



Mondragon
Unibertsitatea

Faculty of
Engineering

MGEP

MONDRAGON GOI ESKOLA POLITEKNIKOA
JOSE MARIA ARIZMENDIARRIETA, KOOP. E.



www.mondragon.edu/en

2022-2023
ANNUAL REPORT

CONTENT

INTRODUCTION	3
ENGINEERING	8
PROFESSIONAL TRAINING	17
CONTINUOUS TRAINING	21
RESEARCH AND TRANSFER	25
ECONOMIC AND FINANCIAL SITUATION	31
PERSONNEL	33

The self-managed company will be something that, with our training and a willingness to participate, everyone will be able to achieve.

José María Arizmendiarieta
(1915-1976)



We are experiencing a time of major change, for a variety of reasons. Some people speak of an “era of changes”, others of a “change of era”. In any case, our company is facing three major transformations that require smooth transitions: climate-energy, digital and demographic. The three transformations directly and intensely concern us, the society that surrounds us, Mondragon Goi Eskola Politeknikoa (MGEP) and its Mission of transforming society, its businesses and activities and, therefore, its people.

This context of change requires MGEP to constantly evolve and generate new knowledge and skills, adapt training plans, content and methods, devise new degrees, and develop the value offer to companies in continuous training and transfer, adapting itself to the needs of society and to those we serve, being conscious that the decisions we make now will determine our collective short and long term future.

This continuous willingness to listen and adapt demands large measures of responsibility, proactivity and self-management by the 484 people working at MGEP. Thanks to this commitment, during the 22-23 academic year we increased our size by 4%, exceeding revenues of € 43.8 M. Never before has there been so many people studying at MGEP, never have there been so many hours taught in continuous training, never have there been such large numbers in research and transfer, nor has so much been published and of such quality, and never has there been so much invested in one academic year; € 2M in technological equipment and € 4M in infrastructure.

We have dedicated more than 30,854 hours to training and **skills-building**, preferentially in technology, which amounted to 4,77% of our time. Today, 69.8% of MGEP teaching faculty have a doctoral degree. This preparation is an excellent platform, and a guarantee to face new and more ambitious challenges. And, additionally, we continue allocating significant resources to cultivate our own future: 114 students have completed their Engineering internships at MGEP itself, in a supplementary training process that will be our future reserve of doctoral students (today we have 123, more than ever before), lecturers and researchers.

In **Ingeniaritzan**, we have established our position on the Bilbao AS Fabrik campus without neglecting our activities on the other campuses in Galarreta, Goierri and Arrasate. With the launch of the Bachelor’s Degree in Engineering Physics Applied to Industry and the implementation design of the Master’s Degree in Robotics and Control Systems, we are expanding our presence and offer in Bizkaia. In Arrasate, we have introduced a new Master’s degree in Productive Logistics Operations Management, and another in Smart Energy Systems at Galarreta. There were 2,472 students in Engineering Undergraduate and Master’s degrees, 3% more than the previous academic year.

In **Research and Transfer** (R&T) we have reached the figure of € 17.5M, with the launch of the R&T Group in Circular Economy and Industrial Sustainability and the research activity in hydrogen technologies and in quantum computing. We have established the Robotics and Automation Group, and today MGEP has 18 R&T teams at a standard of scientific and technological excellence. We have defended 21 doctoral theses and published 116 articles indexed in the JCR, more than ever, proof of the quality of our research.

We are experiencing a time of major change, for a variety of reasons. Some people speak of an “era of changes”, others of a “change of era”.

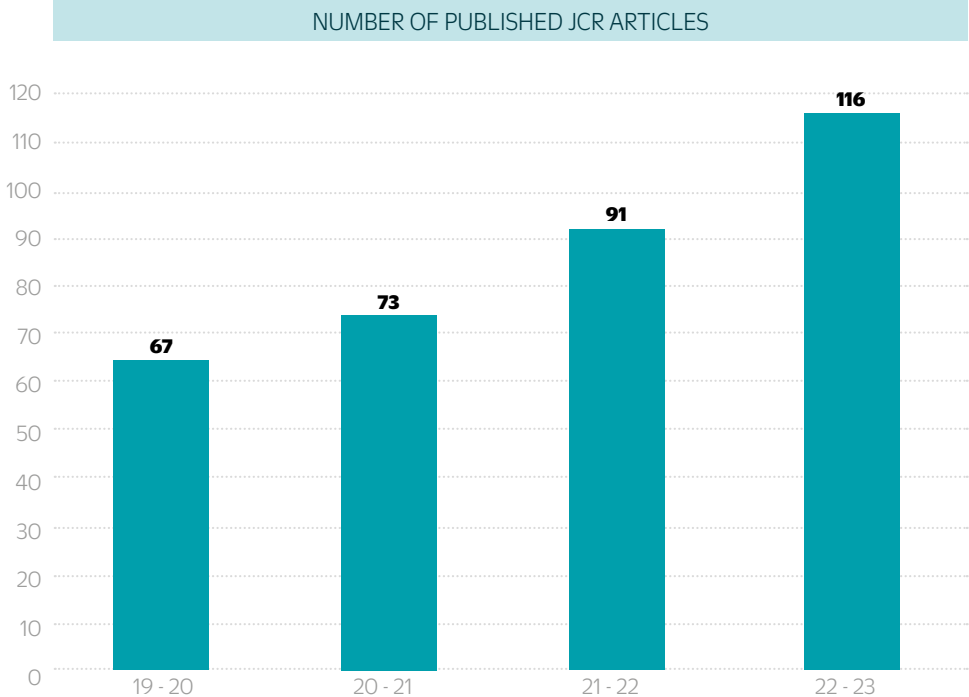
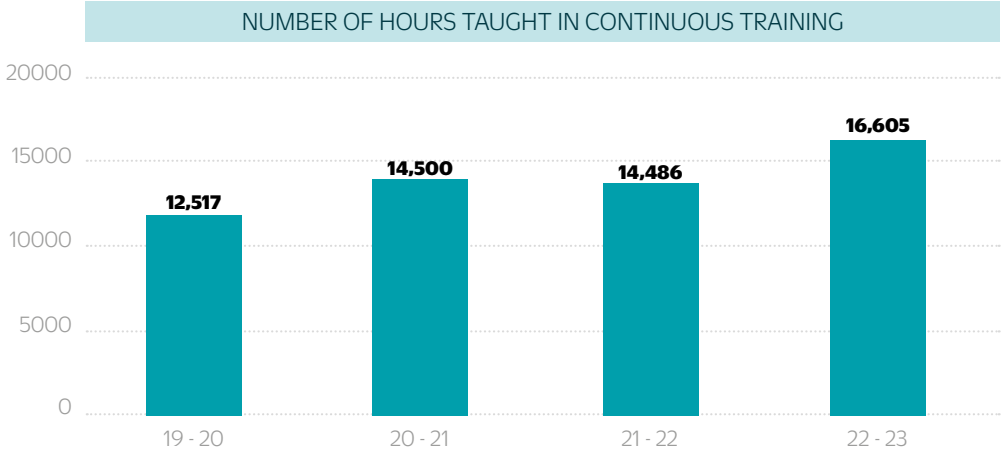
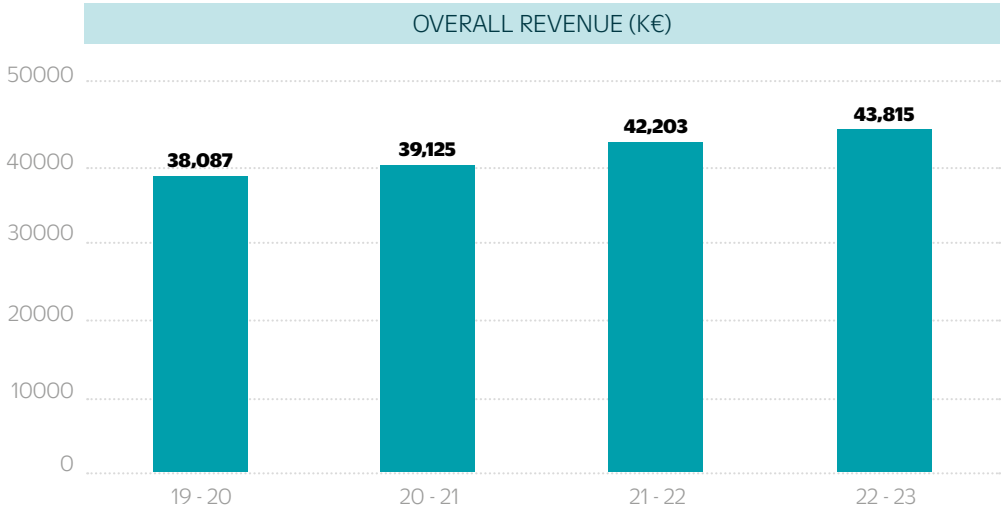
In **Continuous Training**, we have reached the figure of €3.4M, 14% more than the previous academic year, thanks to the development of new training programmes, including the Inter-University Master's Degree in Hydrogen Technologies and the Enpresa Digitala qualification programme in collaboration with the SPRI. The training demanded by companies in retraining courses has increased significantly, by 46%, and we have continued our efforts to provide integration and employability through employment training with Lanbide.

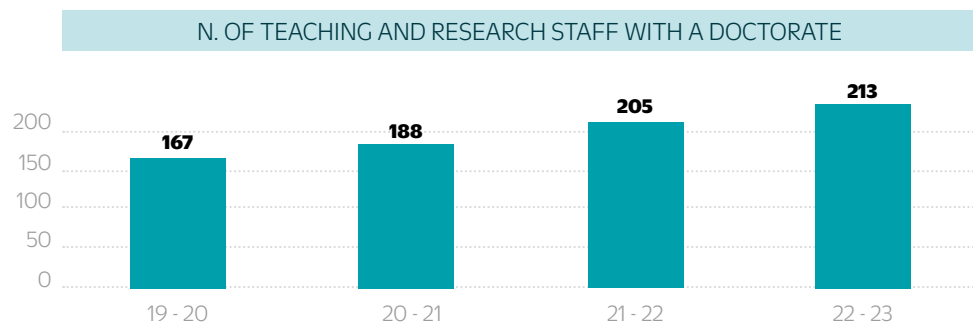
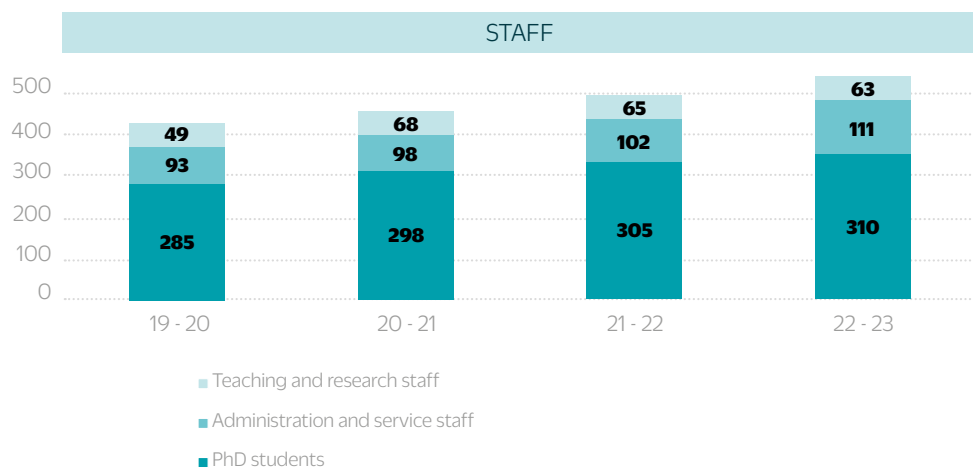
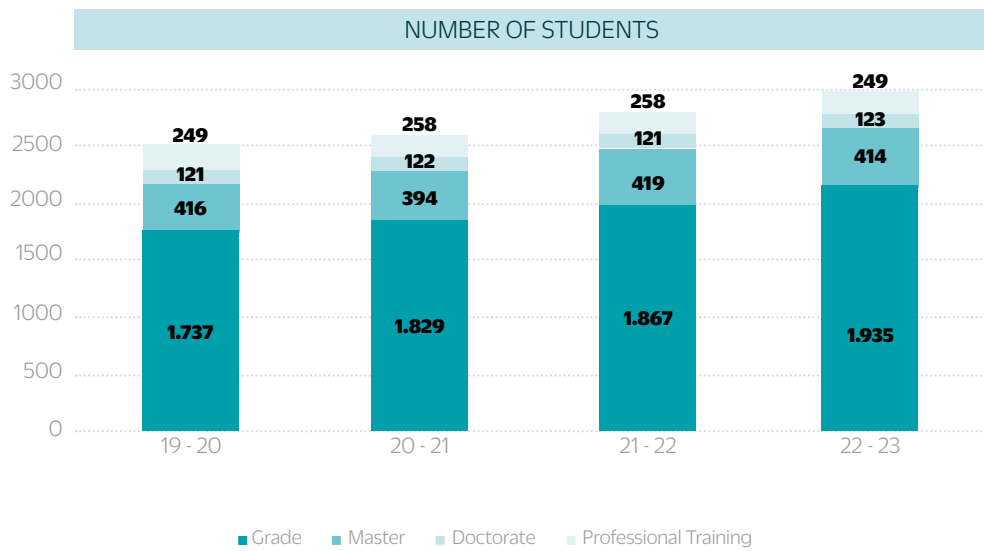
In our activity of Higher Level Training Courses (**Vocational training**) we have trained 249 people, with a high level of satisfaction on the part of students and companies. To be recognised as an Integrated Facility by the Basque Government has opened new doors for us, such as access to financing of technology investments and the possibility of setting up retraining groups with formal qualifications for specific companies or providing post-cycle specialist courses. In this scheme, we have designed a specialisation in Industrial Maintenance Digitisation that began teaching in the 23-24 academic year.

Finally, we have given special impetus to the promotion of entrepreneurship, with the scale of the Enpresa Sortuz programme (now 'Mondragon Industrial Sustainable Awards'), awarded thanks to the sponsorship of the Fagor Group, Gizabidea, Orbea, Fagor Ederlan and Centro Stirling, with over € 100,000 per year in support of entrepreneurship projects. These entrepreneurial activities and other diversification and intra-entrepreneurial activities of our partner companies, will be based in the new **HIREKIN** building on the Arrasate Campus, that aims to become a reference centre for assisting companies in the creation and development of innovative and enterprising industrial and sustainable technology projects aligned with the social challenges.



The following graphs show the evolution of some significant indicators during the 22/23 academic year:





The combination of three essential elements explains these good results: the involvement of the people who form part of MGEP, the close participation of our partner companies, especially the MONDRAGON Corporation and its cooperatives, and the stable support of the institutions, especially the Basque Government (Departments of Education and Economic Development and Infrastructures) and the Provincial Council of Gipuzkoa.



ENGI NEE RING

ENGINEERING

Academic activity

During the 2022-2023 academic year, 10 Bachelor's degrees, 9 Master's degrees and 1 Doctorate degree were offered, all of them meeting the standards corresponding to the accreditation processes, both institutional and degree. The degrees offered were as follows:

Degree in Mechanical Engineering	Dual Itinerary	EUR-ACE Label
Degree in Industrial Design and Product Development Engineering	Dual Itinerary	EUR-ACE Label
Degree in Industrial Organisation Engineering	Dual Itinerary	EUR-ACE Label
Degree in Industrial Electronics Engineering	Dual Itinerary	EUR-ACE Label
Degree in Computer Engineering	Dual Itinerary	
Degree in Energy Engineering	Dual Itinerary	
Degree in Engineering in Ecotechnologies in Industrial Processes	Dual Itinerary	
Degree in Biomedical Engineering	Dual Itinerary	
Degree in Mechatronics Engineering	Dual Itinerary	
Degree in Engineering Physics Applied to Industry	Dual Degree	
Master's Degree in Business Innovation and Project Management		
Master's Degree in Strategic Design of Products and Services	Dual Itinerary	
Master's Degree in Industrial Engineering	Dual Itinerary	EUR-ACE Label
Master's Degree in Energy and Power Electronics	Dual Itinerary	
Master's Degree in Biomedical Technologies	Dual Itinerary	
Master's Degree in Data Analysis, Cybersecurity and Cloud Computing	Dual Itinerary	
Master's Degree in Robotics and Control Systems	Dual Itinerary	
Master's Degree in Smart Energy Systems		
Master's Degree in Productive Logistics Operations Management		
PhD in Applied Engineering		

Once again this year, in collaboration with UNIBASQ (Agency for Quality Assessment and Accreditation of the Basque University System), the evaluation of Teaching and Research Staff (TRS) has been carried out within the framework of the DOCENTIA Programme. The programme includes an assessment of the teaching activity of the TRS, based on the criteria of attitude, initiative, relevance and level of responsibility. Considering the 11 positive evaluations for the 22/23 academic year, a total of 154 persons have already obtained a favourable evaluation.

In our work to train competent young people, 2,472 students, 3% more than in the previous academic year, developed their academic engineering activity at the following levels:

- Engineering Degree: 1,935
- Master's Degree: 414
- PhD: 123

As a result of the collaboration with EIT Manufacturing, the Master's Degree in Robotics and Control Systems, in collaboration with the Austrian University TÜV-Wien, the first batch of young people obtained the dual degree under the company stamp of EIT Manufacturing. In total, there were 5 people.

ENGINEERING
DEGREE:
1,935

MASTER'S
414

PhD
123



During this academic year, new degrees were launched, with work progressing on them since the 20-21 academic year. The new Degrees are: Bachelor's Degree in Engineering Physics Applied to Industry, Master's Degree in Smart Energy Systems and Master's Degree in and Productive Logistics Operations Management. Each of the degrees have been taught on the Bilbao As-Fabrik, Galarreta-Ornoa Ideo and Arrasate campuses respectively.

With these new degrees, we seek to move closer to our goal of training people with the ability to solve current and future problems, always trying to respond to the needs of companies in our environment, given that they are the future employers of the graduates of these degrees.

During the 22/23 academic year, and following the strategy for promoting the STEM vocations, the steps taken within the framework of the MONDRAGON ZTIM-Hub initiative should also be pointed out, where the aim is to socialise the STEM skills, involving regional agents: whether companies, associations, public bodies or training centres. This initiative has been developed thanks to the support of the Guipuzcoa District Council and MONDRAGON. The following measures have been taken as part of this project:

- 154 education centres were visited.
- 1,183 young people attended a JPA.
- 190 young people took part in the activities during Science Week, from 7-11 November.
- 140 students took part in the International Day of Women and Girls in Science, on 11 February.
- 181 students took part in the International Day of Girls in ICT, on 27 April.
- 338 students took part in the "Stem Sare" initiative for meetings between young people and business professionals.
- 60 students took part in the Inspiring Women initiative.
- 350 students took part in the final of the Frist Lego League in the Basque Country, held at Mondragon headquarters on 4 March.

During this academic year, for the fifth consecutive year and in line with the STEM objective, MGEP organised the First Lego League Euskadi Mondragon event where 350 young people from 16 educational centres, making a total of 44 teams, participated on the day of the competition.



Educational model

Our institution is characterised by providing practical, business-oriented training within an increasingly international framework. To advance in this challenge, we continue to develop and implement our own distinctive educational model, which is based on the following cornerstones:

- Intensive use of active methods in the teaching/learning process.
- A model based on the development and acquisition of competences and learning outcomes.
- Continuous and global assessment of the student as key tools for the development and acquisition of competences.
- Dual training as a learning model that seeks to integrate the company in the teaching-learning process and alternate study-work with the development of internships in companies.
- Internationalisation of studies and end-of-course projects.
- Teaching in three languages.
- A change in the role of the teaching staff and students.

Aware of the importance of transversal competences and the desired graduate profile, in 22/23 we continued to work on the NiZuGu Guidance Fortnight for Engineering students, where three fundamental aspects are worked on in the training and guidance of students: internationalisation, values and professional guidance. During these fortnights, the group had the opportunity to participate in lectures, workshops and competitions that have enabled the group to get a closer look at the international reality, values such as solidarity, cooperativism and sustainability, and to development options after the completion of the current studies.

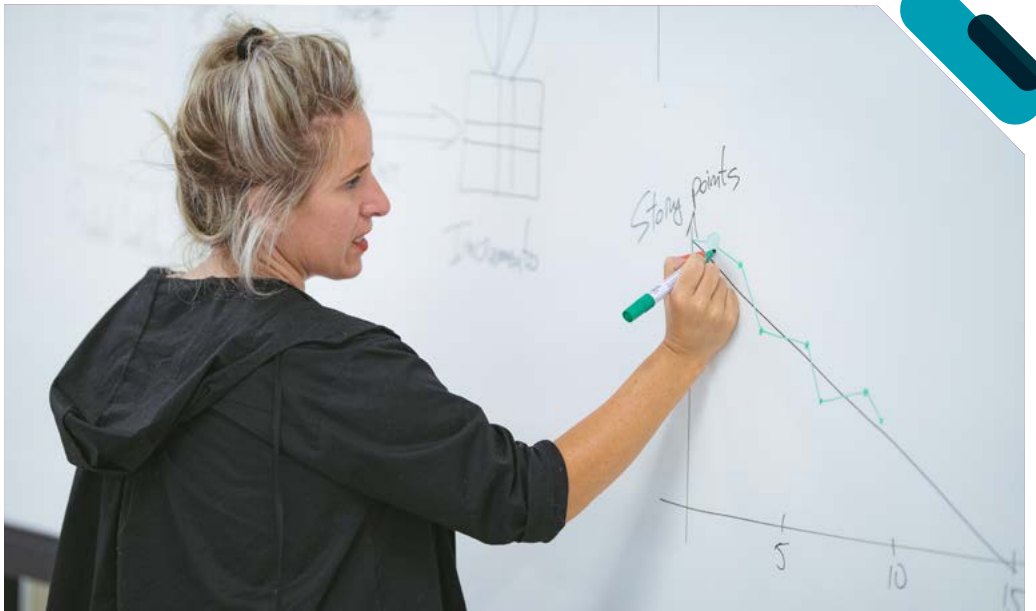
This 22/23 academic year, work continued on the personalisation project aimed at engineering students, based on the design of a personalised offer for their academic itinerary that is tailored to their tastes, competences and interests. During this academic year we implemented the offer designed for the 2nd academic year, which has allowed us to assess the processes defined for its management, and also assess the improvements for completing the implementation for the 23-24 academic year. In this regard, the coordinator of the optional offer, who centralised the management of everything related to this work area, was a key figure.



Within the framework of the personalisation project, a step forward has also been taken with regard to student tutoring and monitoring, changing the focus from the teaching-learning process and its results, to the graduation profile, focussing on the comprehensive development of the student, both from a personal and professional point of view. During the 22/23 academic year, we have implemented the tutoring model in the first academic year of all engineering degrees. Training sessions have been organised for the tutoring body, both individuals and groups, to share with them the designed tutoring model, as well as to train them in the dynamics expected, the development of the designed guides, etc. At the end of the academic year we conducted surveys for participating students, as well as working groups with tutors to receive the first-hand assessment of this first pilot experience. As a result, proposals for improvement were collected that will be included in the improved version of the tutoring model from the beginning of the 23-24 academic year.

With respect to the line of work to bring the cooperative world closer to MGEP students, we have continued working with ALE (Arizmendiarrietaren Lagunen Elkartea). On this occasion, and in view of the dynamics of the previous academic year, we have opted to focus the working sessions only on the student representative group, due to the key role they must play; representing the students. We have conducted 2 sessions for the student representative body, repeated in the different campuses and providing the participation of the majority of the group. Despite the interesting and necessary part of the initiative, assessed by the participants themselves, the low turnout continues to follow the tone with respect to this initiative. Once again, the assessment of the results has led us to identify some opportunities for improvement that will be implemented on the next academic year.

In response to the recommendations of the Eurace standard, to the requirements of RD 822/2021, as well as to the strategic objectives defined at MU and MGEP level for the 20/24 period, during this academic year we have continued to progress in the knowledge and awareness-raising of the student body of the Sustainable Development Goals, and that they learn to take them into account in each of the activities they carry out, both academically and professionally, in the future. This goal means, both in the semester projects and in the development of the TFG or TFM, that the students should give due thought to the matter, whether by identifying the SDGs that impact the project concerned, or through the proposal for minimising the impact generated by the pro-



ject, or through the assessment of the impact generated by the project; in any case, it is about being fully aware of the impact that could be generated and assessing the way in which it could be minimised. In addition to the work required, we have included a new item in the evaluation that allows us to assess the work undertaken. And not just the student body; we also want the teaching faculty to prepare for this new paradigm. In this regard, and in collaboration with UNExea, we have defined and developed an online course that allows the teaching staff to make an initial approach to the SDGs identified by the United Nations and to reflect on how aspects relating to them could be included in the content of the subjects taught or in the activities carried out by the students. During the academic year we have run 2 editions of the academic year, and in total, there have been 33 persons trained.

A process of reflection has therefore begun on the current degree programmes and the way in which the concept of personalisation, as well as the rest of the initiatives, should be integrated into them. From April, we have initiated the redesign processes of the 9 undergraduate degrees, providing for the cases of adaptation needed according to the cases that are expected to occur.

Continuing with the commitment to using active methods, it is worth highlighting some of the initiatives carried out by the teaching staff at MGEP.

On the one hand, there are the experiences of implementing the Flipped Learning methodology, where the student is encouraged to work in advance, at home, on the material prepared by the faculty and to use the time in the classroom to clarify doubts, carry out exercises or practicals, or even discuss the concepts already worked on at home; in short, those teaching activities in which the professor contributes value. This teaching methodology has been set up more intensively, albeit not only, in the IT degree and the Master's in Industrial Engineering.

On the other hand, and in line with one of the objectives of the 20/21 to 23/24 strategic plan, several initiatives were launched to apply the challenge-based learning methodology. Following the design work carried out in previous academic years, in the 22/23 academic year they were implemented for two Master's Degrees: the Master's in Strategic Design of Products and Services, in which the Master's was completely redesigned and developed based on the challenges in their



entirety, and the Master's Degree in Productive Logistics Operations Management, in which in this first provision we have made inroads by way of a pilot test. At the same time, the Master's in Smart Energy Systems has opted for a modular structure, in which the students face a total of 4 challenges that fit within the context of each modules.

The active methodologies must be accompanied by adequate spaces to allow the full achievement of all the intended objectives. In this respect, during this academic year, a project for the analysis and proposed design of MGEP's teaching spaces, initiated in the 20/21 academic year, was continued. From a preliminary design of the classrooms, we have made a comparison with the faculty teams in order to assess the potential for using the spaces in accordance with the new approach.

Finally, in line with one of the strategic guidelines of the 20/21 to 23/24 strategic plan, and being a provision set out in the organisational model, work was carried out this year to define the role of the Pedagogical Coordinator, as well as the team that will accompany this coordinator. Lastly, the figure was defined as Coordinator of Educational Innovation, as well as the Educational Innovation Team. Their mission and objectives have been defined, as well as the expected composition. These figures, once approved by the relevant bodies, were integrated into the Organisational Model.

As a result of a line of work also reflected in the strategic plan, during this academic year the document providing the framework and the main lines of MGEP's Educational Model was completed. This document will serve as a frame of reference for the development of the various activities carried out in the heart of the engineering business.

Dual Training Programme

The definition of the Dual training system first provided by of UNIBASQ and later under RD 822/2021, has allowed us to strengthen our Study-Work Programme (AET) model and that of the End-of-Course Project (TFG or TFM), obtaining recognition of a track record of more than 50 years, promoting the coordination of training activities in the classroom and in the company.



During this year, the focus was on the formalisation of the Dual programme, all of which is taking into account the volatile legislative context full of uncertainties that we had to go through, which has not made the definition of the model easy.

At the same time, we have continued with the Dual programme teacher training programme in the partner companies, thus taking another step forward in ensuring the quality of the activities undertaken carried out under the programme. The main purpose of the End-of-Bachelor's/Master's Degree was to obtain quality applications from companies that were suited to the students' professional profile, with well-defined objectives, of an adequate size for the duration of the project and with highest possible technology level to meet their needs.

With regard to the Study-Work Programme (AET) activity, a total of 427 engineering students combined study and work in the 22/23 academic year. This year, of the students who completed their studies, 311 undergraduate students and 116 Master's students joined the 15 engineering degrees that comprise the university Dual University Training activities certified by Unibasq, the Basque quality agency, which represents 18.17% of the engineering students who graduated this year, specifically 28.01% in Master's degrees and 16.07% in Bachelor's degrees.

In the case of activity corresponding to the End-of-Bachelor's/Master's Degree, it should be pointed out that in the 22/23 academic year the pre-pandemic situation returned, and this led to an increase in applications collected for the different degrees, even incorporating new partner companies to the previously established network. In this regard, the work carried out in the Greater Bilbao area deserves special mention, contacting new companies that were previously unaware of our Dual training programme.

Significantly, a total of 491 students completed the Final Degree/Master's Degree Project during the 22/23 academic year, and a total of 491 applications were received. Through the ERASMUS + mobility programme, bilateral mobility agreements or university/company agreements, 124 End-of-Degree and Master's Projects have been developed, both in European countries and in countries outside Europe (Germany, Belgium, Canada, Denmark, United States, Finland, France, Greece, Italy, Japan, Malta, Mexico, Norway, the Netherlands, Poland, Portugal, United Kingdom, Czech Republic, Romania, Sweden, Switzerland, Thailand).



Doctorate

Throughout the 22/23 academic year, we have continued with an intense training activity in the third cycle. Consequently, the student body enrolled during the academic year consisted of 123 Doctorate students with 21 theses defended, 12 of which obtained the CUM LAUDE mention, while 10 obtained the International Doctorate Mention.

International Relations

Of the 315 people who submitted applications in the academic year 22/23, 201 students in the programmes below were selected, based on their academic record and foreign language level:

- Study Mobility: 105
- Project Mobility: 69
- Doctoral Mobility: 3
- Double Diploma: 24

On the other hand, 53 foreign and Spanish students studied with us or took internships in one of the ERASMUS+ or SICUE programmes or through inter-university agreements. We have also had 2 teachers from foreign universities in the form of Staff Mobility for Teaching.

Employability

A good indicator of a job well done is given by the result of the Lanbide employability survey conducted in December 2022 among Bachelor's and Master's students who completed their studies in 2019. According to this survey, the unemployment rate among bachelor graduates is 4% and practically nil for Master's graduates.

The Biteri Hall of Residence accommodated 96 students, of which 16% were foreign.



PROFESSIONAL TRAINING

**PROFESSIONAL
TRAINING**

Training people in Vocational Training studies is an important part of our mission to society. During the 22/23 academic year, 249 students were trained in the following Higher Level Training Courses directly related to the industrial sector that surrounds us: Mechanical Manufacturing, Electricity and Electronics, IT and Communications and Installation and Maintenance:

ADVANCED TECHNICIAN IN
INDUSTRIAL MECHATRONICS

ADVANCED TECHNICIAN IN
MECHANICAL MANUFACTURING DESIGN

ADVANCED TECHNICIAN IN
**MECHANICAL MANUFACTURING PRODUCTION
PROGRAMMING**

ADVANCED TECHNICIAN IN
NETWORK COMPUTER SYSTEMS ADMINISTRATION

ADVANCED TECHNICIAN IN
INDUSTRIAL ROBOTICS AND AUTOMATION



STUDENTS

249

As a new initiative, this year we have offered two new degrees that will be taught in the 23/24 academic year:

ELECTROTECHNICAL AND AUTOMATED SYSTEMS

SPECIALIST COURSE IN
DIGITALISATION OF INDUSTRIAL MANAGEMENT

In the case of the specialist course, we have prepared and designed the teaching of the first edition of the course. The training is spread over a period of one year and is aimed at people who have Advanced Vocational Training. It is an official qualification approved by the Basque Government.

Furthermore, for the coming year 23-24, we have created two teaching teams to identify two more specialist programmes in the domains of cybersecurity OT (Operational Technology) and in foundry, the latter in collaboration with the FEAC (Spanish Federation of Foundry Associations) and the IVAF (Basque Institute for Future Vocational Education and Training).



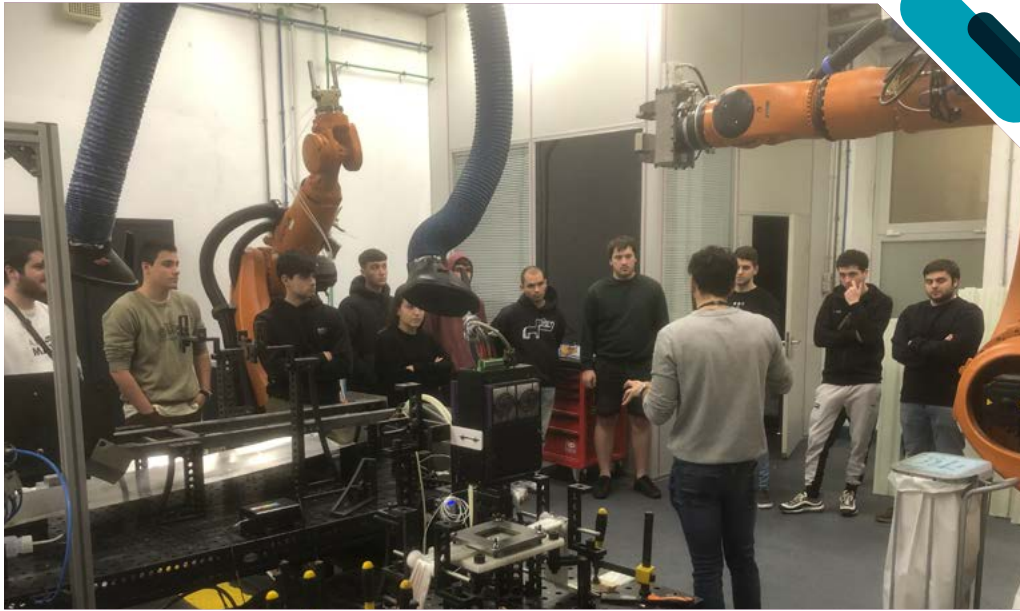
In collaboration with the Vice-Ministry of Vocational Training of the Basque Government, we are continuing with training in partial offer format in the Industrial Mechatronics degree (combining studies with work) to meet the training needs of the members of the MONDRAGON Corporation cooperatives and workers in the companies in the surrounding area. A total of 28 workers are being trained with us in two groups.

Thanks to the partnership agreement with Amazon, we have also worked on the design of a training programme in the form of a modular offer that is tailored to the requirements for training future workers in this company in Mechatronics. This programme will begin on the 23-24 academic year with the launch of a promotion of 22 students.

The Dual Programme for students in Higher Level Training Courses, promoted by the Basque Government, is a highly enriching learning model based on the acquisition of skills in a working environment. We have a clear commitment to this programme, where the close relationship between MGEP, students and companies means that both our students and companies obtain a more than satisfactory result. This academic year, 55% of the student body from the first academic year have 16 days of experience in a company during the second participation in the pilot test of the Dual General, of which the vast majority will continue in the Advanced Dual programme in the next academic year. On the other hand, 57 students have graduated in the Advanced Dual programme, 55% of the total number of graduates, and another 58 started the programme at the end of the first course, and another 9 students with the initiation of the specialisation in Digitalisation of Industrial Management. 31 companies welcomed our students from Higher Level Training Courses in dual training and we maintain the relationship with more than 150 companies.

This year we developed 1 technological innovation project supported by the call for innovation projects from the Vice-Ministry of Professional Training, with Tknika (Innovation Centre for Professional Training) and Hétel (Association of Social Initiative Professional Training Centres). We are also continuing with the two innovation projects subsidised by the call of the Ministry of Education and Vocational Training (MEFP) that began last academic year.

We continue to lead, commissioned by the Vice-Ministry of Professional Training together with Tknika, the Digital and Connected Factory Node, which means guiding the VET Centres of the Basque Country when it comes to responding to the challenges posed by Industry 4.0.



We are also making progress in active teaching-learning methodologies in vocational training based on the ETHAZI project, driven by Tknika. We continue to work on this learning method, developing new challenges, where companies are increasingly playing a leading role. We highlight the participation of the Copreci company in the challenges.

With regard to Vocational Training graduates, we do not have any students registered in the employment exchange. Regarding occupation, 82% of students are working or studying according to the data registered on the Shareweb platform, an initiative developed together with Hetel.

In addition to our relations with the Vice-Ministry of Professional Training and Lifelong Learning of the Basque Government, insofar as we are an integrated concerted centre, we also participate in different programmes promoted by the Provincial Council of Gipuzkoa and Lanbide.

We maintain relations with educational centres and associations in our region and in other areas. Among other things, it is worth highlighting our participation in Hetel as an associated centre in this Association of Professional Training Centres of social initiative with a presence in many of the regions of the Basque Country.



CONTINUOUS TRAINING

**CONTINUOUS
TRAINING**

In the 22/23 academic year, 2,500 professionals participated in the 307 training programmes carried out, totalling 16,605 hours of training. More and more companies are coming to us to obtain tailored training combined with a professional development plan and support in the use of methods and tools. Throughout this course, 285 companies have put their trust in us. 126 professors from the University and 105 external experts accompanied these professionals in the learning process, and the average satisfaction score was 8.61.

THE AVERAGE
SATISFACTION
SCORE

8.61

In the field of Industrial Organisation, in the 22/23 academic year, programmes mainly linked to supply chain management, lean manufacturing, quality engineering, sustainability and environment and project management were developed. We have launched a new edition of the Professional Master's Degree in Production Management. Also, we have taught new editions of the Specialist Course in Maintenance Management, the Specialist Course in Industrial Management, the Expert Diploma in Project Management and also the programme for PMP certification, the latter two in collaboration with the Bilbao Chamber of Commerce.

During this academic year we have also conducted several courses online such as the Lean Manufacturing, Manufacturing Process Quality and Integrated Logistics. In addition, we have taught the fourth edition of the Specialist Course in Online Project Management. We have also conducted 2 courses and 2 other seminars on one of the benchmark topics: Demand Driven MRP.

Also worth mentioning are 2 programmes like Giramundo and Paraiba. In the first one we participated in the environment, sustainability and energy expert qualification for vocational training teachers. In the second, Brazilian vocational training students were trained in several industrial organisation fields.

During the 22/23 academic year we again highlighted the tailored training. More than 17 in-company trainings have been carried out, incorporating the management practices most applicable to their reality and which have enabled the companies to improve the management and results of their processes and projects.

Within the Mechanical Engineering knowledge area, 10 open courses and 26 in-company courses were given on topics that included mechanical design, forming, applied mechanics, materials, maintenance and others. It is worth highlighting that 3 of these courses were carried out in streaming format and were attended online by professionals from companies in places such as La Coruña or Guadalajara.

As is customary, this year has also seen the launch of a new edition of the courses for adaptation to the Degree in Mechanical Engineering and the Degree in Industrial Electronics Engineering online.



In collaboration with the Council of Gipuzkoa, we have conducted 29 seminars to raise awareness and show good practices that help people in the industrial and socio-economic world to identify opportunities generated through ecological transition and the Circular Economy in order to promote the need to acquire skills in the Circular Economy.

Within the area of knowledge of Energy, we have taught the second edition of the inter-university Master's Degree in Hydrogen Technologies that have been very popular with 67 people registered. This Master's Degree, promoted by the Petronor-Repsol group, was designed and approved by 5 universities: Mondragon University, the Technical University of Catalunya, the Rovira i Virgili University, the University of the Basque Country/ Euskal Herriko Unibertsitatea and the University of Zaragoza, along with 6 training and research centres: the Somorrostro Integrated Vocational Training Centre, the Compte de Rius Vocational Training Centre, the Institut Escola del Treball, the Pirámide Public Integrated Vocational Training Centre, the Hydrogen Foundation in Aragon and the EOI Business School.

In the ICT team there were 3 lines of action during this academic year 22/23. Several long open courses were taught, such as the Expert Course in Data (through modules and short courses) at NIC (Nagusi Intelligence Centre) together with Bizkaia Council, the Master's Degree in Cybersecurity at Donostia and the Advanced Course in Power BI and Auditing online.

SPRI, in Garaia Enpresa Digitala has organised 46 events (seminars and workshops) with more than 1500 attendees. More than 30 Barnetegis Tecnológicos in various subjects: Artificial Intelligence, Cybersecurity, Productivity, Data Analysis, Industry 4.0, Power BI, etc. Of particular note is the success (in participation and assessment) that all Barnetegis have had regarding AI generative tools, GPT and other LLMs applied to business and marketing.

Moreover, the companies that have put their trust in us are numerous, both in on-demand courses and in accompanying services (training for action) in the following fields: Digital Marketing, SEO, Data Analysis, Power BI, Cybersecurity, AI Generative Tools, chatGPT, etc.

Among the calls for applications published by Lanbide, five courses associated with professionalism certificates were taught. Manufacturing of moulds for the production of polymer components and light alloys, Production management in mechanical manufacturing, Production in machining, forming and mechanical assembly, Maintenance and mechanical assembly of industrial equipment, Manufacture of moulds for the production of polymeric

parts and light alloys and, as well as development of projects for industrial automation systems. These five courses add up to a total of 2,460 hours of training in which 59 people took part. In addition, a further 2 courses not associated with professionalism certificates were also taught: Introduction to IT and basic digital competences for employment, search and management of digital information at intermediate level. These courses add up to a total of 80 hours of training in which 18 people took part.

Finally, throughout the 22/23 academic year, new training courses have been designed for the 23/24 academic year, highlighting a new offer in data science, online offer in cybersecurity and an offer in welding. All this information is available on the web platform www.mondragon.edu/cursos/es.



RESEARCH AND TRANSFER

**RESEARCH AND
TRANSFER**

Mondragon Goi Eskola Politeknikoa is reaping the rewards of the efforts made in recent years to raise the quality of its most basic research to cutting-edge levels.

Furthermore, ten research teams from Mondragon Goi Eskola Politeknikoa were recognised as Excellent Research Groups of the Basque University System in the latest call for applications, four of them type A and six of them type B, all of them having obtained funding from the Basque Government. In the same line of scientific excellence, it should be noted that our research staff have now accredited a total of 150 "Ikertramos". We also have four Research Fellows and a Research Professor from the Ikerbasque calls for post-doctoral researchers. In addition, two of these researchers - Ramón Cajal and Juan de la Cierva - also receive grants from the State Research Agency. All this shows the research quality of our colleagues, who are obtaining grants of recognised scientific prestige.

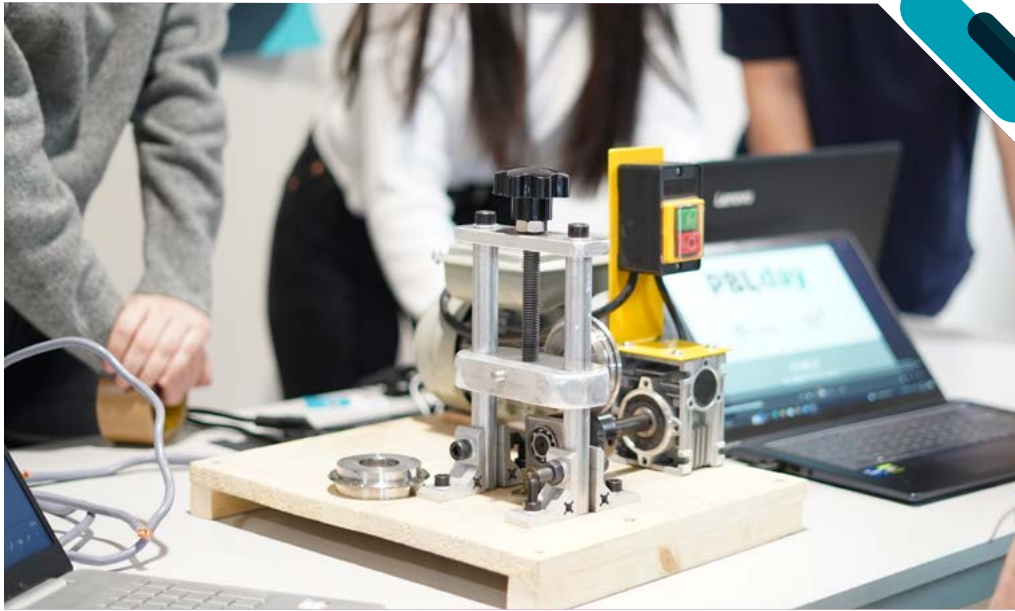
During this academic year, we have created the Circular Economy and Industrial Sustainability Group (ECSI), led by one of the Ikerbasque researchers, which has now been functioning since the 19/20 academic year. Furthermore, its members, from their respective groups, have been previously working in this field for a long time and gained extensive experience in the sustainable transition towards the circular economy and renewable energy. The main goal of this Research and Transfer group is to help industries improve their resource efficiency, reduce their environmental footprint and improve their economic and social performance. To become truly circular and sustainable it is necessary to generate a positive net impact. For this reason, we bring the life cycle perspective and multidisciplinary expertise to our research projects by applying system thinking.

All these projects allow us to increase scientific production, and in the 22/23 academic year, 116 articles were published in journals indexed in the Journal Citation Report (JCR) and documents with an impact on GII-GRIN-SCIE (GGS). Our publications are distinguished (U-Multirank, 2023) by their co-authorship with industrial partners. Most of these results are linked to ongoing theses and are proof of the good work carried out by the researchers of MGEP. Also worth mentioning are the 21 doctoral theses read and 123 in progress.

Another essential instrument, which allows our Research and Transfer Groups to remain at the forefront of knowledge, is the Specialisation Plan, financed by the Department of Education of the Basque Government, and which we managed to maintain during the last academic year. One of the most relevant actions, in progress since the 16/17 academic year, is the Doctors' Plan, the purpose of which is to significantly improve the qualification of the MGEP PDI through the completion of doctoral theses. From 16/17 to 22/23, 27 theses have been financed under this plan and 23 theses have already been successfully completed under this plan.

Furthermore, within the strategic alliance with IKERLAN, we have 4 research teams underway in: Electrical Storage and Management, Cybersecurity, IoT / AI and Power Electronics and Electrical Machines. These mixed teams work with a unique strategy in international and local research projects, collaborating with companies, co-directing doctoral theses and publishing in the most prestigious journals in their respective fields. Thus, these teams have already published 9 articles in indexed journals and 13 in lectures, co-directed 12 theses of which 5 have been presented and taken part in 13 competitive research projects. In addition, 2 patents were also registered.





All this will not be possible without support for basic research from the various local governments. Among the competitive projects, special mention should be made of the Elkartek and Diputación Foral de Gipuzkoa calls for proposals, in which the results have been very notable for MGEP. Specifically, in the last Elkartek call (2023) of the Regional Ministry of Economic Development, Sustainability and Environment, a total of 22 projects were approved (leading two of them) with a total two-year budget of € 2.6 M. For its part, the Provincial Council of Gipuzkoa has supported us with € 900,000 from its various grants. These types of projects allow us to continue generating knowledge, while training our R&T groups in scientific and technological fields aligned with the needs of the company. It should not be forgotten that in these calls we work with other agents of the RCVTI and companies in the Basque Country, with which the impact on our industry is maximised. They are, for the most part, projects framed in the three key areas in the Euskadi Smart Specialisation Strategy, RIS3: Smart Industry, Cleaner Energy, Custom Healthcare and in the transversal tractor initiatives: Electric Mobility, Circular Economy and Healthy Ageing.

In the European calls, we obtained 25% of the external revenue collected in competitive calls for the research activity, with a total of 34 active projects. The Department of Education has supported MGEP research very significantly between competitive and non-competitive calls, the assistance received in the IKERTALDE 2022-2025 standing out among the first ones for research group activities of the Basque University system.

If MGEP stands out for any reason, it is for its ability to transfer the knowledge generated to industry. We are probably the state university that has the best relationship with companies in terms of the percentage of research financed by companies, and various studies attest to us being the most highly valued in Innovation and Technology Transfer. U-Multirank (2023) has once again rated us as "excellent" in parameters such as: research income from private sources or external financing for research. One of the keys has once again been the success of MGEP researchers in aligning their technological capabilities with the needs of the company. The main proof of the value we bring to the company is that approximately half of this research funded by companies, mostly industrial, is linked to the existence of a long-term collaborative research program. The projects undertaken within the framework of these collaborative research and transfer programmes range from oriented basic research to industrial research and experimental

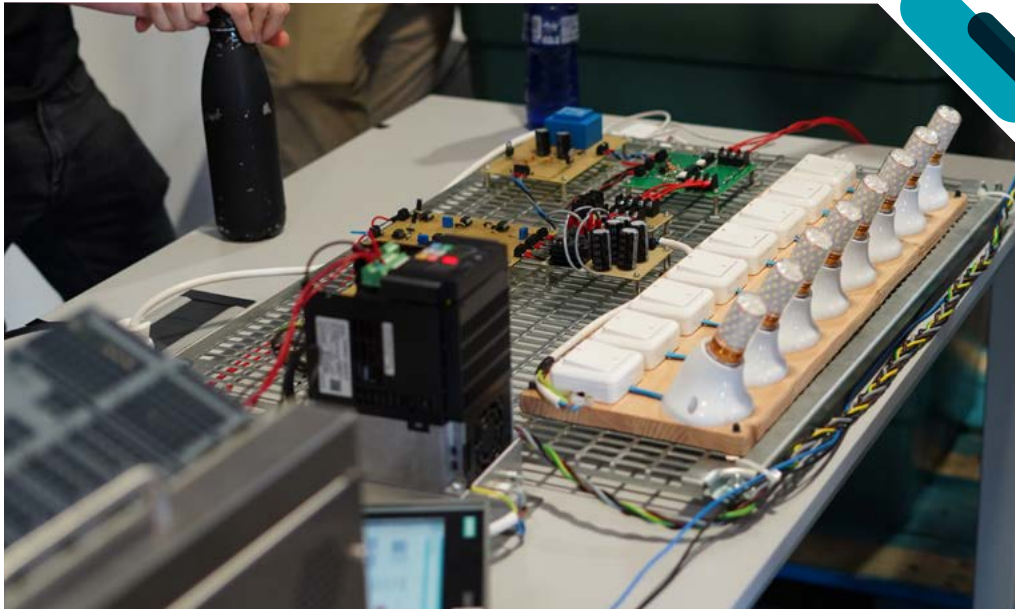


development projects, which eventually lead to innovative products, processes, and services. Additionally, a long-term relationship allows us to align our basic research with the company strategy and train the talent they require. This results in a model with proven efficiency in the provision of a comprehensive, multidisciplinary solution to business requirements by an effectively coordination between the generation and transfer of knowledge. During the 22/23 academic year, MGEP has maintained its commitment to the partner companies; leading companies in their sectors such as Orona (Vertical Transport), Ingeteam (Energy), Component Division (Domestic Appliances), CAF Group (Railway, Electric and Hybrid Bus), Velatia Group (Energy), Ampo (Energy), ITP-Aero (Aeronautics), Fagor Arrasate (Capital Goods), Batz (Capital Goods), Shuton (Capital Goods), Ederlan Group (Automotive), Arestant (Storage Solutions), GH (Cranes and components), Open Cloud Factory (Cybersecurity), Irurena (Chemistry), Siemens-Gamesa (Energy), Laboral Kutxa (Finance) but also with SMEs such as Ekide (Engineering), Developair (SW Development) with fewer resources and that demand personalised attention.

All in all, we reached 17.5 million euros in research and transfer in the 22/23 academic year, with a distribution of 55% - 45%.

To be at the forefront of knowledge transfer, it is essential to have first-class scientific equipment. During 22/23, we opened the new 700 m² medium voltage laboratory that will become a benchmark in Europe in the transformation and improvement of the wind energy sector. The opening of the facilities, that will be unique in Europe, form part of a European project inspired by MGEP, Siemens Gamesa, Infineon and SGB-SMIT, whose objective is to optimise the electrical capacities of the turbines using technology that will increase annual energy production by 5%, reduce the cost of storage of the wind energy by 5.5% and reduce CO₂ emissions. The project, co-financed by the European Union, has required an investment of 2 million euros within its Horizonte 2020 research and innovation programme.

During the 22/23 academic year, we also made considerable progress in our work on the new HIREKIN innovation and entrepreneurship centre. HIREKIN will catalyse the necessary technological-energy transition of the industrial sector towards a more competitive economy based on a sustainable and high added-value industry, and aims to become a reference centre for the creation and development of diversification, entrepreneurship and industrial and



technological intra-entrepreneurship projects. It seeks to connect the innovation ecosystem of the territory and promote intra-entrepreneurship in companies, offering the necessary infrastructures and services. MGEP has received financial support from various stakeholders in order to realise this infrastructure: the Fagor Group through the Gizabidea Foundation, the Provincial Council of Gipuzkoa, the Ministry of Science and Innovation (through a project included in the General State Budget proposed by the Basque parliamentary group), and Arrasate Town Council.

Finally, MGEP, in its commitment to promoting technological entrepreneurship based on the real needs of industry and society, has organised the fifth edition of the 'Enpresa Sortuz' competition. Support provided by companies and institutions for this initiative has increased significantly in recent years, its sponsors being the Fagor Group through the Gizabidea and Orbea S. Coop Foundation along with Centro Stirling and Fagor Ederlan. Also supporting the competition is the MONDRAGON Corporation, Saiolan, Galbain, the Provincial Council of Gipuzkoa, the Basque Government, the Gazte Enpresa Foundation of Laboral Kutxa and the GARAIA Technology Park. Thanks to all the collaborating entities, the Enpresa Sortuz contest will share, throughout 2023, more than € 100,000 in the form of scholarships and financial awards. In the 22/23 edition, there were 19 projects presented to the spring calls, ideas that have provided technological and sustainable solutions in fields such as the automotive, health and manufacturing industries, among others. Among the winners, the INKLUSIVO and SATOP projects were promoted by MGEP researchers. The first one is based on the inclusive design aimed at marketing an advice platform regarding more inclusive products and services that enable companies to achieve a greater number of customers or users on the market. And the second one proposes a business model centred on the production of sports shoe soles, taking advantage of the benefits of 3D printing. The third winner was the ALLERGENIUS initiative, a project developed by Master's Degree students in Biomedical Technologies, with which they intend to develop non-invasive solutions for allergy management.





These achievements are the result of the efforts and commitments of the researchers that make up the 18 Research and Transfer Groups grouped in the following Scientific-Technological Units:

SCIENCE, TECHNOLOGY AND MATERIAL TRANSFORMATION PROCESSES

- Plastics and Composites Technology.
- High-Performance Machining.
- Advanced Material Forming Processes.

MECHANICAL BEHAVIOUR AND PRODUCT DESIGN

- Structural Mechanics and Design.
- Acoustics and Vibrations.
- Fluid Mechanics.
- Surface Technologies.

ELECTRICAL ENERGY

- Drives applied to traction and the generation of electrical energy.
- Electronic power systems applied to electrical energy control.
- Energy storage.

INDUSTRIAL MANAGEMENT AND DESIGN PROCESSES

- Innovation – management – organisation.
- Design Innovation Centre.
- Productive Logistics Operations Management.
- Circular Economy and Industrial Sustainability.

EMBEDDED SYSTEMS AND SMART SYSTEMS FOR INDUSTRIAL SYSTEMS

- Software and Systems Engineering.
- Robotics and Automation.
- Data Analysis and Cybersecurity.
- Signal Theory and Communications.



ECONOMIC AND FINANCIAL SITUATION

ECONOMIC AND FINANCIAL SITUATION

Total income for the 22-23 financial year amounted to 43,815,152 euros, which represents a growth of 4% over the previous year.

The legal surplus before the endowment of the COFIP and after the remuneration of the interests to the contributions was 257,687 euros.

The ordinary investments made and committed to during the year amounted to 2,047,463 euros and was mainly financed mainly by grants from the FEPI of the MONDRAGON Corporation, the Basque Government and the Provincial Council of Gipuzkoa.

As of 31-08-2023, the Balance Sheet reached 73,259,116 euros and the solvency (1.58) and independence (3.17) ratios should be positively highlighted.





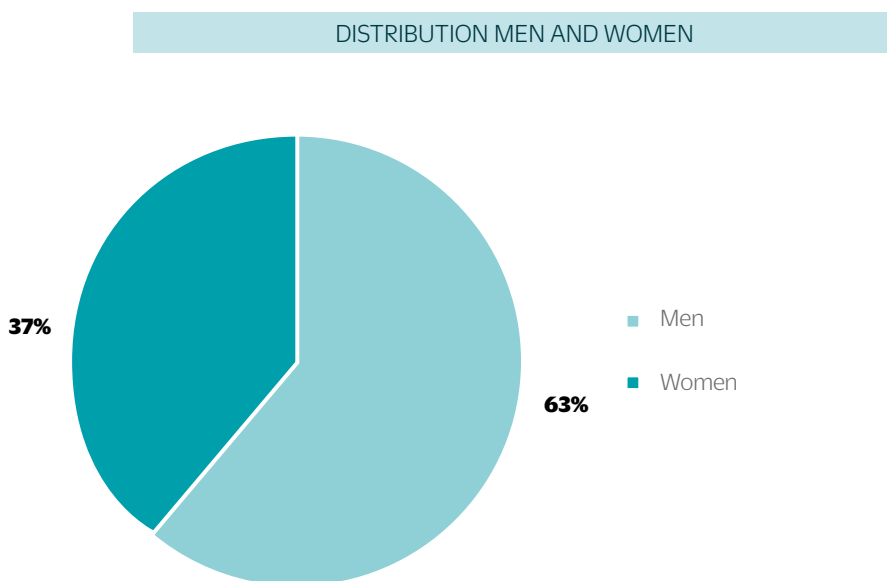
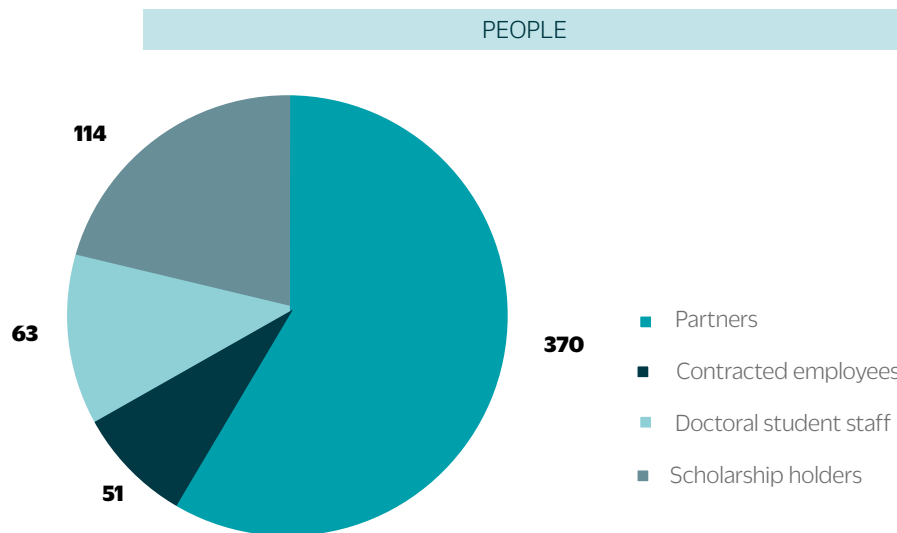
PERSO NNEL

PERSONNEL

The development of all these activities would not have been possible without the involvement of the 598 people (partners, contractors, doctoral students and scholarship holders) who, with enthusiasm, commitment and responsibility, promoted the project of Mondragon Goi Eskola Politeknikoa, legal head of the Polytechnic School Superior of Mondragon Unibertsitatea. This is an educational project geared to the development of a free society, committed to its future.

PARTNERS,
CONTRACTORS,
DOCTORAL
STUDENTS,
SCHOLARSHIP
HOLDERS

598





Mondragon
Unibertsitatea

Faculty of
Engineering

MGEP

MONDRAGON GOI ESKOLA POLITEKNIKOA
JOSE MARIA ARIZMENDIARRIETA, KOOR. E.

Loramendi, 4
20500 ARRASATE-MONDRAGÓN
Tel. 943 79 47 00
info.mgep@mondragon.edu



www.mondragon.edu/en

SPONSORING ENTITY:

