be taken into account. The Observatory is made up of professionals of recognized prestige in the academic and/or industrial field, senior professors of the School with experience and knowledge in the field of artificial intelligence, senior professors from other faculties, and non-teaching staff with an interest in this discipline for its possible applications.

The first debate, on September 5, focused on identifying the opportunities, challenges and risks presented by artificial intelligence in the field of higher education (teaching and research, and all associated management processes).







## VI UE STEAM SCHOOL GATHERING

In July, the VI edition of the UE STEAM School Gathering was held, an important forum for debate and exchange of the best practices of the faculty in relation to the PBL methodology, Project Based Learning. Through four sequential workshops teachers have been able to learn from the PBL experiences of their peers, and they have done so in the best way that PBL can be learned, by doing a PBL. The teaching experience of these VI meetings began in the cloister of June, when a new installment of the PBL 2.0 Agenda was distributed to the teachers, in which some of the main techniques of collaborative work in the classroom were detailed, to energize the class, optimize learning, enhance creativity and improve the attention

creativity and improve the attention and teamwork of students. In a second phase, during the awards session and once the techniques were assimilated by the faculty, they were put into practice in the 4 workshops that were developed. The workshops fulfilled their mission, to show the good practices on PBL methodology, but adding a new and more consistent attention, dynamism and practical experience with the PBL methodology. Fantastic work of the teachers of the UE STEAM School Susana Moreno, Carlos Moreno, Javier Collado and Ken Gómez in the organization of the 4 interesting workshops of these VI Gathering, combining in them their PBL experiences with the tools of collaborative work. An example of practical learning typical of an institution always open to learning and continuous improvement.

## 'A NEW SPACE', KEYNOTE SPEECH AT THE OPENING OF THE COURSE 23/24

The human being is characterized by an insatiable desire to investigate, know and know, as well as by his ability to apply knowledge to the design and manufacture of artifacts and systems such as those that improve his life and explore the confines of the universe. 'A new space' was the exciting keynote speech at the beginning of the academic year 23/24 given by Diego Rodríguez, General Director of the Department of Space and Sciences of the company SENER Aeroespacial, Strategic Ally of the School.

An auditorium full of professors and students of different degrees enjoyed Diego's extensive knowledge and his ability to transmit it in a simple, rigorous and enjoyable way. Space exploration presents challenges of extraordinary complexity that must be faced with multidisciplinary teams and with a real big picture.

The theme of the talk captivated the students, accustomed to facing challenges, working with the methodology of project-based learning.

An extraordinary way to start the course, with the enormous intellectual stimulus thanks to the magnificent keynote speech given by Diego Rodríguez.





## L.O.R.C.A. A NEW COMPUTING CENTER.

Una Once again, the Advanced Computing Centre is in the news for two reasons: because it has a new place, larger, cooling better and with more possibilities to growth; and because it has practically doubled its power, going from 400 cores to almost 800 and increasing its memory and storage capacities.

This increase responds to the need to increase the resources that we make available to students and teachers, both because of the increase in the number of students who will use it and because of the new research projects that will make use of the new L.O.R.C.A.

**TRIPLE THE SQUARE METRES,  
FOUR NEW MACHINES,  
DOUBLE THE NUMBER OF  
CORES AND DOUBLE THE  
STORAGE CAPACITY.**

## VISIT TO ARC (ARQUIMEA RESEARCH CENTER)

One of the most interesting visits we have made this quarter has been to the Arquimea Research Center in Tenerife. Arquimea is a technology company that operates primarily in the Aerospace, Defence, Science Industry, Biotechnology and Fintech sectors. After visiting us at the beginning of September, they invited us to visit their research centre in La Laguna, Santa Cruz de Tenerife, where we were able to see the incredible facilities and learn about the very interesting projects they are working on as well as the products they are developing.

From deployable radiators for satellites, to advanced observation and surveillance systems, to robotic auscultation systems for pipelines or volumetric systems capable of recreating and rendering spaces effortlessly in real time.

Undoubtedly, the possible future collaborations between Arquimea and the School will open up a whole range of learning possibilities for our students and the opportunity for our teachers to collaborate with a company at the forefront of R+D+i.



## DEGREE IN PHYSICS – UNOFFICIAL PROGRAM IN ASTROPHYSICS AND COSMOLOGY

The Degree in Physics taught by the STEAM School incorporates from this new academic year 2023-2024 an unofficial program titled 'Astrophysics and Cosmology'. Its creation is a response to the strong vocation of many of our students for this area of specialization.

This four-year program contains six modules of 3 ECTS each, specifically:

First year:

- Module 1. Introduction to Astronomy

Second year:

- Module 2. Galactic Astrophysics
- Module 3. Extragalactic Astrophysics

Third year:

- Module 4. Differential geometry
- Module 5. Standard Cosmological Model

Fourth year:

- Module 6. Observational Cosmology

This program seeks to develop multiple specific skills of our students, including: Being able to apply the fundamentals of Physics to astronomical systems, mastering the physical models of stellar and galaxy evolution, and deepening the knowledge on Differential Geometry, the mathematical basis of General Relativity – Albert Einstein's gravitational theory.



Image of the Cosmic Cliffs region in the Carina Nebula photographed by the James Webb Space Telescope (NASA). Public domain

<https://universidadeuropea.com/grado-fisica-madrid/>

## WELCOME DAY COURSE 23/24

On 15 September 2023, the university invited the new students for the 23/24 academic course to a welcome day.

The session started with a meeting of all students in the area between buildings B and C.

The Steam School welcomed 256 new students in two shifts. The first shift with Engineering and Physics students and the second shift with Architecture and Design students.

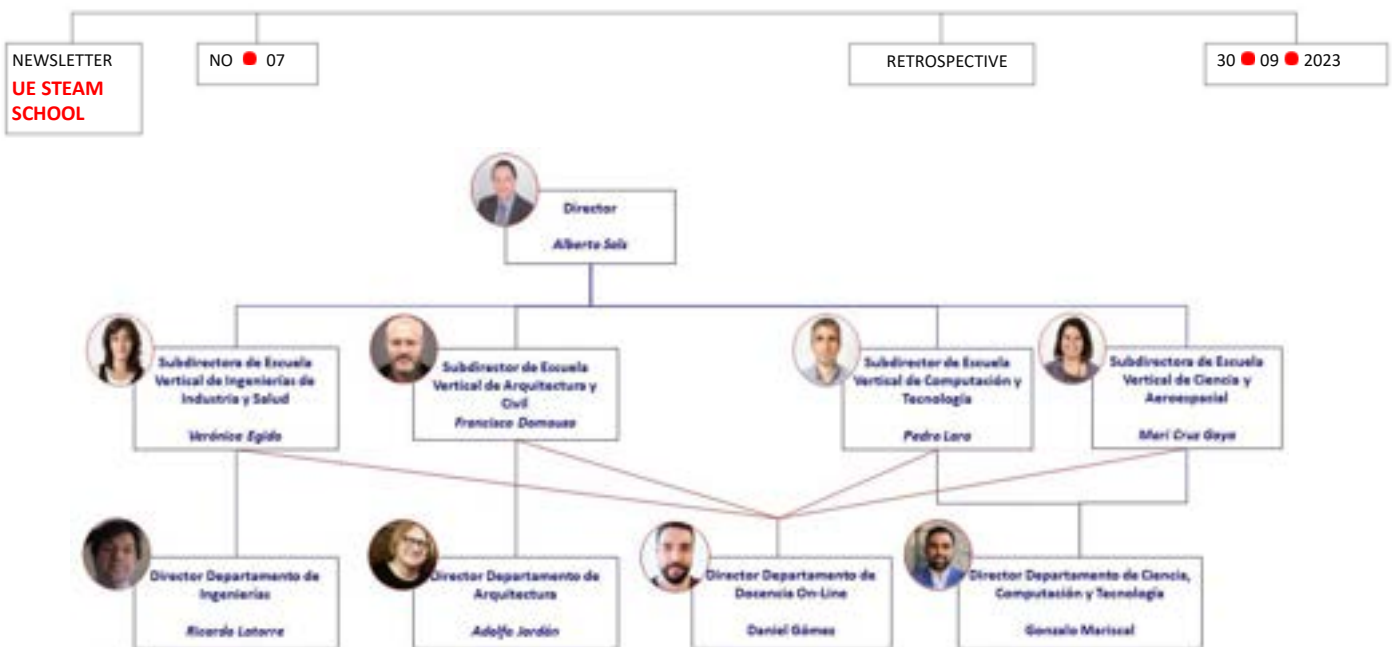
The members of the School Board and the student services team discussed relevant aspects of the School's organisation and university life. They also shared with the new students the principles of our project-based learning teaching methodology and the great learning opportunities for students to participate in clubs and associations.

Welcoming remarks were also made by representatives of some of the School's strategic partners.

After the welcome session, the day concluded with a guided tour of the university's facilities.







## KNOWLEDGE VERTICALS, NEW STRUCTURE OF THE SCHOOL

The structure of the School Board used to be organised into Undergraduate and Postgraduate, and since 4 September it has been reorganised into verticals, by areas of knowledge.

We have been growing for five years in all dimensions (number of students, student satisfaction, prestige). This year 2023 we have intensified our already excellent relationship with the professional sector through the Strategic Alliances signed, figures that will soon be joined by the so-called Industrial Partners.

The vertical organisation has the following objectives:

- to achieve even higher student satisfaction.
- to achieve an even higher level of knowledge and application of the project-based learning methodology.
- to improve the effectiveness and efficiency of the faculty by integrating undergraduate and postgraduate teaching.
- be even more effective in identifying opportunities for innovation.
- further enhance the activities of the research groups.

It is the same team that has been achieving such excellent results, but reorganised into vertical areas of knowledge, to continue growing individually and collectively, as an organisation open to learning (learning organisation).

## THE DEGREES IN COMPUTER ENGINEERING AND MECHANICAL ENGINEERING ARE LAUNCHED IN ENGLISH

This academic year 23/24, the first year of the Bachelor's Degrees in Computer Engineering and in Industrial Systems Engineering (Mechanical Engineering) will be taught in English. Thus, in four years we will have graduated students who will have received their teaching 100% in this language in these two degrees. Together with the Degree in Aerospace Engineering in Aircraft (100% English) and the Degree in Fundamentals of Architecture (85% English), there will now be 4 degrees offered. One of the School's objectives is to increase the number of these degrees taught in English in successive years.

The Universidad Europea has 33% of foreign students from the 5 continents. Since its creation we have been aware, and this appears in our mission statement, that we are training "leaders and professionals prepared to respond to the needs of a global world" and we believe that studying in a language such as English will give them a greater number of opportunities to succeed in this task.

As a sign of this internationality in our degrees in English we have students from nationalities as diverse as Italy, United Arab Emirates, Sweden, Iran, Libya, United States, Slovenia, Netherlands, Panama, Morocco, Romania, Hungary, Kazakhstan, Egypt, Ghana, China, Nigeria, Russia, Canada, Tunisia and Spain. This diversity will undoubtedly enrich their training and make them more prepared for a global world.







## REFERENTES CYCLE: ELVIRA LINDO

For another semester we continue with the REFERENTES series, a series of meetings between students and leaders from different disciplines. It is a cycle of the STEAM School open to the whole University. Referentes is not a lecture. The students ask open questions to the guests, who answer them from their own vital moment.

On 11 October we will be joined by Elvira Lindo, writer, journalist and a great communicator in different media. One more reference for our students.

“REFERENTES IS A UNIQUE OPPORTUNITY OF GREAT PEDAGOGICAL, HUMAN AND EMOTIONAL VALUE FOR THE STUDENTS“



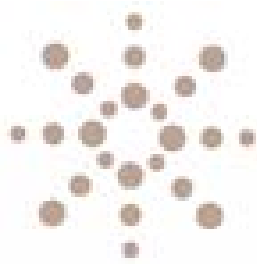
## TRIBUTE EXHIBITION TO IANNIS XENAKIS AT COAM

The STEAM School participates in the XX Architecture Week 2023 with an exhibition at the COAM entitled: XEN101: Technology and Nature. It is a tribute to Iannis Xenakis on the 101st anniversary of his birth. Works by first, second and third year architecture and design students, the result of a transversal teaching project, are exhibited. Coinciding with the opening, a colloquium-concert in homage to Iannis Xenakis will be held at the COAM..

## MadridMotorStudent, SECOND YEAR FOR AN UNIQUE EVENT.

Once again, the STEAM School will participate in the MadridMotorStudent event at the Circuito de Madrid Jarama-Race on 5 October. Last year, this event welcomed more than 2000 students from Madrid's Vocational Training and Baccalaureate in the technological branch who enjoyed watching the vehicles with which the different universities compete in FormulaStudent and Motostudent. A total of 13 teams from up to 9 different universities in Madrid. Once again, the School will be there with our FormulaUE students enjoying the atmosphere of Jarama.





# SYSTEMS ENGINEERING RESEARCH CENTER

## SERC RESEARCH REVIEW 2023

In November, the School will attend the event organized in Washington D.C. by the prestigious Systems Engineering Research Center (SERC), a group of 22 North American universities that carry out research in systems engineering for the Department of Defense. At SERC Research Review, the lines of research in systems engineering, artificial intelligence and other associated disciplines will be exposed and analyzed. Attending this event will allow us to be aware of the lines of research and the state of the art in these important disciplines. »



## UNIVERSITY OF RAVENSBOURNE

In November we will receive the visit of a delegation from the University of Ravensbourne, with whom we already maintain a good relationship in the area of architecture. This new meeting will allow to explore new formulas of collaboration, hopefully facilitating the exchange of professors and / or students, the organization of joint events, and the launch of research projects. »

## V EUROPEAN WORKSHOP ON PROJECT-BASED LEARNING

The School organizes a new edition of the European Workshop on Project-Based Learning, the event in which European universities share their state of the art in project-based learning methodology. These workshops are part of the School's Knowledge Map. They allow to detect good practices and incorporate them, with the appropriate adaptation, to continuously and intentionally improve the application of the methodology, which increases every year in maturity. The methodology that is the differential element of the School and that ensures an optimal and effective preparation of our students. The lessons learned in the workshop will be disseminated openly and will be collected in a page in the PBL 2.0 Agenda. »





## PROJECTS WITH STRATEGIC PARTNERSHIPS

Our strategic alliances are already having a direct impact on the training of our students on the Bachelor's Degree in Computer Engineering and the Bachelor's Degree in Mathematical Engineering Applied to Data Analysis. These degrees have integrated project assignments that until this academic year have been proposed by the faculty itself. This academic year 23/24 we are going to carry out the proposals of Telefónica and HP.

"2ND AND 3RD YEAR MATHEMATICAL ENGINEERING AND 3RD YEAR COMPUTER ENGINEERING STUDENTS WILL CARRY OUT PROJECTS WITH TELEFÓNICA AND HP".

**Mesa redonda: Iniciación a la Investigación**

16 de Octubre de 2023  
de 11:30h a 14:30h  
Aula P85, C223 edificio C  
Universidad Europea de Madrid

## ROUND TABLE "INITIATION TO RESEARCH".

Next 16th October Manuel Ga. VELARDE, Jean BRAGARD, Michael STICH and Iván LOPEZ, 4 renowned researchers in the field of physics, will visit us to explain their projects and areas of current research to our students of the Degree in Physics. The aim is to encourage research vocations in our students so that they can focus their Master's Thesis on these areas of study

## UEM SOLAR PROJECT

The 2nd and 3rd year students of the Degree in Aerospace Engineering will have the opportunity to develop the UEM solar project. It is based on the design of a solar-powered UAV capable of flying for at least 24 hours (perpetual flight). The project starts from conceptual design to manufacturing, integrating knowledge of structures, aerodynamics, electrical and electronic systems. For analysis, design and experimentation, the students use computer tools that they will later encounter in their professional lives.







## LUCÍA ESPINOSA, PROJECT MANAGER AT LEROY & MERLIN

While I was in my third year of my degree and supported by Universidad Europea, I enjoyed a job opportunity as a researcher in an European project at the University of South-Eastern Norway, which consisted of the application of artificial intelligence in the context of a swarm of drones, in order to achieve that they could operate autonomously in urban environments. At the beginning of the fourth and final year of my degree, I started my internship with Adeo Logistic Iberia, a company in charge of logistics for Leroy Merlin, where I was able to develop my Final Degree Project, in which I obtained an Honors Degree. Thanks to the

Thanks to the skills acquired at Universidad Europea and my results in the project, Leroy Merlin offered me the opportunity to take on the role of Project Manager in the supply area. I am currently managing several national projects and one international project. Additionally, in this next semester, I will start my work as a teacher in charge of the subject of calculus in the degree of Industrial Systems Engineering, all thanks to the university. Universidad Europea has played a fundamental role in my academic and professional development. Its cutting-edge learning opportunities and commitment to excellence allowed me to train and develop as a professional.

## MARÍA MARTÍNEZ MORÓN, ARCHITECT AND BIM MANAGER AT ATELIER MARTÍNEZ MORÓN

I studied Architecture at the ETSA in Seville, which I finished with the prize for the best academic record of the 2013/18 graduating class.

In 2018 I decided to take on a new challenge and decided to move to Madrid and take the Master's Degree in Architecture at the Universidad Europea, in which, with the project << Silk-Skin City >>, I obtained the qualification "matrícula de honor". In addition, it was selected for the RIBA President's Medals 2020 (RIBA Silver Medal); in the Young Talent Architecture Award 2020 (YTAA); nominated and favourite in the Archiprix Addis Ababa 2021 Award and awarded with the First Prize in the TFM COAM 2020 awards. Subsequently it has been exhibited in other universities such as Andrés Bello University in Santiago (Chile), and has been part of the YTAA 2020 exhibition at La Biennale di Venezia 2021.

After becoming a qualified architect, I continued my training in BIM, obtaining the Architecture Certified Professional certification. At the same time, I started my professional career, working as an architect and BIM Manager in prestigious firms such as Estudio Álvarez-Sala, Gilbertolome Architects and Mangado y Asociados, collaborating in complex projects. I also obtained one of the Arquia Scholarships, and was selected among the best graduates in Spain within the National Ranking of Architecture, by the Spanish Society of Academic Excellence.

After several years of apprenticeship, I decided to embark on my own path, developing my own projects and holding competitions, thanks to which I have been awarded First Prize in the Competition held by the City Council of La Unión for the Rehabilitation of the Old Graduate Schools, with the project "Tablas"; as well as First Prize in the III Competition for social housing architectural projects, of the Municipal Housing, Land and Equipment Company of Seville, with the proposal "Aquí hay madera".

In addition, I combine my profession with teaching, teaching at the European University of Madrid,





## FORMULA UEM CLUB

Passion, family and effort are the bases that drive this group of young people from the European University of Madrid through Formula UEM (FUEM). A team that does not distinguish between qualifications, nationality or origin; You just want to work hard. Although FUEM is a university club, it has gone from being a hobby and place to exchange knowledge, to being an almost direct way to the world of work. Being part of a team like this is a challenge, since studies must be combined with the deep evolution of the car each year, in order to compete in

Formula Student, the most important student competition in Europe. In 2023, the team has undergone a major makeover, accompanied by new team members who brought new ideas and improvements to the vehicle, such as an engine change, monocoque redesign and a complete aerodynamic package that promises higher performance. The goal in the 23/24 course is more ambitious than ever: to demonstrate in style that the work that will be carried out is really worthwhile. Because if there is something that differentiates this team is that its roar does not go unnoticed.

## AIR DIVISION CLUB

The Air Division club is a multidisciplinary team with the aim of bringing the knowledge acquired in the various careers to reality, so that members acquire experience and values that will improve their university and work career.

The club is divided into two main departments, the aeronautics part and the space part.

From the aeronautical part we work on projects such as drones and airplanes. This new course we are going to bet on an ambitious project that will approve our members, this challenge is about making a large-scale RC aircraft model, applying various techniques and knowledge that an aerospace engineer must have.

On the other hand, in the space department we have the Zenit team, our own rocketry team that aspires to be able to participate in the EUROCC and CANSAT competitions. To prepare for this, the first step this year will be to work on a rocket that is scheduled to launch on October 22.

In addition to the main projects that the club has, we also organize less demanding projects as well as group plans and / or coexistence that will be carried out to improve relationships, and the university experience.

