Universidad Europea

School of Architecture, Engineering, Science and Computing / STEAM.

Academic Course Report

2024/2025

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Introduction

Letter from the Director

The 24/25 academic year has once again left an excellent balance in the School, which for the seventh consecutive year continues to grow in number of students and in contribution margin, in addition to continuing to strengthen its connections with companies and organizations and continuing to have a high value of the Net Promoter Score (NPS) index of student satisfaction. The average NPS of the degrees during the 24/25 academic year was equal to 19 (as always, a positive value of the NPS).

Despite the appreciation that there had also been very important advances in reputation and recognition, the absence of an objective metric prevented an adequate assessment of possible growth. For this reason, a brand equity study of the School was commissioned; the study was carried out by the agency that works in strategic marketing for the European University. The study was carried out in the months of March and April, with a sample of 200 high school graduates determined to study STEAM careers and 200 families. The results, presented in May, reflect that the School enjoys an excellent level of recognition in general, although the study does not sufficiently appreciate the good relations that the School has with the professional sector and with the labor market; the School has five prestigious Strategic Allies and a growing number of Industrial Partners. This study constitutes for the School both a line of reference that will allow in the future objective analysis of the evolution in prestige and recognition, as well as valuable information to carry out more effectively the activities of the School related to these concepts. Within the close relationship with companies, the STEAM Project Fair deserves special mention, in which companies propose projects to be carried out by multidisciplinary teams of students who then present and defend their participation as their TFG or TFM. The 24/25 edition of the STEAM Project Fair brought a high number of projects proposed by companies from various sectors.

To better understand how to harness the potential of artificial intelligence (AI) to improve the effectiveness and efficiency of university programs, the School promoted the creation of the Observatory of Artificial Intelligence in Higher Education two years ago. With the visibility obtained from both the reports generated by the Observatory and the reports and guides from other sources, it was decided that for the 25/26 academic year to start with the degrees with the highest volume of students in the School (Fundamentals of Architecture, Aerospace Aircraft Engineering, Computer Engineering and Industrial Systems Engineering). that should be adapted to AI in a structured and top-down way. The need and the opportunity was to ensure a quick and orderly adoption. To this end, a working group was created made up of: School Director, School Deputy Directors, Academic Director, Director of Academic Model and Digital Transformation, and

Heads of Academic Model. In June, the School Senate was informed and specific meetings were held with the teachers of the selected degrees. In July, the Learning Guides were modified, to be later validated at the beginning of September, before the start of the course. The School is a pioneer in the delivery of programmes in which AI has been incorporated in a systematic, structured and comprehensive way; The experience acquired in these programs during the 25/26 academic year will allow a better adaptation of the rest in the 26/27 academic year.

Advances in research have also been notable during the 24/25 academic year. The School has applied for three European projects and is working on a fourth, in addition to having achieved several agreements for the mobility of researchers and an international patent in the field of use of nanoparticles in biomedical engineering. This reflects the clear path of growth of the School in research.

At the beginning of the year, the renewal of the RIBA accreditation of the School's architecture programmes was confirmed, which remains the only one in Spain and one of the few in the world to have the double recognition of NAAB and RIBA. On the other hand, the provisional report of the audit requested to obtain the European EURO-INF seal for the Degree in Computer Engineering has been received; The interim report is excellent and it is expected to receive the final one before the start of the 25/26 academic year.

A great balance that continues to position the School as a reference in the STEAM field due to its close link with the professional sector and its project-based learning methodology, with structured incorporation of AI.

Alberto Sols, PhD
Director
School of Architecture, Engineering,
Science and Computing – STEAM

Organizational Chart

The STEAM School of Universidad Europea de Madrid is organized in four vertical areas: Architecture and Civil, Science and Aerospace, Computing and Technology, and Engineering. Each of these verticals has a management team composed of a deputy director or vice-dean, responsible for the academic excellence of its degrees and for institutional relations, as well as by a department director in charge of the management of the teaching staff. This structure allows for a specialized management in both academic aspects as well as in the operations of each area.

In addition to those responsible for each vertical, the School has an online faculty department director who provides transversal support to all areas, ensuring the quality and coordination of teaching in virtual mode. Also part of the organizational chart is the director of the School of Sustainability, whose work focuses on integrating the principles of sustainability in the academic programs and in the school's institutional initiatives. This structure facilitates efficient management and alignment with the strategic objectives of the Universidad Europea de Madrid.

ALBERTO SOLS
Dean

VERÓNICA EGIDO
Vice Dean
Industry and Health
Engineering

ADOLFO JORDÁN
Vice Dean
Architecture and Civil
Engineering

JULIA AYUSO
Director
Sustainability School

PEDRO LARA
Vice Dean
Computing and
Technology

MARÍA CRUZ GAYA
Vice Dean
Science and
Aerospace

RICARDO LATORRE
Head of Deparment
Engineering

SILVIA HERRERO
Head of Deparment
Architecture and Civil

PATRICIA DEL SOLAR
Head of Deparment
Online

GONZALO MARISCAL
Head of Deparment
Computing and
Technology

ALICIA PÁEZ
Head of Deparment
Science and Aerospace

Data

The School in Figures

The multidisciplinarity and multiculturalism of the School is evidenced in four major dimensions:

PORTFOLIO

The wide spectrum of the School's degrees, reflected in tables 1 (undergraduate programmes), 2 and 3 (official and private postgraduate programmes, respectively), in addition to a wide range of own degrees of 30 ECTS or less (face-to-face, online and asynchronous), and 4 (doctoral programmes), responds to the growing demand for training in technical careers or STEAM, both at an initial university stage and throughout professional life ***(lifelong learning)***.

Table 1. Degree programs.

Degree	Modalities	Languages
Bachelor's Degree in Fundamentals of Architecture	Face	Spanish English
Bachelor's Degree in Computer Engineering	Face Online	Spanish English
Bachelor's Degree in Aerospace Aircraft Engineering	Face	English
Bachelor's Degree in Industrial Systems Engineering	Face	Spanish English
Bachelor's Degree in Cybersecurity	Face Online	Spanish
Bachelor's Degree in Civil Engineering	Face	Spanish
Bachelor's Degree in Biomedical Engineering	Presencial	Spanish
Bachelor's Degree in Physics	Presencial	Spanish English
Bachelor's Degree in Telecommunications Systems	Online	Spanish
Bachelor's Degree in Mathematical Engineering Applied to Data Analysis	Face	Spanish English

Table 2. Official postgraduate programmes.

Official postgraduate diploma	Modalities	Languages
Master's Degree in Industrial Engineering	Face Online	Spanish
Master's Degree in Civil Engineering	Blended learning	
Master's Degree in Architecture	Face	Spanish
Master's Degree in Aeronautical Engineering	Face	
Master's Degree in Renewable Energies	Online	Spanish
Master's Degree in Organisational Engineering, Project and Business Management	Face Online	
Master's Degree in Renewable Energy Transition	Online	Spanish
MU in Information Technology Management	Online	Spanish
Master's Degree in Information and Communication Technology Security	Face Online	Spanish
Master's Degree in International Building and Construction Management	Face Online	
Master's Degree in Occupational Risk Prevention	Online	Spanish
Master's Degree in Integrated Management Systems	Online	
Master's Degree in Urban Design and Sustainable Mobility	Face Online	Spanish
Master's Degree in Sustainable Architecture and Bioconstruction	Face Online	
Master's Degree in Industry 4.0	Face Online	Spanish
MU Web & App Development	Online	
Master's Degree in Mathematics Applied to Engineering and Computing	Online	Spanish
Master's Degree in Logistics	Face Online	Spanish
Master's Degree in Big Data Analysis	Face Online	Spanish

Table 3. Own postgraduate programmes.

Own postgraduate diploma	Modalities	Languages
Master's Degree in Lifelong Learning in Automotive	Face	Español
Specialization Diploma in Applied Systems Engineering	Online	Español
Master's Degree in Lifelong Learning in Applied Artificial Intelligence	Face Online	Español
Master in Lifelong Learning in Project Management	Face	Español
Master in Lifelong Learning in Data Science	Face	Español

Table 4. Doctoral programs.

Doctoral Programs
Programa de doctorado en ingeniería de control y sistemas inteligentes para la salud y el medioambiente
Programa de doctorado en ingeniería de instrumentación industrial aplicada a transporte inteligente y energía sostenible

STUDENTS

The multiculturalism of the School is reflected by its more than 4,900 students of 84 different nationalities, shown in table 5.

The cultural richness of the School offers students a unique environment in which to develop their training and acquire the skills that allow them to perform exceptionally as professionals in an increasingly global world.

Table 5. The 84 nationalities of students of the School in the 24/25 academic year.

ALBANIA	BULGARIA	SLOVENIA	INDIA	NICARAGUA	DOMINICAN REPUBLIC
GERMANY	CAMEROON	SPAIN	IRAQ	NIGERIA	ROMANIA
ANDORRA	CANADA	UNITED STATES OF AMERICA	IRAN	NORWAY	RUSSIA
ANGOLA	CHILE	ESTONIA	ITALY	NETHERLANDS	SYRIA
NETHERLANDS ANTILLES	CHINA	PHILIPPINES	JORDAN	PAKISTAN	SRI LANKA
ALGERIA	COLOMBIA	FRANCE	KAZAKHSTAN	PALESTINE	SOUTH AFRICA
ARGENTINA	COSTA RICA	GEORGIA	LEBANON	PANAMA	SWEDEN
ARMENIA	CROATIA	GHANA	LIBYA	PARAGUAY	SWITZERLAND
AZERBAIJAN	CUBA	GRENADE	LUXEMBOURG	PERU	TUNISIA
BARBADOS	DENMARK	GREECE	MOROCCO	POLAND	TÜRKIYE
BELGIUM	DOMINICA	GUATEMALA	MAURITANIA	PORTUGAL	UKRAINE
BERMUDA	ECUADOR	EQUATORIAL GUINEA	MEXICO	UNITED KINGDOM	URUGUAY
BOLIVIA	EGYPT	HONDURAS	MOZAMBIQUE	REPUBLIC OF MAURITIUS	VENEZUELA
BRAZIL	EL SALVADOR	HUNGARY	NEPAL	REPUBLIC OF SERBIA	ZIMBABWE

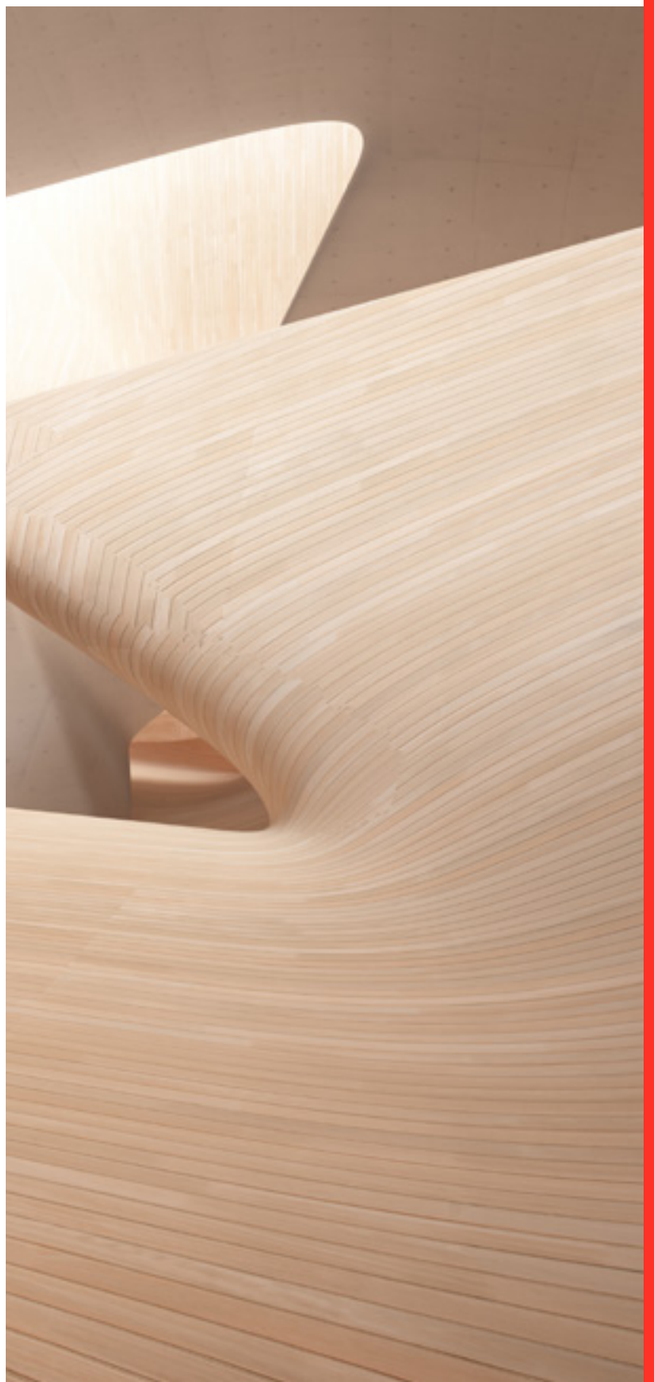
TEACHERS

As of 30 June, the School has more than 416 lecturers, of which 208 are PhDs and 60 of them are accredited. The School has 19 Full Professors and 7 Full Professors. More than 55% of the professors are of non-Spanish nationality or have spent at least one semester abroad. In addition, 75% worked in the professional sector, or continue to do so and teach part-time.

RESEARCH GROUPS

The School's researchers are part of eight research groups (Table 6), which cover the different academic disciplines.

Research group	Principal investigators
Artificial Intelligence and Human-Machine Interaction	Enrique Puertas
Nano-UEM: characterization and study of nanomaterials	Arisbel Cerpa
X-PBL Extended Project Based Learning: Experiential Learning Methodologies	Pedro Lara y María Cruz Gaya
Architectural International Research Lab & Heritage, Architecture and Living Cities	José Luis Esteban Penelas, Angela Ruiz y Susana Moreno
Advanced Materials for Engineering	Isabel Lado
Aeronautics, Industrial and Renewable and Space Energy Engineering	Omar Martínez
Sustainable Management, Resources and Infrastructures (Principal Investigator)	Olga Bernaldo
Intelligent Control Systems	Nourdine Aliane y Javier Fernández



Relationship with the professions

The close alignment of the university with the professions is a fundamental pillar of project-based learning, the School's academic methodology.

Contemporary higher education faces the permanent challenge of maintaining the relevance and relevance of its training programs in a constantly evolving socio-economic environment. The university, as an institution that trains specialized human capital, must transcend its traditional function of transmitting knowledge to become an active agent of social and economic transformation. In this context, the strategic alignment between the School and the professions emerges as a fundamental element to guarantee the quality and effectiveness of the educational process.

The close link between the School and the professions is a methodological imperative that transcends mere curricular adaptation. This connection implies a permanent and two-way dialogue that allows anticipating and responding to the emerging demands of the labour market, functioning as a dynamic ecosystem where training needs, technological trends and the skills demands of the professional environment converge. The successful implementation of this alignment is based on a sustained institutional commitment of the School, the curricular flexibility necessary to adapt to emerging demands, and the ability to maintain the balance between specialized technical training and humanistic integral education.

The School's close connection with the professions has positive impacts that transcend the purely academic sphere. For students, this connection ensures more effective training and significantly increases their chances of successful job placement. Companies, for their part, have access to better prepared professionals with the skills and competencies they require. The School shapes this connection with the professions through multiple mechanisms, among which the following stand out:

STRATEGIC ALLIES

HPE CDE, SENER Aerospace & Defense, TELEFONICA, SACYR and the Royal Academy of Engineering are the five strategic allies of the School, with whom the School discusses all important and cross-cutting issues, such as improvements in methodology, incorporation of emerging technologies, or adaptation to new skills needs in the labor market.

INDUSTRIAL PARTNERS

The companies that are linked to the School as Industrial Partners do so either by carrying out a specific activity in a laboratory of the School, or by organizing the project to be carried out by the students in a subject. The School has, at the moment, BOSSARD, CT Engineering, Hackrocks, ARQUIMEA, ANZEN Engineering, OESIA, ORACLE, WOOD-EA, DEFTA, SERCO, Mas y Calvete, and EXFO as Industrial Partners.

TECHNOLOGY PARTNER

For a better and more structured incorporation of artificial intelligence into the School's programs, an agreement was formalized with Microsoft as a technology partner. The incorporation of a technological partner specialized in artificial intelligence represents a determining factor for the success in the implementation of educational technologies in the university environment. This type of strategic collaboration provides access to best practices, both in academia and industry. Microsoft helps to offer personalized solutions aligned with the School's pedagogical objectives, ensuring consistent integration with the academic system and minimizing operational disruptions. In addition, this collaboration allows access to cutting-edge resources, continuous technical support and regular updates, essential elements to maintain technological competitiveness in an ever-evolving educational environment. The knowledge transfer and training of academic and administrative staff provided by a specialized technology partner contributes significantly to the long-term sustainability of digital transformation initiatives in higher education.

BUSINESS ADVISORY COUNCIL

In 2019, the School established its Business Advisory Board, made up of twenty-four professionals of great personal and professional prestige, from all professional fields related to the School's programs. The School Board meets twice a year with this think tank to discuss in depth, at each meeting, a topic of special relevance. These extraordinary debates constitute an invaluable source of reflection and inspiration for the School, which can thus better make decisions of a more strategic scope. Specifically, discussions with the Business Advisory Council provide:

- Long-term strategic perspective. It allows you to think beyond day-to-day operations, identifying emerging trends and anticipating changes that could affect the School in the future.
- Generation of specialized knowledge. It facilitates the development of in-depth knowledge in critical areas, to facilitate important strategic decision-making.
- Innovation and creativity. It creates a dedicated space for intellectual experimentation and disruptive thinking, free from operational constraints.
- Legitimacy and credibility. It strengthens the School's reputation as a thought leader in its sector, which can be valuable in attracting talent and enabling strategic partnerships.
- Intellectual flexibility. It offers the agility to explore diverse topics and quickly adapt the analysis approach as strategic priorities change.

STEAM PROJECT FAIR

The last and most important work that the student does is their Final Degree Project (TFG) or Final Master's Project (TFM). To bring collaboration with companies and organisations to its maximum exponent, the School organises the STEAM Project Fair every academic year, in which companies are invited to propose projects that respond to their needs and that students can carry out in multidisciplinary teams, as they work on real projects in the professional field. The work, which brings together profiles of students from different degrees, is done with a tutor from the company for each project, and an internal tutor for each student. Each student works in a team and then presents and defends their participation as their TFG or TFM.

Visiting Professors

In the 24/25 academic year, the School has once again had the presence of distinguished academics as visiting professors, whose presence and interaction with professors and students has been a great intellectual stimulus. Specifically, the School has received the following visiting professors:

DAVID NOWICKI

Dr. Nowicki, from the University of North Texas, an expert in logistics and supply chain, completed his stay as a visiting professor in April. His collaborations and interactions were especially frequent and relevant with the professors and students of the Bachelor's Degree in Industrial Systems Engineering, due to his training in that discipline and his many years in the industry. He gave a couple of master classes related to the problems of global supply chains, a highly topical topic in the current international geopolitical context.

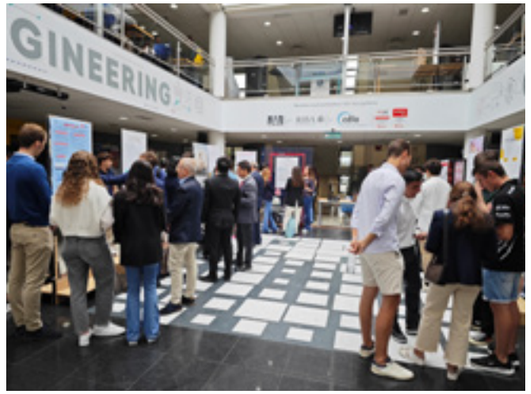
In addition, Dr. Nowicki shared with researchers from the School some excellent reflections and lessons learned in his long and successful career as a researcher, in which he stands out for the numerous competitive projects achieved and the articles published.

Dr. Nowicki's stay at the School as a visiting professor was very stimulating and enriching, contributing to improving the students' training and university experience.

REN GUOGANG

Dr Guogang, from the University of Hertfordshire, is a Fellow of the UK Institute of Materials, Minerals and Mining. Dr. Guogang is an international leader in the development of nanoparticles with biomedical applications. His research focuses on the chemistry of surfaces for health and energy applications, standing out for the development of functional surfaces capable of eliminating up to 99.997% of pathogens. During his stay, he shared his advances in antiviral surfaces for hospitals, functional masks against COVID 19, and sustainable aviation fuels. It has also presented innovations in polymeric and geopolymeric materials for high-strength fireproof barriers. Their visit has been a valuable opportunity for the exchange of knowledge and a great reinforcement of joint research activities on nanoparticles.

Main events



CELEBRATION OF THE XII UE STEAM SCHOOL AWARDS. THE CELEBRATION OF THE ACADEMIC MODEL AND THE PBL METHODOLOGY

In September, the XII edition of the UE STEAM SCHOOL AWARDS was held with a very special event, accompanied by a jury of more than 20 leading companies in the different award-winning disciplines, and with the auditorium with full capacity among students, teachers and guests.

The categories corresponded to the six pillars of the Academic Model of the European University: Simulated Environments, Professional Environments, Integrated Curriculum, Transdisciplinary, Artificial Intelligence and Data-Driven Approach and One World Vision. The awards served to pay tribute and value the work, talent and dedication of the students and teachers of our School, who have opted for the Project Based Learning methodology over the years. Emilio Ramiro, technical director of ARQUIMEA, closed the event by underlining the importance of teaching through the project-based methodology applied at the European University.

STEAM SCHOOL PROJECT FAIR

The School of Architecture, Engineering, Science and Computing – STEAM has successfully concluded the STEAM Project Fair 2024/2025, an event that has brought students closer to the professional sector and has strengthened ties with companies.

During the fair, 12 companies presented 24 projects that students can carry out as final degree projects (TFG) or master's degree (TFM). Among the participating companies were the Innovative Seed Lab-UEM Research Group, IMDEA Materials Institute, OESIA GROUP, Lean Vector SRL, The Sustainability World Cup, BDO Auditores, SLP, General Dynamics European Land Systems, hackrocks, IBTICAE SL, Eonesia, HYDRA SPACE SYSTEMS, AURORA TECHNOLOGY B.V., and CT Engineering Group. The event began in early September with the call for project proposals. Companies submitted their projects before the end of September, and in October, the School shared these proposals with students.

The STEAM Project Fair 2024/2025 has been an excellent opportunity for students to gain professional experience and for companies to find young and skilled talent. This event has cemented its importance as a bridge between academia and the professional world.

MASTER CLASS FOR THE OPENING OF THE 24/25 ACADEMIC YEAR BY DR. FARAÓN LLORENS

On September 25, Dr. Faraón Llorens gave the keynote lecture at the opening of the 24/25 academic year, entitled "AI: Doing in seconds what it would take you three coffees and an existential crisis".

Dr. Llorens explained the foundation of neural networks and the existing types of machine learning (supervised, unsupervised, and reinforcement). He addressed convolutional and recurrent neural networks, explaining how adversarial networks are trained. Neural networks enable predictive analytics and generative AI tools, as do large natural language models. Multiple AI tools are a set or swarm that help improve productivity and performance.

Artificial intelligence will make some jobs disappear and many others will be created, but the vast majority will remain and will preferably be occupied by those who know how to use artificial intelligence tools.

IV EDITION OF MADRID MOTOR STUDENT

The emblematic Jarama circuit witnessed the IV Edition of the Madrid Motor Student on October 1. The most recognized university motor event in the Community of Madrid that was once again attended by our students from the Formula EU Club. The team has more than 15 years of experience in Formula Student competition.

In this edition of the Madrid Motor Student, the Formula UEM Club has exhibited, along with 12 other teams, the prototypes they have created applying their engineering knowledge to more than 500 secondary and high school spectators.

XEVI PUJOLAR'S VISIT TO THE SCHOOL

On October 8th, the current Racing Director of Stake F1 Team KICK Sauber, Xevi Pujolar, offered a master class to the members of the Formula UEM Club and made a visit to the School's facilities, during which the students were able to show them their prototype and discuss their concerns with it.

Montoya, Ralf Schumacher, Marc Gené, Weber, Wurz, Nakajima, Maldonado, Vergné, Verstappen, Leclerc, Raikkonen and Bottas have been some of the drivers with whom Xevi Pujolar has worked in his 23 seasons in Formula 1.

Xevi Pujolar's visit to the European University was a unique experience for the members of Formula UEM, who have had the opportunity to learn first-hand from one of the references in the elite of Formula 1.

LA ROYAL ACADEMY OF ENGINEERING, A STRATEGIC ALLY OF THE SCHOOL

On November 22, the Strategic Alliance with the Royal Academy of Engineering was signed, Jaime Domínguez Abascal and Javier, Pérez de Vargas Cabrero, President and General Director respectively of the Royal Academy of Engineering, as well as Paula Gómez Lucas, a brilliant student of the School, representing the students. Jaime gave a very interesting talk on additive manufacturing with metals. After the event in the Auditorium, the traditional unveiling of the logo was held in the hall of the School, made by Jaime and Elena Gazapo Carretero, Rector of the European University of Madrid. A very endearing moment for all the professors and students gathered in the hall, in which the logo of the Royal Academy of Engineering already appears on the cloth of the Strategic Allies. If the close collaboration with the professional sector has distinguished the School, the close collaboration with the Royal Academy and Engineering raises this relationship to unprecedented levels.

2ND WORKSHOP OF THE AI4HyDrop PROJECT AT THE EUROPEAN UNIVERSITY

On September 27, 2024, at the Villaviciosa de Odón Campus, the School of Architecture, Engineering and Design of the Universidad Europea hosted the workshop "Shaping the Future of U-Space: AI4HyDrop's 2nd Worksop on Flight Planning, Drone Detection and Airspace Design".

This event marked an important milestone in Europe-wide efforts to improve drone operations through AI-based solutions, focusing on critical areas such as airspace design, automatic flight plan approval, and drone detection and operator communication systems.

Throughout the workshop, the development of optimized structures for airspace was explored, taking into account environmental and social factors, ensuring safe and efficient drone operations. The integration of Artificial Intelligence in the automatic approval of flight missions was also discussed, allowing real-time decision-making that balances equity and environmental impact. and the deployment of advanced drone detection technologies, leveraging AI models to identify and manage non-cooperative drones in urban environments.

WOODEA, NEW INDUSTRIAL PARTNER

Universidad Europea established a new strategic alliance with WOODEA, a leading company in innovative construction systems. Through this agreement, our FabLab will become a collaborative space where students, researchers and professionals from WOODEA will be able to jointly develop R+D projects.

Such synergy will allow both institutions to promote the frontier of knowledge in the industrialized construction sector, generating more sustainable and efficient solutions. WOODEA's experience and knowledge, combined with our University's research capacity and infrastructure, will create an environment conducive to innovation and the development of new technologies.

NÉSTOR MONTENEGRO AT COAM

Last October, our School of Architecture, Engineering, Science and Computing had the honor of inaugurating the new academic year of Architecture with a keynote lecture by the renowned architect Néstor Montenegro. The event, held in the Triangular Hall of the Official College of Architects of Madrid (COAM), was sold out by students, professors and professionals from the sector, who completely sold out the capacity of the room. Néstor Montenegro, Professor of Projects at our School and founder

of EXTUDIO, shared with us, among other of his most outstanding works, the details of his latest winning project: the Spanish Pavilion for Expo Osaka 2025. This ambitious project, developed in collaboration with ENORME Estudio and Smart and Green Design, represents a milestone in Montenegro's professional career and an inspiring example for new generations of architects.

ORACLE TEACH 2.0 CHALLENGE

Universidad Europea has won first place in Oracle Spain's Enseña 2.0 Challenge. The "Cachopo" team, composed of students Alex Quilis Vila and Junjie Wu, won the Oracle Spain 2024 university hackathon. Using Oracle tools such as Oracle Cloud, Oracle Database, and Oracle Analytics, the team analyzed data and predicted next year's most interesting Formula 1 race using AutoML. This achievement highlights the talent and dedication of the students of the European University. This event, organized by Oracle and NUWE, was attended by more than 220 people from more than 40 universities, demonstrating the high level of competition and collaboration among the participants.

UEM STUDENTS PARTICIPATE IN "FLY YOUR SATELLITE!" FROM ESA

Leaders of the on-board computer and radio telescope & communications department of the student aerospace student student project Astronomical Radio Telescope (S-ART) participated in the "Fly Your Satellite! Design Booster 2 Edition" of the European Space Agency (ESA).

The S-ART project, in collaboration with the Galileo Club of the UEM and the Cosmos Aerospace Association of the URJC, aims to build a cubesat and launch it into space. Thanks to the support of Professor Julio Gallegos from UEM, the team was selected to attend the "Training Week" in the Netherlands from 11 to 15 November 2024.

During that week, the students received daily training on CubeSat satellite design and the organization of aerospace projects, given by ESA professionals at the ESTEC center and the NH Noordwijk Conference Centre Leeuwenhorst Hotel. This experience allowed them to gain valuable knowledge and apply what they learned in their S-ART project. Participation in this program has been a unique opportunity for the students, consolidating their training and bringing them closer to the professional aerospace world.

ORACLE AND HPE COLLABORATE WITH MATHEMATICS ENGINEERING STUDENTS ON INTEGRATIVE PROJECTS

Companies of the stature of Oracle and HPE will collaborate with our students of the Bachelor's Degree in Mathematical Engineering in Data Science to carry out their integration projects. Oracle will support the project "Unraveling the secrets of Formula 1", where students will use advanced data analysis and machine learning tools. On the other hand, HPE will participate in the "Innovation Call: Red Eléctrica", where students will explore energy data to develop innovative solutions applying Big Data technologies.

Dr. MINJUAN WANG, AI EXPERT IN HIGHER EDUCATION

In September, Dr. Minjuan Wang, Chair Professor of Emerging Technologies, visited the School and Future Education; Associate Co- Director, Academy for Applied Policy Studies and Education Futures; y Executive Co-Director, Global Institute for Emerging Technologies, de la Education University of Hong Kong.

After a relaxed talk with Dr. Elena Gazapo, Rector of the European University of Madrid, Dr. Wang gave a master class to teachers and students: Leveraging Metaverse and Generative AI for Transformative Education. The subsequent debate reflected the enormous interest of the academic community in the transformative power of artificial intelligence. He then held a meeting with the School Board, in which the impact of artificial intelligence on higher education was addressed, in which both the ways of teaching and the ways of evaluating must change to adapt to the new times.

Finally, possible collaborations with the Global Institute for Emerging Technologies, an institution with which there are important common interests, were explored. To complete a magnificent and productive day, the Dra.Wang met with the principal investigators of the School's research groups, to exchange ideas and explore possible competitive projects to which they can compete together. »

VISIT TO MADRID-BARAJAS AIRPORT FOR ENGINEERING STUDENTS

On 28 February, the 3rd year students of the Bachelor's Degree in Aerospace Engineering, accompanied by the degree coordinator Ana Medina and Professor Oscar Marbán, made an educational visit to Madrid-Barajas Airport, Terminal T4. The activity, associated with the subject of Air Transport, aimed to provide students with a practical and detailed vision of the operation of the airport.

In the Automatic Baggage Handling System (SATE), the students visited the SATE facilities and received a detailed explanation about its operation. The tour of the boarding area allowed the students to take a brief tour of the terminal, showing the general elements of it. This activity allowed the students to learn first-hand about the operation of one of the most important airports in Europe and apply the knowledge acquired in class to a real environment.

NEW INDUSTRIAL PARTNER: ORACLE

La Universidad Europea ha firmado un acuerdo de colaboUniversidad Europea has signed an industrial collaboration agreement with Oracle, which will bring multiple benefits to our institution. The agreement was signed by Albert Triola, Senior Vice President Support Renewal Sales EMEA, accompanied by Carolina Diaz Serna, Senior Program Manager, and Diana Fernandez, EMEA Vice President, Cloud Adoption. Oracle will propose real projects so that our students can apply their knowledge in practical and relevant situations. Thus, second-year students of the Bachelor's Degree in Mathematical Engineering in Data Science will have the opportunity to carry out their integrating project "Open Data" with the challenge proposed by Oracle, which is about Formula 1.

In addition, Oracle professional certifications will be included in our degrees, increasing the employability and value of our graduates in the job market. Certifications such as Java Foundations, Database Foundations or OCI Foundations will be some of those that we will implement during this second semester of the course and in subsequent years. Our students will also have the opportunity to participate in hackathons organized by Oracle, fostering innovation and teamwork.

SIGNING OF A COLLABORATION AGREEMENT WITH MADCUP TO PROMOTE STEM TRAINING

The European University of Madrid and MADCUP have signed a collaboration agreement that seeks to promote STEM education and offer new training opportunities to students of baccalaureate, ESO and training cycles and to students of the European University. As part of the agreement, Universidad Europea will provide training workshops based on its experiential learning methodology to students in the final year of high school who participate in the F1 in Schools program, which has the collaboration of MADCUP.

The F1 in Schools competition, present in more than 50 countries, has involved more than 100,000 students in the exciting world of Formula 1. This program encourages both the development of technical skills and comprehensive project management, covering areas such as marketing, financing, engineering, and manufacturing technologies. In this context, Universidad Europea will actively contribute by giving training workshops to several schools participating in the competition, thus strengthening the preparation of students and their approach to STEM disciplines.

The agreement has been formalized at the Villaviciosa de Odón campus. On behalf of the European University, Verónica Egido, deputy director of the Industry and Health Engineering area of the School of Architecture, Engineering, Science and Computing (STEAM), Carlos Talayero, director of the Master's Degree in Automotive Engineering and coordinator of the Degree in Industrial Systems Engineering; Michele Ambrosini, Team Leader of the Formula UEM team and representing MADCUP, Pepe Ortiz, general manager; Gorka Rubio, Project Manager of Sports Summit Madrid; Olga Lázaro, commercial director of Sports Summit Madrid and Cristina Benzal, Industrial Engineer at MADCUP.

INTERNATIONAL WORKSHOP LONDON 2025, OF THE MASTER'S DEGREE IN ARCHITECTURE (MUA)

Continuing our international commitment, the students of the Master's Degree attended the annual MUAW workshop, in London, for the development of ongoing projects, especially inquiring about the implication and enormous impact of technology on the future of our discipline.

El The workshop is structured in 3 stages: Firstly, a creative one, in the experimental workshop of Buckinghamshire, directed by Dr. Guan Lee, professor at the Bartlett School and the Royal College of Art, assisted by Álvaro López and Diego García Cuevas.

Secondly, a great General Jury, in the RIBA offices in London, and with international external guests, to assess the work in progress.

And finally, a series of professional visits to some of the leading architecture studios in the UK. Among others: Norman Foster and Partners, Rogers Stirk and Harbour, Amanda Levete Architects, Heatherwich Studio, Morris&-CO, Carmody Groarke, AHMM and Zaha Hadid Architects.

LIMA-MADRID INTERNATIONAL WORKSHOP

During the month of February, we have celebrated the 7th edition of the Lima-Madrid International Workshop, where our Architecture students have joined their peers from the Peruvian University of Applied Sciences (UPC), who have visited us in the Design Workshop.

This year, the students have worked together again to develop innovative architectural proposals, addressing important urban problems.

Through this exchange, international ties are strengthened, fostering collaboration between future generations of architects.

Our teachers, Eduardo Arroyo and Álvaro Galmés, together with the visiting teachers: Enrique Gómez de la Torre and Magaly Gayoso, with their students, have developed over four weeks, an integrated group project approach based on a regeneration approach based on previous analyses.

The closing session consisted of a Jury with professors from the UEM: Adolfo Jordán Ramos, Francisco Domouso de Alba, Andrés Abásolo Alcázar and Silvia Herrero.

THE SCHOOL IS A COLLABORATING ENTITY OF THE 29TH CONGRESS ON AUTOMOTIVE QUALITY

The European University participates through the School of Architecture, Engineering, Science and Computing (STEAM) as a collaborating entity in the 29th Congress on Quality in the Automotive Industry, an event organized by the Spanish Association for Quality. The motto chosen for this year is "People-Processes-Products", three concepts closely related to the automotive sector. The hosts of this new edition of the Congress will be HORSE, Iveco Group and Renault Group.

VISIT OF THE ADVANCED TECHNOLOGIES IN DESIGN AND 3D PRINTING UNIT OF THE 12 DE OCTUBRE UNIVERSITY HOSPITAL

On Tuesday, February 11, members of the advanced technologies in design and 3D printing unit of the 12 de Octubre University Hospital (UTADI3D) directed by Antonio Martín visited the hospital.

For the School, it was a unique opportunity to share good practices and seek synergies that allow collaboration between our institution and the advanced technologies unit.

The Deputy Director of the School in the area of Industry and Health Engineering, Verónica Egido, together with members of the School's Nanotechnology research group, NANO-UEM, Arisbel Cerpa, Maria Fuencisla Gilsanz and Carlos Castellote, visited the School's facilities: Physics, Destructive Testing, Industry 4.0, Fablab laboratories and the simulated hospitals of the Faculty of Health and the Veterinary Clinical Hospital.

Subsequently, the members of the unit had time to meet with the researchers of the group and five students from the Bachelor's Degrees in Biomedical Engineering, Bachelor's Degree in Industrial Systems Engineering and Physics, exchanging impressions and seeking collaboration in different projects.

WITH MICROSOFT AT BETT 2025 (LONDON)

After the excellent agreement signed by the European University of Madrid with Microsoft as a Technology Partner in artificial intelligence, the School was in January with Microsoft at the British Educational Training and Technology (BETT) fair, an annual international fair for educational technology, at the ExCel exhibition and conference center. On behalf of the School were Alberto Sols and Pedro Lara, and Manuel Patiño, CIO of the European University of Madrid, was also present. It was an excellent opportunity to attend presentations on the state of the art in the application of artificial intelligence to higher education.

Especially interesting were the sessions Leading the AI Era in Higher Education led by Kate Maxwell, VP Worldwide Education Microsoft, and AI Skills & Employability: Partnership in Education by Jeff Johnson, AI Skills & Employability Lead Microsoft.

Thanks to the efforts of Microsoft's Spanish team, led by Manuel Abellán, we had the opportunity to hold a very interesting meeting with Kate Maxwell, in which we were able to talk about both trends and current best practices in the higher education sector.

Attending BETT was a very enriching experience, to continue advancing in the adoption of artificial intelligence to improve effectiveness and performance, both in the academic and management fields

VISIT TO THE NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NTNU)

During the last days of February, Guillermo Castilla and José Manuel López, representing the School and the PBS Office, visited Trondheim in Norway to carry out a Peer to Peer review of the prestigious Norwegian school NTNU, in the context of our new CDIO educational framework. NTNU's Future Technology Education (FTS) initiative underscores the need to adapt to multidisciplinary projects and cross-functional teams, integrating digital and emotional intelligences. EMU shares this vision, promoting active learning methodologies. The review revealed the importance of flexibility and adaptability in higher education, highlighting the shared vision of both universities focused on sustainability and interdisciplinarity.

I ANNUAL SUSTAINABILITY INNOVATION CHALLENGE: AN OPPORTUNITY FOR STEAM STUDENTS

The School of Sustainability of the European University, in collaboration with the European University Foundation, has launched the Annual Sustainability Innovation Challenge, aimed at students from various universities. This challenge offers a unique platform for STEAM students and alumni to apply their knowledge and skills in creating innovative solutions to real sustainability problems.

The challenge, which was launched on February 27, has received an excellent reception. In addition, it has an international dimension, as three invited universities have also shared the initiative with their community, demonstrating their commitment to a global impact.

Participants must form multidisciplinary teams of between 2 and 10 members, including students or alumni from at least two different degrees. The teams will work on challenges posed by leading companies, known as "Transformative Partners", which include HEINEKEN Spain, CHEP, LG and Sacyr. Each challenge addresses specific aspects of sustainability, such as the creation of sustainability rankings based on artificial intelligence, or social innovation in infrastructures.

The participation process includes individual registration, the submission of proposals before May 18, 2025, and the evaluation of them according to criteria of innovation, feasibility, impact and scalability. The winning teams will receive in-kind funding to develop a minimum viable product (MVP) and a mentorship program provided by the Transformative Partners and the School of Sustainability.

This challenge represents an exceptional opportunity for STEAM students to contribute to sustainability and connect with the professional world, developing transversal competences and implementing their ideas in practice.

IV SCITECH DAY OF THE STEAM SCHOOL

The IV Edition of SciTech Day, organized by the STEAM School of the European University, has been an event where this year sustainability and Artificial Intelligence were the main topics. On this occasion, top-level experts have shared their knowledge about the latest technological advances and their impact on our society.

Microsoft's David Hurtado spoke about the AI revolution, highlighting its ability to read, understand, and even reason before responding. However, he stressed that the true value of Artificial Intelligence does not lie in its ability to give direct answers, but in its potential as a tool to support learning.

José Manuel Torralba, from the Carlos III University of Madrid, spoke about the evolution of materials and their historical impact. The evolution of humanity has been marked by innovation in materials. Advances in this field have determined the course of history, including military conflicts and technological revolutions.

Elena Guidi addressed sustainability in IT, highlighting the efficiency in the use of cloud resources and the importance of the energy used in data centers. Guidi explained that, in the field of cloud computing, one of the keys to reducing energy consumption is to distribute the workload efficiently, concentrating the largest number of processes in the fewest possible number of servers.

Julio Fernández discussed the impact of AI on software development and the accessibility of intuitive interfaces. Fernández explained how current models have achieved

the ability to interpret almost any type of data without the need for prior configuration, something unthinkable a few years ago.

Mickael Villain explored the connection between technology and creativity in the animation industry. Villain addressed the importance of diversity in animation studios, the evolution of digital tools and the impact of artificial intelligence on creative processes1. He explained how advances in software have democratized access to animation, allowing small teams to produce high-quality content without the resources of large studios.

Finally, Nerea Luis spoke about AI in autonomous vehicles and the integration of conversational interfaces. He highlighted how AI has transformed the ability of systems to process information in real time. In addition, he pointed out that the integration of conversational interfaces has facilitated their adoption in various sectors, from mobility to the generation of digital content.

III CONFERENCE ON ENGINEERING WITH HEART

The School of Architecture, Engineering, Science and Computing, STEAM, celebrated on March 4, World Engineering Day for Sustainable Development, the III Conference on Engineering with a Heart.

In these conferences, the students have been able to learn about the testimony of different professionals who have put engineering knowledge into practice to help different groups in society and improve their quality of life.

During the event, Carlos Rivera, founder of the Alex Rivera Foundation and the company Clicars, shared his experience as an entrepreneur and the social work of his foundation, which seeks to improve the lives of people with intellectual disabilities through innovative projects and the use of advanced technology.

During the day, Carlos Rivera, founder of the Alex Rivera Foundation and the company Clicars, was interviewed by Juan José Ordás.

Javier Otero de Irizar, fire sergeant and coordinator of the Traffic Accident Rescue Group, also participated, highlighting the importance of engineering to help those people who have been less favored in terms of some abilities and for whom helping them to overcome limits is vital.

Áurea Perucho Martínez, director of the Center for Studies and Experimentation of Public Works (CEDEX) explained how civil engineering and other related disciplines contribute to recovery after natural disasters, showing examples of their action in these cases.

Finally, the students of the Bachelor's Degree in Biomedical Engineering, Lucía Gamarra, Leyre Merlo and Bernardo Quero, presented their SilverLinkIP project, awarded in the Smartly Included competition. The project seeks to create online communities for the elderly, promoting physical activities such as tai chi through the use of state-of-the-art technologies such as artificial intelligence.

MUBADALA'S HIGHER EDUCATION STUDENT

The investment fund Mubadala Investment Company organized the first edition of MUBADALA'S HIGHER EDUCATION STUDENT COMPETITION, a competition for engineering students from the United Arab Emirates in which 14 teams from 10 local universities participate. The objective of the competition is to design and build a robot boat that keeps the water clean of debris and garbage, which will be tested in swimming pools.

The University of Abu Dhabi University College of Engineering was the host, and our Academic Model managers Guillermo Castilla, Silvia Lavado and José Manuel López, as well as Professor Sergio Bemposta, travelled in October 2024 and January 2025 to give two workshops on teleoperated robotics (October 2024) and autonomous robots (January 2025), training about 90 students.

On April 26, the face-to-face competitions took place, both for teleoperated and autonomous robots, and our teachers acted as jury.

JOINT SYMPOSIUM ON EMERGING TECHNOLOGIES AND FUTURE TALENT

From May 8 to 10, the Joint Symposium on Emerging Technologies and Future Talent was held at The Education University of Hong Kong, which was co-organized with Harvard and Standord. The symposium brought together more than a hundred professors from different universities, who addressed the way in which artificial intelligence is being incorporated into higher education, along with other technologies, to improve the training of students and enhance both their development and the full deployment of their talent. The organization of the event, by Dr. Minjuan Wang, was excellent in every way

The School presented 'A Systems Approach to Leveraging Artificial Intelligence for a Highly-Personalized and Effective Higher Education'. The presentation, which focused on the way in which the School is incorporating artificial intelligence into the School's programmes in a top-down, objective and structured way, was very well received and sparked an interesting debate.

The presence at this symposium allowed us to learn from the best practices in other institutions and at the same time share the way in which the School works on the incorporation of artificial intelligence.

METHODOLOGY WORKSHOP WITH SUSANA NICOLA AND ALBERTO PEREIRA

On May 28th, professors Susana Nicola and Alberto Pereira from the Higher Institute of Engineering of Porto visited us to give two workshop sessions on Challenge Based Learning in Engineering and how it relates to the Project Based Learning methodology and the principles of CDIO (Conceive, Design, Implement, Operate) and Design Thinking.

40 professors from the School attended, both face-to-face and online, and carried out group work to devise a project according to the learned phases of Engage (Ideation Process), Investigate (Analysis) and Act (Proof of Concept, Minimum Viable Product). It served to share experiences, areas for improvement and remember some of the fundamentals of our methodology. The main difference is that it leaves the project statement much more open, allowing students to detect a real problem or need and thus increase the motivation factor for their work. The need for teacher resources and calendar was also noted.

EU STEAM SCHOOL STUDENTS PARTICIPATE IN THE XVII INTERNATIONAL IT SEMINAR FOR STUDENTS

The European University has held a new edition of the International IT Seminar at the European University of Madrid.

From 22 to 25 April, students and professors from HES-SO Valais-Wallis (Switzerland), Haaga-Helia University of Applied Sciences (Finland) and European University of Madrid (Spain). enjoyed an intensive week of workshops related to artificial intelligence (AI), robotics, cybersecurity and the Internet of Things (IoT).

The first IT Seminar was held in 2006 in Helsinki, Finland. And this year the XVII edition of the seminar took place in Madrid

During the XVII International IT Seminar, students from HES-SO Valais-Wallis, Haaga-Helia University of Applied Sciences and Universidad Europea have learned new topics related to artificial intelligence, cybersecurity, robotics and the Internet of Things. They have also competed in high-level hacakatons and developed incredible mobile robots with machine vision.

The IT Seminar 2025 ended with a very special day in which we presented the Diplomas to all participants, including an outstanding recognition to Heikki Hietala, FOUNDER OF THE IT SEMINAR, for his 20 years of service to the IT SEMINAR consortium.

SUSTAINABILITY HACKATHON: INNOVATION WITH PURPOSE

The School of Sustainability has promoted a university Hackathon in collaboration with Amazon Web Services (AWS), focused on the development of technological solutions to real challenges related to sustainability.

During two intensive days, students from various disciplines worked in multidisciplinary teams to devise innovative proposals that responded to challenges posed by companies such as CHEP, HEINEKEN, LG or SACYR.

In addition to encouraging critical thinking and collaboration, the activity has served as preparation for the Annual Sustainability Innovation Challenge, connecting students with key tools to move from idea to action.

The hackathon reinforces the School's commitment to active learning methodologies and training connected to the real needs of the sector

MIGUEL ALVAREZ'S VISIT TO THE FORMULA UEM STUDENTS

The students of the Formula UEM team of this year 2025 had the opportunity to have the MotorSport engineer, Miguel Álvarez, visit them at the School's facilities.

Miguel Álvarez, is currently manager at Honda Racing F1 and his professional career is impressive, having worked from FSAE to Formula 1, always linked in one way or another to the world of motor racing.

During their visit, the students had the opportunity to learn from the experience of a professional who also started in a Formula Student team and who achieved what is a dream for any of the students of the degree.

Apart from analysing technical aspects of the car under development, Miguel Álvarez stressed the multidisciplinarity of an area that is sometimes linked only to mechanics and engines, and yet covers many different disciplines, being an example of adaptation to different environments, ways of working and areas of knowledge.

FORMER LEADING COMMUNICATIONS COMPANY NEW INDUSTRIAL PARTNER FOR THE SCHOOL

EXFO, a leading company in the field of testing, supervision and analysis for the communications industry, signed an agreement with the School as a new Industrial Partner.

EXFO has donated one of its ODTR equipment for laboratories in the fiber optic area. In addition, as an Industrial Partner, EXFO becomes a collaborator that will advise on the teaching of relevant subjects in the area of communications, both in the Degree in Telecommunications Systems Engineering, and in the part corresponding to industrial communications. In this second case, in degrees such as the Degree in Industrial Systems Engineering and the Master's Degree in Industrial Engineering. Having as a company like EXFO strengthens our link with companies in highly valued sectors and with great employability.

FORMULA UEM PARTICIPATION IN THE QUALIFIERS FOR F1 IN SCHOOLS

On 18 and 19 June, the IFEMA Madrid venue hosted the SportSummit Madrid, an initiative that brought together key players in sport, technology, education and innovation. In this context, the national finals of F1 in Schools were held, a STEM educational competition that challenges students to design, build and compete with CO2-powered Formula 1 minicars. This event was promoted by MADCUP, an organizing entity of grassroots sports tournaments with which the School has signed a collaboration agreement.

The different teams presented their prototypes, many of them made in the UEM Fablab, with the collaboration of our technician Erik Lesta whom we thank for all his effort and dedication. As well as professors Javier Collado and Carlos Talayero, as judge and as contact person with MADCUP respectively.

Our School is proud to have been able to be part of this project in which the involvement of students and teachers from institutes and vocational training centers is exemplary. Working to be the chosen ones by these students in their university education is undoubtedly an incentive to continue improving.

XAVEER DE GEYTER CLOSED THE CYCLE OF ARTIFICIAL MASTER'S DEGREE IN ARCHITECTURE

The architect Xaveer de Geyter closed the Artificial Cycle of the Enabling Master's Degree in Architecture at the European University with a conference at the Official College of Architects of Madrid. In his speech, he shared his professional career with the students and addressed the new trends in urban planning and landscape design.

During the presentation, de Geyter reviewed emblematic projects of his XDGA studio, such as the metro station and Place Rogier in Brussels, the extension of the Museum of Fine Arts in Tournai, and the Genk campus. He explained his approach based on adaptability to the context, without a fixed style, and how his works seek to recover and transform the environment.

Examples such as the Vlora and Orkium stadiums, the Kitchen Tower and the Built/Unbuilt concept illustrate his innovative vision of architectural space. The transformative impact of De Geyter's work on the cities in which he has worked is indisputable.

The event concluded with a critical session on the ongoing projects of the master's degree, in which Eduardo Arroyo, Juan José Mateos and Carlos Arroyo also participated.

EUROPEAN UNIVERSITY CIVIL ENGINEERING WEEK: X BRIDGE DESIGN COMPETITION

During the Civil Engineering Week at the European University, we organized the X Edition of the Bridge Competition, in which interdisciplinary groups of Civil Engineering and Architecture students participated. In just six hours, the teams designed and built bridges with limited materials, minimal span and maximum weight, demonstrating their ability to solve real challenges under pressure.

In addition to the competition, the week included activities such as the construction of plaster funicular models, joints of concrete elements and models of emblematic structures, such as the Enrique de la Mata Gorostizaga Bridge – with an emotional memory of the great Julio Martínez Calzón – or the bridge over the Barrios de Luna reservoir, the work of the engineer Carlos Fernández Casado.

GREAT PARTICIPATION AND RESULTS OF THE SCHOOL IN THE TALENTEA2025 AWARDS

The third-year students of the Bachelor's Degree in Computer Engineering participated in TalenTEA2025, a contest that rewards projects and technological solutions for people with autism, and they all came up with very promising ideas. Each group designed solutions with empathy, creativity, and a focus on the user.

The result: 10 projects from the European University became finalists, and in addition, Transport Helper, an app to facilitate the use of public transport for people with ASD, won the first prize

INTRODUCING COMPUTING PROJECTS AT HPE CDS

Once again, at the end of the academic year, at the CDS headquarters, at Hewlett Packard Enterprise company, the presentation session of the projects in which the 57 third-year students of the degree in Computer Engineering at Universidad Europea have been working took place.

A very important part of the Project Based Learning methodology is technical learning and identifying the applicability of everything they learn. However, it is also essential that they are aware of how close they are with their projects to what companies do and how important it is to communicate their results well.

For this, the collaboration of our strategic partner, HPE CDS, is essential. Throughout the process, we have had the help of Carlos Caño Alegre and Jairo Luzón who have participated in the elaboration of the requirements, the resolution of doubts, the monitoring of progress and in this final session giving all the groups Feedback and collaborating with the teachers in the evaluation.

STEAM DAYS 2025: INNOVATION, TECHNOLOGY AND SUSTAINABILITY AT THE EUROPEAN UNIVERSITY

From 20 to 22 May, the School of Architecture, Engineering, Science and Computing held the STEAM Days 2025 at the Villaviciosa de Odón Campus. For three days, top-level experts discussed cybersecurity, artificial intelligence, big data, logistics and sustainability.

The inauguration included the I Cybersecurity Conference, with the participation of Miguel Ángel Martín Peña (Hack by Security Group) and a round table with Carmen Torrano Giménez (Madrid Digital), Mercedes Muñoz (Advens), José Manuel Ávalos Morer (Vodafone) and Álvaro Núñez-Romero Casado (Telefónica).

The second day addressed the impact of AI and Big Data on STEAM professions, with Beatriz Herranz (Telefónica) and a panel moderated by María Cruz Gaya López with speakers such as Diana Fernández (Oracle), Jordi Armengol (Microsoft), Eduardo Fernández (352 Capital Partners) and Iván Marbán (Contextual).

The closing was dedicated to sustainable logistics, with interviews and debates led by Julia Ayuso and Adriana Molero. Gabriel Cuervo (Sacyr), Diego Carrero (DHL), Daniel Latorre (CITYlogin Iberia) and Cristina Álvarez (Las Rozas Innova) participated, reflecting on the future of technology and sustainability in business operations.

Investments Made

Investments Made at the School
During the 2024/2025 Academic Year

During the 2024/2025 academic year, following the trajectory of recent years, the facilities of the School of Architecture, Engineering, Science and Computing have been reinforced through relevant investments. The School's project-based learning has the strength of experiential learning as close as possible to the professional future of the students. Being consistent with this model, incorporating and maintaining state-of-the-art facilities is essential for the School.

Among the investments made during the course are:

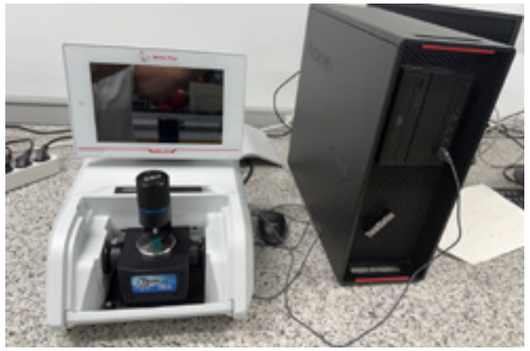
Extension of the L.O.R.C.A. (Optimized Laboratory of Advanced Computing Resources). The advanced computing center continues to grow, this year two new machines have been incorporated with which it is intended to add more capacity to the services currently provided by our computer center: Big Data cluster, High Computing cluster for teaching and research, Database Manager, Virtual Machine Server and Advanced Simulation.

Space to give visibility to the projects of Architecture and Civil students. The Hall of the School Building has once again become a place where creativity, teamwork and hands-on learning come to life. During the month of June, students of Civil Engineering and Architecture, in interdisciplinary working groups, participated in the X Edition of the Bridge Competition. This space became a large construction workshop in which bridges capable of supporting large loads were designed and built.

Hospital Monitoring Simulation Room. The space created last year so that Biomedical Engineering students and all those engineers interested in the area of Health, can experiment with instrumentation techniques and hospital monitoring, has been equipped with 2 human anatomical models with 1:1 scale ligaments for students to learn by experimenting. We continue to be strongly committed to transdisciplinarity in a branch as important as health.

New Calibration Bench for propulsion systems, for combustion engines, electric and other engines, for the Laboratory of Engines and Manufacturing Processes, thus reinforcing the line of experiential learning of the Degree in Industrial Systems Engineering and the new Expert Degree in Motorsport Engineering, which was created to respond to the demand of students in the field of competition engineering.

Renovation and new equipment for the Fablab, as every year, the Fablab's equipment is replaced and renewed to keep it updated and in proper operation. A new wooden cutting table is also incorporated. This space plays an important role in the life of the School, both for the students of Architecture and Civil Engineering, who make the parts for their models, and for the students of Industrial Systems Engineering, who have made prototypes of Formula 1 mini cars that they presented at the Sport Summit that took place at the IFEMA fairgrounds.



Nanotechnology Laboratory, this year this space has been equipped with an Infarrojo Spectrometer to cover the practices of the Degree in Physics and Research Groups. A THW-L3 Sensor Probe (Thermal conductivity) has also been acquired to cover the practices of different Grades complementing the Thermal Conductivity, which was purchased with an initial probe to measure in solids and this year the THW-L3 Sensor Probe was ordered to measure temperature and specific electrical conductivity in liquids.

Academic Quality and External Recognitions

During the current academic year, the School of Architecture, Engineering, Science and Computing has consolidated its national and international positioning by obtaining different quality seals and external recognitions, which endorse the rigour, excellence and global projection of its training programmes.

Among the most outstanding milestones are:

- The international revalidation RIBA (Royal Institute of British Architects) awarded to the Architecture programme, which certifies its compliance with the most demanding standards of architecture degrees at an international level. The European University is proud to be the only one in Spain and a pioneer in Europe to obtain validation from both the Royal Institute of British Architects (RIBA) and the National Architectural Accrediting Board (NAAB), for its Bachelor's Degree in Fundamentals of Architecture and Enabling Master's Degree in Architecture programs.

  These seals guarantee that our educational standards remain at the forefront of international architecture, and endorse the quality of the training offer, opening the doors of our graduates to a promising professional future

- Obtaining the EURO-INF seal, which recognises the quality and relevance of the degree in Computer Engineering in the European context, reinforcing its alignment with the professional competences of the technology sector.

- The presence in the prestigious international QS Stars ranking, with a rating of five stars (*****), reflects the School's commitment to innovation, employability, teaching, and internationalization.

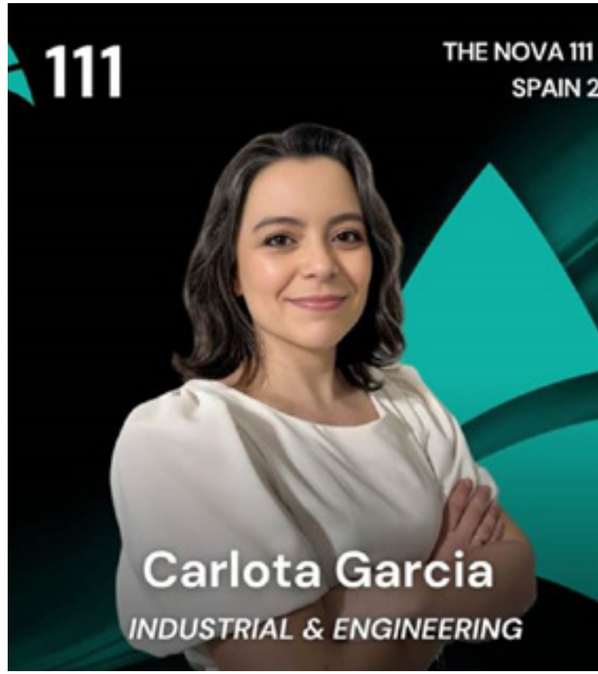
In addition, the School has maintained a place of reference in national educational rankings, such as the El Mundo Ranking, where the Bachelor's Degree in Fundamentals of Architecture has been recognized within the top of the Best Universities in Spain by degree 2025, within our commitment to a solid approach to critical thinking and rigorous work.

These achievements are the result of the joint work between the teaching staff, students, administration and services staff, and the multiple institutional and business collaborators that promote STEAM training with a vision of the future.

Summary
Awards and Distinctions

Awards and Recognitions to the Faculty

During the 2024–2025 academic year, several teachers from the School STEAM have been recognized for their research work, informative and teaching. Dr. Laura García Cuenca was featured in Forbes and ToolBar magazines for leadership in artificial intelligence and its commitment to inclusion of women in STEAM. Professor Charlie J. Pages published the book '70 tools of AI', recognized as a A Practical Guide to the Ethical and Efficient Use of Tools of artificial intelligence. In addition, several teachers of STEAM School have been interviewed in media such as Telecinco, ABC, El País, COPE, among others, for their experience in AI, sustainability, architecture and education.



Awards and Recognitions to Alumni

Among the alumni recognized this year, the following stand out: Álvaro González Serrano, who received the COAM Award and the AMA Golden Award for its project 'A raised table in the landscape'. Also, Luis Alberto Herrero Hernández was awarded as 'Best Young Civil Engineer' by the College of Civil Engineers . Jorge Espada was awarded for his Final Project Master's degree and presented at the Talgo Innovation Awards and Carlota García, an industrial engineering student who was recognized as a member of the Nova 111 List for 2025 in the category of Industrial Engineering.

Awards to Estudests

Ana Paredes and Diego Muñoz Sánchez were recognized with the prestigious Resilient Futures Award. Junjie Wu, together with his team, won first place in the challenge It teaches Oracle Spain 2.0, standing out for its use of AutoML to predict F1 races. Diego García Cardeña was awarded the 7th prize for the Final Project Graduate's degree by the Official College of Graduates and Industrial Technical Engineers of Madrid. In addition, students of Mathematical Engineering won the local phase of the Cajamar UniversityHack 2024 Datathon and were classified for the national final

Awards to Student Teams

In the XII edition of the STEAM School Awards, awards were given outstanding projects such as 'UEM Solar' (Engineering Aerospace), 'Falcon Fury VR' (Aerospace Engineering), 'ANCHOR HOUSE' (Fundamentals of Architecture), 'PREDIHOME' (Master in Data Science), 'HERA' (Biomedical Engineering) and 'Scissor Lifting Platform' (Scissor Lift Engineering) Industrial Systems). The 'Transport Helper' project won first prize in the TalenTEA 2025 contest. During SciTech Day 2025, Rover and Elastic Cars Contest had been held, rewarding Physics and Engineering students Aerospace. In the Club Aid Program of the European University Foundation and Banco Santander, prizes were awarded to: Club Formula UEM (€10,000), Club Galileo (€5,000), Club Robótica (€7,500) and Club Air Division (2.220 €).

Other Institutional Recognitions

Apart from those highlighted in another section of this Academic Course Report, talking about the level of accreditations, it should be noted that the Master Degrees in Renewable Energies and International Master Degree in Building Management and Construction were highlighted among the five best in Spain in their categories according to the ranking of El Mundo 2024. The STEAM School was also recognized for its participation in the IFEMA Cities Forum and for its alliance with the Royal Academy of Engineering. In addition, it was celebrated the incorporation of the School into the CDIO consortium and different strategic alliances were signed with companies such as Microsoft, Oracle, Woodea and EXFO.

Observatory of AI in Higher Education

During the 2024/2025 academic year, the Observatory of Artificial Intelligence in Higher Education (OIAES) of the European University has published its fourth report, thus consolidating its role as a space for strategic reflection on the impact of artificial intelligence (AI) in the university environment. Under the title "Artificial Intelligence: Perspectives and Challenges from the Student's Perspective", this new report focuses for the first time on the perception of students, becoming a key piece in understanding how this technological revolution is experienced in the classroom.

The OIAES was born as a response to the emergence of generative artificial intelligence, with the aim of analyzing, reflecting and providing clarity on its impact on the university environment. Its purpose is twofold: on the one hand, to understand the challenges and opportunities posed by AI in higher education; on the other, to offer guidelines that allow institutions to adapt critically, ethically and effectively to this transformation. The Observatory is made up of a multidisciplinary team of professors and researchers from the European University, and also has external figures of recognized prestige in the academic, technological and industrial fields, which guarantees a broad, rigorous vision connected to the professional reality.

External experts include Amparo Alonso (University of La Coruña), Orlando Ávila García (ARQUIMEA), Senén Barro Ameneiro (University of Santiago de Compostela), Ramón Carrasco González (Complutense University of Madrid), José Ramón Fernández López (IBM), Elena Gil Lizasoain (Telefónica), Pedro González Aranda (Publiespaña – Mediaset España), Faraón Llorens Largo (University of Alicante) and Nuno Maximiano (IBM). On behalf of the European University, Juan José Beunza Nuin, Laura García Cuenca, María Cruz Gaya López, Rocío González Soltero, Pedro J. Lara Bercial, Gonzalo Mariscal, Sonia Martínez Requejo, Borja Monsalve, Enrique Puertas Sanz, Antonio Quirós Fons, Juan José Rodríguez Martín, Ana Suárez García and Alberto Sols Rodríguez-Candela have participated.

This new report focuses on understanding how university students perceive the irruption of artificial intelligence in their training and in their future profession. To this end, a mixed study has been designed, with a quantitative phase based on surveys of more than 400 undergraduate, master's and doctoral students from 12 Spanish universities, and a qualitative phase with discussion groups differentiated by academic level. This methodology has made it possible to obtain a rich and nuanced vision of the opportunities, concerns and expectations generated by AI in students.

The questionnaire designed by the Observatory was structured into six major thematic blocks, each of them aimed at exploring a key dimension of the relationship between university students and artificial intelligence. The main findings of each section are summarized below:

- Everyday use of AI: a tool already integrated into academic life. 42% of students say they use AI tools every or almost every day, and 79% use them for academic tasks such as writing, summarizing or searching for information. In addition, 65% use them to learn new concepts, and 43% to generate code. These figures reflect a growing integration of AI into everyday academic life, especially in STEAM areas, where use is more intensive.

- Academic perception: between efficiency and ethical concern. 84% of students believe that AI improves their learning and grades to some extent. Among the most valued benefits are quick access to information (79%), reduced time spent on repetitive tasks (77%) and improved academic efficiency (66%). However, concerns also emerge: 71% fear excessive dependence, 60% warn of a possible reduction in original thinking and 55% point to ethical risks such as plagiarism.

- Professional impact: moderate optimism and awareness of risks. 53% of students believe that AI will have a mixed impact (positive and negative) on their future profession, while 35% believe that it will be clearly positive. The functions most susceptible to automation, according to students, are repetitive tasks (82%), text translation (57%) and customer service (35%). In terms of risks, the loss of human skills (66%), errors in critical decisions (50%) and the impact on creativity (43%) stand out.

- Key competences: critical thinking and digital literacy. When asked about the most important skills for working with AI, 72% of students point to critical thinking as essential, followed by the ability to interpret data (70%) and technical knowledge about AI (63%). These responses reflect a mature and realistic view of the role AI will play in the workplace, and underline the need for cross-cutting training that combines technical, ethical and analytical skills.

- Institutional readiness: a university still in transition. Only 8% of students believe that universities are fully prepared to integrate AI into teaching. 56% believe that they are partially prepared, and 36% believe that they are not at all. Among the measures proposed to improve this situation, the incorporation of specific training on AI in academic programs (68%), the improvement of teacher training (61%) and the creation of AI experimentation laboratories (36%) stand out.

- Open reflection: between fascination and the need for regulation. In open-ended responses and focus groups, students express a mix of enthusiasm, skepticism, and a need for guidance. They acknowledge the transformative potential of AI, but also warn about its uncritical use, lack of formal training, and the need to establish clear criteria for when and how it should be used. AI is seen as a powerful tool, but one that requires pedagogical support, ethical regulation and responsible integration into training processes.

This fourth report consolidates the work of the OIAES as a space for rigorous and multidisciplinary analysis, and reinforces the commitment of the European University to innovative, critical higher education aligned with the challenges of the present and the future.

Research

Introduction

Our highly qualified and committed teaching team leads innovative projects ranging from biotechnology, environmental sustainability and data sciences to the development of advanced technologies in artificial intelligence.

Each scientific initiative reflects our commitment to excellence and to the contribution of relevant solutions that have a direct impact on society. This rigorous and constant work is reflected in publications in prestigious and impactful scientific journals, in participation in international conferences, in an increasingly intense participation in collaborative projects with entities from different parts of the world and in strategic alliances with top-level research institutions.

Research Groups

https://doi.org/10.3390/info16040317

https://doi.org/10.3390/electronics13234785

Experimental vehicle for autonomous driving

CARLA: virtual environment for simulating autonomous driving algorithms

Comma/OpenPilot: open-source control unit

1. SIC: INTELLIGENT CONTROL SYSTEMS

It specialises in the development of advanced solutions in the field of Intelligent Transport Systems (ITS) and Driver Assistance Systems (ADAS). His work encompasses the study and application of emerging technologies such as UAVs, computer vision, robotics and artificial intelligence aimed at autonomous driving. Engineering, computing, and design knowledge of cyber-physical systems are integrated, and research is conducted on environmental perception, pattern recognition, and automated decision-making in intelligent vehicles. In addition, robust algorithms are developed for navigation, control and safety, favoring connectivity between systems and their adaptation to real environments. The lines of work seek to promote efficient, safe and sustainable mobility through technological innovation.

Funded projects:

- Community of Madrid Project - SEGVAUTO-5G-CM. INNOVATING FOR THE MOBILITY OF THE FUTURE.
- National Project - Supervision and control system to guarantee minimum risk conditions in the event of failures and scenarios not contemplated in autonomous driving level 4: Control Unit (SAFE4CAR)
- National Project - SMART TRAFFIC MONITORING INFRASTRUCTURE FOR MOBILITY MANAGEMENT: MANAGEMENT SYSTEM.

Publicaciones relevantes (2024-2025):

- Aliane N. A Survey of Open-Source Autonomous Driving Systems and Their Impact on Research. Information. 2025; 16(4):317. https://doi.org/10.3390/info16040317
- Aliane, N. A Survey of Open-Source UAV Autopilots. Electronics 2024, 13, 4785. https://doi.org/10.3390/electronics13234785
- N. Aliane, Teaching experience for process identification using first-order-plus-time-delay models, Comput. Appl. Eng. Educ. 2024, e22794. https://doi.org/10.1002/cae.22794
- Rosende, S.B. Gavilán, D.S.J. Fernández-Andrés, J. Sánchez-Soriano, J. 2024. An Urban Traffic Dataset Composed of Visible Images and Their Semantic Segmentation Generated by the CARLA Simulator. DATA MDPI. ISSN: 2306-5729

2. GROUP: ADVANCED MATERIALS FOR ENGINEERING (MAI))

It focuses its activity on the development of innovative materials with applications in civil and biomedical engineering. Advanced cements reinforced with carbon nanoparticles are studied, aimed at improving their mechanical performance and durability. In collaboration with the NanoUEM group, carbon-based nanomaterials are also being investigated for biomedical applications, such as therapeutic devices and controlled release systems. Another key line focuses on the design of phase change materials (PCM) for energy-efficient buildings. The group's approach combines nanotechnology, sustainability and knowledge transfer to address challenges in construction and health.

Proyectos financiados:

- Study of the antimicrobial and antifungal activity of pegylated graphene-based nanocomposites with metal nanoparticles

Relevant publications (2024-2025):

- Lado-Touriño, I., & Merodio-Perea, R. G. (2025). Molecular Dynamics Simulations of Sustainable Green Binders for Metal Injection Molding. *Sustainability (Switzerland), 17*(5). https://doi.org/10.3390/SU17052263
- Merodio-Perea, R. G., Terrón-López, M.-J., & Lado-Touriño, I. (2025). Molecular Dynamics Simulation of CNT Reinforced Cement: A Step Toward Sustainable Construction. *Sustainability (Switzerland), 17*(7). https://doi.org/10.3390/SU17073185

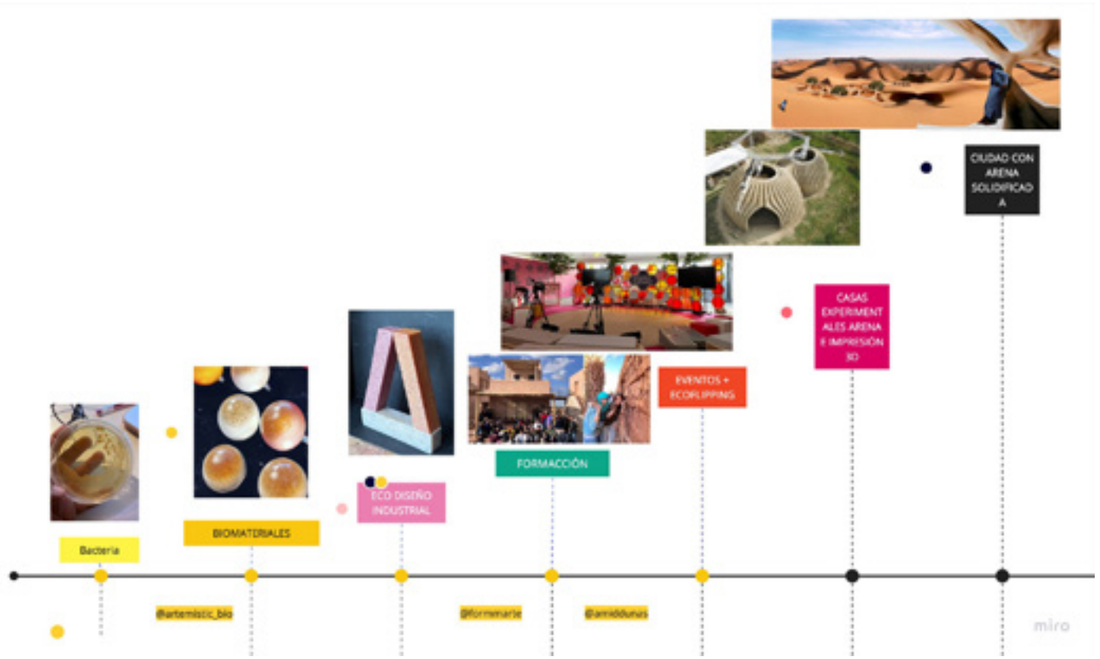
3. M.A.R.T.E. MICRO-BIOLOGY, REGENERATIVE ARCHITECTURE AND TECHNO-ECOLOGY

The group develops research in four main areas: biomaterials, bioclimatic architecture, techno-ecological systems and environmental toxicology. These lines are approached with an interdisciplinary approach that integrates knowledge from bioscience, ecology and engineering. Concepts such as biomimicry and sustainability are prioritized for the design and evaluation of innovative solutions. The use of biomaterials is studied both from their origin and for their environmental impact. Bioclimatic architecture is analysed in relation to its energy efficiency and adaptation to the environment. Techno-ecological systems are investigated as models of harmonious interaction between technology and nature. Environmental toxicology assesses risks derived from emerging pollutants on ecosystems and human health.

https://doi.org/10.1002/cae.22794

https://doi.org/10.3390/SU17052263

https://doi.org/10.3390/SU17073185



Proyectos financiados:

- NTERNAL PROJECT UEM - FABBIO: Manufacture of Biocalcified Tiles with Bacteria (Sporosarcina Pasteurii).

Relevant publications (2024-2025):

- Ruiz Plaza, Á. (2024). Arca a Marte: Hipótesis y pareidolias arquitectónicas. Humanos vs IA. En P. J. Velasco Quintana, *Construyendo el futuro de la educación superior en la era digital* (pp. 465-475). Dykinson.

GESOREIN. SUSTAINABLE MANAGEMENT: RESOURCES AND INFRASTRUCTURES

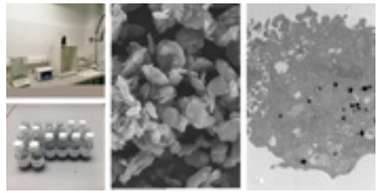
The group develops its research activity around three main lines: the analysis of the life cycle and sustainability of infrastructures, including railways, maritime works, buildings and materials; sustainability in civil engineering projects, with an emphasis on BIM, business management, project management and safety; and sustainable resource management, addressing the energy and material use of waste and wastewater, as well as the promotion of renewable energies. All lines are framed in a comprehensive vision of sustainable development, favoring the implementation of solutions based on environmental assessment and the efficiency of construction and production systems.

Funded projects:

- Internal UEM Project: Development of new phase-change materials to improve the energy efficiency of construction materials. Project made up of 2 research groups from the European University, Mai group and Gesobin group.

Relevant publications (2024-2025):

- Issa-Zadeh, S. B., Esteban, M. D., López-Gutiérrez, J.-S., & Garay-Rondero, C. L. (2024). Unveiling the Sensitivity Analysis of Port Carbon Footprint via Power Alternative Scenarios: A Deep Dive into the Valencia Port Case Study. *Journal of Marine Science and Engineering, 12*(8). https://doi.org/10.3390/JMSE12081290



5. GROUP: NANO-UEM

The group focuses its research on the advanced study of nanocarbon materials, analysing their structural, colloidal and rheological behaviour in biological media and other environments. It uses molecular dynamic simulation techniques to delve into its properties and mechanisms. He investigates graphene- and metal-based PEGylated nanostructures, focused on antimicrobial applications. Multi-walled carbon nanotubes doped with different metals are developed, studying their chemical-physical properties and catalytic potential. Likewise, the mechanical properties of nanocomposites with a ceramic matrix are explored, incorporating carbon nanotubes, carbon nanofibers and graphene oxide. The aim is to optimise their behaviour in different functional scenarios, promoting applications in engineering, health and sustainability.

Funded projects:

- INTERNAL EMU PROJECT - Study of the antimicrobial and antifungal activity of pegylated graphene-based nanocomposites with metal nanoparticles
- INTERNAL UEM PROJECT - Study of carbon quatum dots for biomedical applications: antimicrobial activity and biological markers.

Relevant publications (2024-2025):

- Roldán-Matilla, M., Irigo, P., Rojas-Cervantes, M. L., Arce, M. P., Pérez-Piñeiro, J., Gilsanz, M. F., Lado-Touriño, I., Cerpa-Naranjo, A., & Ren, G. (2025). Structural characterisation and dynamic modelling of pegylated graphene oxide with Ag and Cu nanocluster. *Applied Surface Science, 688*. https://doi.org/10.1016/J.APSUSC.2025.162430
- Roldán-Matilla, M., Cerpa Naranjo, A., & Lado Touriño, I. (2025). Impact of graphene functionalization on CuO cluster behavior: insights from molecular dynamics. Academia Nano: *Science, Materials, Technology, 2*(1). https://doi.org/10.20935/ACADNANO7559
- Gilsanz-Muñoz, M. F., Martínez-Martínez, M., Pérez-Piñeiro, J., Roldán, M., Arce García, M. P., Blasco, R., Rico-San Román, L., Esperón-Fajardo, F., Cerpa-Naranjo, A., & Martín Maldonado Jiménez, B. (2024). Assessing the Antimicrobial Efficacy of Graphene Oxide and Its PEGylated Derivative Against Staphylococcus aureus. Sci, 6(4). https://doi.org/10.3390/SCI6040066

6. DIGITAL IMAGING IN ART AND ENGINEERING (IDAI)

The group focuses its research activity on the study of human-machine interaction, with special emphasis on the analysis of emotions generated in virtual environments. Aspects of emotional and cognitive perception in digital systems are addressed, considering the user's response to different interfaces. At the same time, the psychology of color applied to graphic design is deepened, evaluating its impact on experience, usability and visual communication. Finally, the didactic potential of immersive environments is investigated, developing pedagogical methods based on virtual and augmented reality, which promote more effective teaching through the active and multisensory participation of the student.

https://doi.org/10.3390/JMSE12081290

https://doi.org/10.1016/J.APSUSC.2025.162430

https://doi.org/10.20935/ACADNANO7559

https://doi.org/10.3390/SCI6040066

Publicaciones relevantes

- Terron López, P., Terrón López, M. J., & Castilla-Cebrian, G. (2024). Spontaneous recognition of impactful video games: a user-centric classification framework. *Frontiers in Computer Science, 6.* https://doi.org/10.3389/FCOMP.2024.1378796

7. ARTIFICIAL INTELLIGENCE AND HUMAN-MACHINE INTERACTION (AI-HMI)

The research group focuses its activity on the development of solutions based on Artificial Intelligence (AI) and Big Data, applied to strategic sectors such as health, education and intelligent transport systems. Challenges related to predictive diagnosis, personalization of learning and optimization of mobility are addressed. Likewise, the use of robotics and user experience (UX) design in educational contexts and in social robots is being investigated, in order to improve human-machine interaction. The approach is interdisciplinary, integrating natural language processing, computer vision, and large-scale data modeling techniques. Research aims to promote efficient, adaptive and user-centred solutions that contribute to technological advancement and social well-being through the transfer of knowledge and technology.

Funded projects:

- Proyecto Europeo - Supporting the next generation of African experts on preventing mortality among children living with HIV through a translational training.
- National Project (MICIU-AEI): New artificial intelligence tool for the prevention and detection of fraud and money laundering in the management of digital financial assets IADETECT24
- Proyecto Europeo - An AI-based Holistic Dynamic Framework for a safe Drone's Operations in restricted and urban areas An AI-based Holistic Dynamic Framework for a safe Drone's Operations in restricted and urban areas

Relevant publications (2024-2025):

- Carralot, Carones, Krachmalnicoff, Ghigna, Novelli, Pagano, Piacentini, Baccigalupi, Adak, Anand, Aumont, Azzoni, Ballardini, Banday, Barreiro, Bartolo, Basak, Basyrov, Bersanelli, et al. (2025). Requirements on the gain calibration for LiteBIRD polarisation data with blind component separation. *Journal of Cosmology and Astroparticle Physics, 2025*(1). https://doi.org/10.1088/1475-7516/2025/01/019- 2024
- Remazeilles, Douspis, Rubiño-Martín, Banday, Chluba, de Bernardis, De Petris, Hernández-Monteagudo, Luzzi, Macias-Perez, Masi, Namikawa, Salvati, Tanimura, Aizawa, Anand, Aumont, Baccigalupi, Ballardini, et al. (2024). LiteBIRD science goals and forecasts. Mapping the hot gas in the Universe. *Journal of Cosmology and Astroparticle Physics, 2024*(12). https://doi.org/10.1088/1475-7516/2024/12/026
- Takase, Vacher, Ishino, Patanchon, Montier, Stever, Ishizaka, Nagano, Wang, Aumont, Aizawa, Anand, Baccigalupi, Ballardini, Banday, Barreiro, Bartolo, Basak, Bersanelli, et al. (2024). Multi-dimensional optimisation of the scanning strategy for the LiteBIRD space mission. J*ournal of Cosmology and Astroparticle Physics, 2024*(12). https://doi.org/10.1088/1475-7516/2024/12/036

https://doi.org/10.3389/FCOMP.2024.1378796

https://doi.org/10.1088/1475-7516/2025/01/019-2024

https://doi.org/10.1088/1475-7516/2024/12/026

https://doi.org/10.1088/1475-7516/2024/12/036

https://doi.org/10.37230/CYTET.2024.220.16

8. HERITAGE ARCHITECTURE LIVING CITIES (PACIVAS)

It focuses on the analysis and promotion of sustainable urban regeneration, integrating social, economic, spatial and environmental dimensions in urban transformation processes. It addresses the city's environmental challenges through the transfer of technologies for the efficient management of matter, energy and resources, prioritizing compatibility with citizen needs. In the field of sustainable construction, it develops innovative architectural solutions through bioclimatic models, prefabrication, circular design and active technologies. In addition, it investigates architectural heritage and the anthropic landscape, applying criteria and tools for their valuation, conservation and enhancement.

Relevant publications (2024-2025):

- Moreno Soriano, S., Jordán Ramos, A., Morales González, R., Pérez Palomo, J. e., & González González, F. J. (2024). Acercamiento a la relación entre música, arquitectura... Y todo lo demás en la obra de Iannis Xenakis. En Creación artística interdisciplinar: *Lenguajes y retos del siglo XXI* (pp. 51-66). Dykinson.
- Pérez Hernández, M. I., & Lasso de la Vega Zamora, M. (2024). La pervivencia de vías históricas y haciendas de la nobleza en el trazado urbano: los caminos de la Quinta de Torre Arias y de La Alameda de Osuna. *En Umbrales urbanos en Madrid: paisajes desde la memoria hacia la nueva ciudad* (pp. 51-80). McGraw Hill España.
- Porto Schettino, M. (2024). La primera generación de Planes de Movilidad urbana sostenible en España: proceso de transición socio-técnica y caracterización del instrumento. *Ciudad y territorio: Estudios territoriales, 220,* 643-664. https://doi.org/10.37230/CYTET.2024.220.16

9. ARCHITECTURAL INTERNATIONAL LABORATORY OF CITIES DESIGN INSTITUTE RESEARCH GROUP (AIR LAB)

The research group focuses its work on the study and development of contemporary megacities in the context of the 21st century, addressing their multiple scales and urban dynamics. From a critical and proactive position, it proposes new theoretical frameworks and innovative projects that place the group at the international forefront of urban planning and architecture. The first line focuses on emerging transcomputational megacities, investigating models of infrastructural sustainability and metabolistic territories. The second line studies resilient cities and mixed-use urban environments, considering aspects such as urban transformation, social symbiosis, circularity, sustainable mobility and the rehabilitation of buildings and public space. The approach combines critical thinking, advanced urban design and an integrated vision of sustainability.

Funded projects:

- Proyecto Interno UEM - HERMÓPOLIS.

Publicaciones relevantes (2024-2025):

- López-Arquillo, J. D., Cristiana, O., Víctor, C. C., José Luis, E. P., Francisco, D. d. A., & Mariana Bernice, A. O. (2024). Ecological Design for Urban Regeneration in Industrial Metropolitan Areas: The Santa Cruz Refinery Case. *Urban Science, 8*(3), 114. https://doi.org/10.3390/URBANSCI8030114
- Padrón Nápoles VM, Esteban Penelas JL, Pizarro Juanas E, López-Arquillo JD, Delgado-Pérez E, Bellido-Esteban A, Muñoz Gil R, García Pérez O, Martínez García P, Loscertales I, et al. Initiating HERMÓPOLIS Collaborative Design: Local Definitions for Building a Global Smart City Platform to Improve the Quality of Life of the Elderly. Urban Science. 2025; 9(5):174. https://doi.org/10.3390/urbansci9050174

10. [XPBL] EXTENDED PROJECT BASED LEARNING. METHODOLOGIES AND TECHNOLOGIES FOR EXPERIENTIAL LEARNING

The xPBL group focuses its research on improving engineering education through innovative pedagogical approaches. One of its main lines focuses on project-based learning, promoting the acquisition of technical skills through the resolution of real problems. The second line develops experiential learning strategies, supported by emerging educational technologies. Both lines converge in the objective of promoting autonomy, critical thinking and the practical application of knowledge. The group thus promotes more effective, contextualized and student-centered teaching.

Funded projects:

- Proyecto Interno UEM - PBL-IA: Análisis y experimentación del uso de IA como herramienta de aprendizaje ligada al PBL y el uso de PBL como metodología de incorporación de IA a las profesiones.

Publicaciones relevantes (2024-2025):

- Ramírez de Dampierre, M., Gaya-López, M. C., & Lara-Bercial, P. J. (2024). Evaluation of the Implementation of Project-Based-Learning in Engineering Programs: A Review of the Literature. *Education Sciences, 14*(10). Multidisciplinary Digital Publishing Institute (MDPI). https://doi.org/10.3390/EDUCSCI14101107
- Lavado-Anguera, S., Velasco-Quintana, P.-J., & Terrón-López, M.-J. (2024). Project-Based Learning (PBL) as an Experiential Pedagogical Methodology in Engineering Education: A Review of the Literature. *Education Sciences, 14*(6), 617. https://doi.org/10.3390/educsci14060617

11. INTERDISCIPLINARY SENSITIVITY SENSORY PROCESSING

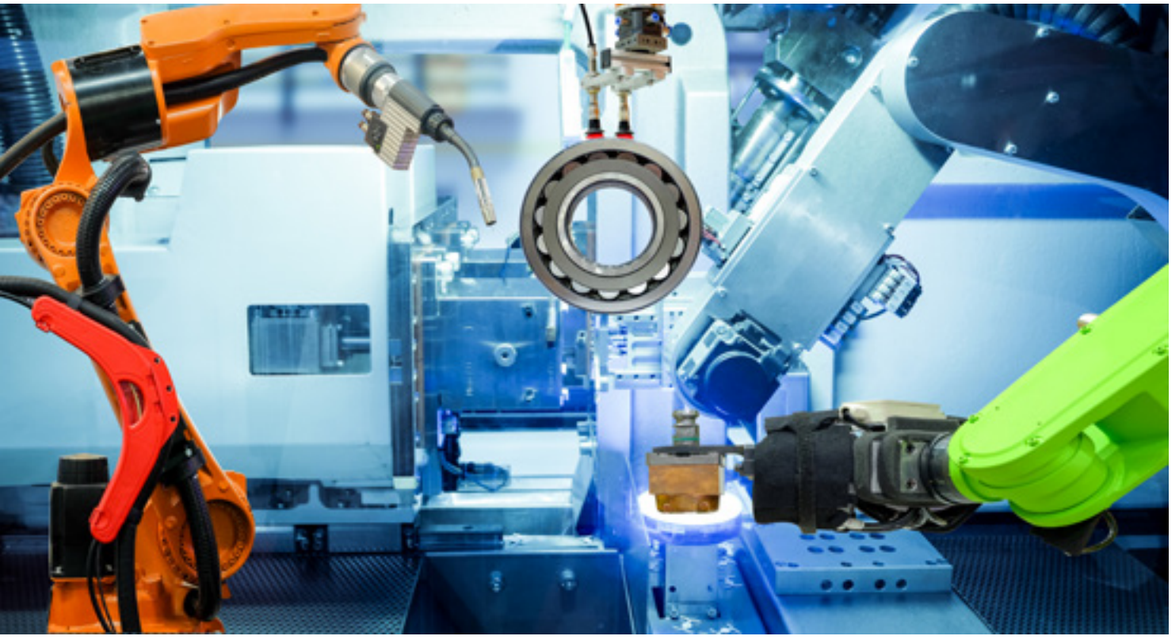
The research group approaches Sensory Processing Sensitivity (SPS) from an interdisciplinary perspective. Its manifestation and relevance in different psychological contexts are studied, considering individual and population variables. At the same time, the physiological and neural bases underlying the phenomenon are analyzed, using neuroimaging techniques and biomarkers. The line incorporates the use of advanced technologies and artificial intelligence for the modelling and evaluation of SPS, favouring the development of automated diagnostic and analysis tools. This research is proposed in a transversal way, integrating knowledge of psychology, neuroscience, biomedical engineering and data science. The approach seeks to improve the understanding and approach to SPS in both basic and applied research, with implications in health, education, and environment design.

https://doi.org/10.3390/URBANSCI8030114

https://doi.org/10.3390/urbansci9050174

https://doi.org/10.3390/EDUCSCI14101107

https://doi.org/10.3390/educsci14060617



Relevant publications (2024-2025):

- Morales-Botello M-L, Betancort M, Pérez-Chacón M, Rodríguez-Jiménez R-M and Chacón A (2025) Sociodemographic markers of high Sensory Processing Sensitivity: a descriptive study. Front. Psychol. 16:1617089. doi: 10.3389/fpsyg.2025.1617089
- Morales-Botello, M. L., Rodríguez-Jiménez, R.-M., Pérez-Chacón, M., and Chacón, A. (2026). Sensibilidad al ambiente (educativo): autogestión de la alta demanda en estudiantes y profesionales universitarios [Sensivity to the (educational) environment: self-management of high demand in university students and professionals]. Educación XX1:29

12. AERONAUTICAL, INDUSTRIAL AND RENEWABLE ENERGY AND SPACE ENGINEERING

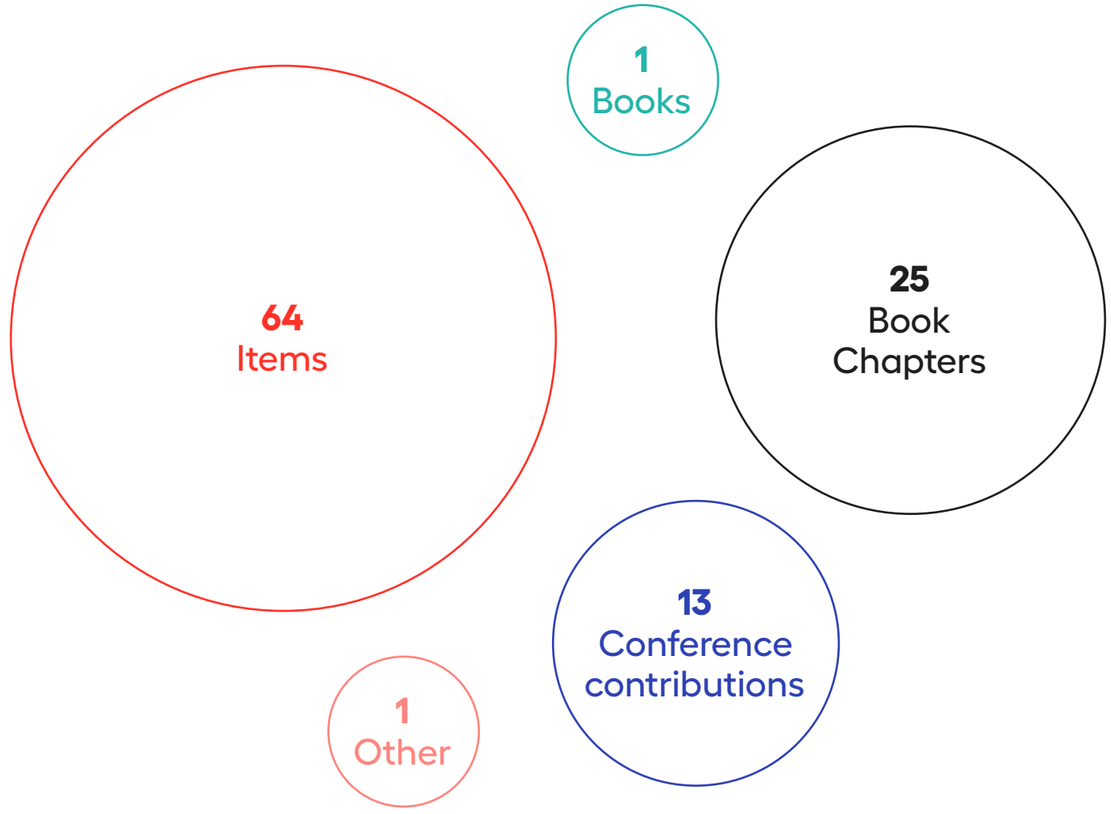
It focuses its activity on three key technological areas. In aeronautical engineering, innovative solutions are developed for the design, analysis and operation of aerospace systems. In the area of engineering and space science, projects related to space exploration, the development of satellite technology and the study of astrophysical phenomena are addressed. Finally, industrial engineering is researched with a special focus on renewable energies, optimizing production processes and promoting the transition to sustainable sources.

Relevant publications (2024-2025):

- Martínez Lucci, J. O., & Padrón, V. (2024). Resultados preliminares del proyecto UEM solar que integra la sostenibilidad y el aprendizaje experiencial para estudiantes de ingeniería aeroespacial. En P. J. Velasco Quintana, Construyendo el futuro de la educación superior en la era digital (pp. 35-46). Dykinson.

Publication Data

During the 2024-2025 academic year, the following number of publications have been made within the STEAM School°



DATA OF PROJECTS PRESENTED

Throughout the 2024-2025 academic year, STEAM School researchers have participated in a total of project proposals that are pending resolution, of which 6 are international collaboration projects and the rest are national projects. The budget requested for these projects exceeds €2M of funding for EMU (if granted).

STEAM School Methodology

During the current academic year, the STEAM School has reinforced its commitment to Project-Based Learning (PBL) as the methodological core of its training programs. This pedagogical strategy, focused on the development of competencies through the resolution of real projects, has been enhanced through initiatives that promote the exchange of experiences between the teaching staff, students and the professional ecosystem.

One of the most relevant milestones has been the recent celebration (July) of STEAM NEXUS, an emblematic event that has integrated in a single day the traditional PBS Meetings and the annual Workshop on active methodologies, consolidating itself as a reference space for the analysis and projection of the PBL model. The conference, held in bilingual mode (Spanish and English), with 90 participants, 5 presentations of good practices, a round table with representatives of companies and strategic partners and two keynotes, one internal and one external, on CDIO; Allowed:

- To learn, discuss and share good methodological practices among teachers of various STEAM disciplines.
- To have the active participation of companies, industrial partners and academic institutions, strengthening the link between university and the professional world.
- To reflect on the current and future of our teaching, in a context marked by educational innovation, interdisciplinarity and employability.

Other main activities in reinforcement of our PBL methodology, with important participation of the faculty, have been, throughout the course:

- STEAM School Awards (September): 64 projects submitted 18 finalists and 7 winners
- Course on PBS methodology of ISEP teachers (Portugal)
- PBL courses (January/February), taught by Ana Abásolo and Andrea Galán
- Training on effective management of the virtual campus, given by Guillermo Castilla (January/February)
- Trip to NTNU for the CDIO peer review (February): 3 days of meetings with those responsible for the implementation of CDIO at NTNU by José Manuel López and Guillermo Castilla.
- Preparation of the PBS map, including all the curricular projects of the degrees in Civil Engineering, Computer Science, Aerospace and Industrial Systems, in relation to their affiliation to the academic model and the possible synergies between them.
- Extensive participation of the school in the JIIU in May: more than 20 submissions of studies and good practices from the STEAM School.

All these initiatives have represented a decisive step towards the consolidation of an educational model that is more connected, dynamic and aligned with the contemporary challenges of the STEAM environment. Thanks to them, the School continues to position itself as a benchmark in transformative pedagogy, inspiring teachers and students to build knowledge in an active, collaborative and contextualized way.