ACTIVITY REPORT 2024

TOMORROW NEEDS ENGINEERING

Index

1 - EXECUTIVE SUMMARY

The year 2024 was marked by a large number of initiatives organised by the School of Engineering and its subunits, some of which continued the successful strategies implemented in 2023. This intense activity was evident in all of the School of Engineering's pillars: education, research and interaction with society.

In terms of Education, in the 2024/2025 academic year, the School of Engineering of the University of Minho (EEUM) was responsible for a total of 90 programs in operation, distributed among 15 Bachelor courses (1st cycle), 14 Integrated Masters (the 1st year of the cycle of studies is not offered since 2022/2023), 40 Masters courses (2nd cycle) and 21 Doctoral/Doctoral Programmes (3rd cycle).

In terms of the number of students per study cycle, this group of courses includes 3343 bachelor students, 455 Integrated Master's students, 2339 Master's students (2nd cycle) and 668 PhD students (3rd cycle), for a total of 6805 students.

Comparing the number of students enrolled in 2023/2024 with 2024/2025, there is a decrease of 6.29% of the total number of EEUM students, from 7262 students to 6805, although the total number of applicants for some 3rd cycle courses is yet to be determined, as they have different application stages.

With regard to research, the research centers of EEUM[1] totaled 919 scientific articles indexed in WoS/Scopus databases (1004 in 2023), and 299 communications at national and international conferences (420 in 2023).

EEUM had 176 research projects underway during 2024 (251 in 2023), with a total budget of 28 M€ (average per year, 36 months projects), including 15 projects under the Erasmus+ Programme (Key Action 2) to which corresponds to a budget of more than 2 M€.

In 2024, 114 PhD theses were completed (72 in 2023). Regarding patents, 17 patent applications were submitted, 10 nationally and 7 internationally, and 21 patents were granted, 20 international and 1 national.

With regard to internationalisation, the School of Engineering in 2023 saw 39 agreements of different kinds and purposes signed with higher education institutions and entities from various countries. EEUM received the visit of 4 delegations of international institutions, so it is expected new collaborations or strengthening of existing cooperation.

In terms of interaction with society, in 2024 the School of Engineering held 16 initiatives with companies within the scope of the *Tomorrow Needs You* agenda, bringing the academic community closer to companies. About 75 companies were present at the Employment Days with 3000 job opportunities. Also within this framework, the 2nd edition of the Spin-offs, Start-ups and Interfaces Exhibition was organised, with the participation of more than 40 entities, and at which the EEUM Innovation and Entrepreneurship Agenda was announced.

As far as social networks are concerned, in general, the number of followers has increased on all the social media where EEUM is present, and so has the reach of its publications. Finally, it is underlined once again that the EngiNews newsletter maintains a click through rate above the average for the Education sector, that is, it has a rate of 5.57% when the average is 2.9%. This metric is commonly used to measure the success of an online advertising campaign for a given website, as well as the effectiveness of email campaigns.

[1] METRICS data not included in this report

2 – MANAGEMENT BODIES AND OFFICES

Management Bodies:

- School Council
- Scientific Council
- Pedagogical Council
- Management Council

The activity of the management bodies of the School of Engineering in 2024 can be consulted on the institutional website of the School of Engineering, at www.eng.uminho.pt, in the menu School, submenu Institutional Information.

Support services to the Presidency:

- Financial Implementation Support Office
- Informatic Support Office
- Internationalization Office
- Communication and Interaction with Society Office
- Presidency Secretariat
- School's Secretary
- School's Recepcionist

3 – EEUM's NUMBERS

6805 Students Enrolled
1st cycle - 3343 Bachelor students + 455 Integrated Masters students
2nd cycle – 2339 Master's degree students
3rd cycle – 668 PhD's students (at the time)

256 PhD Faculty
9 Emeritus Professors
70 ETI Invited Faculty Professors
122 Non-Teaching Staff

9 Departaments
90 Training Programs (2024/2025)
1st cycle – 15 Bachelor Programs e 14 Integrated Masters Programs
2nd cycle– 40 Masters Degree Programs
3rd cycle - 21 PhD Programs

9 Research Centres
140 Integrated Researchers
8 Centres evaluated as Very Good and Excellent by FCT
114 Completed PhD
21 Patents granted
176 Research projects
28 M€ Total funding/year
919 Scientific articles indexed in WoS/Scopus
14 Collaborative Laboratories

Internationalization
39 Agreements established
4 International visits
142 Students, Non-teaching and Teaching Staff Mobility OUT
164 Students, Non-teaching and Teaching Staff Mobility Mobility IN

Interaction With Society
26 Protocols established
3000 Job Opportunities in EEUM's Job Days
62.4K Followers on social media
73K Institucional Website Unique Visitors
1540 Subscribers of EngiNews (external subscribers)

4 – EDUCATION

4.1 – National Competition for Access to Higher Education Results

With regard to the 1st cycle and the 1st placement phase for 2024/2025, the School of Engineering had 99.1 per cent of its vacancies (887) filled in the first phase of the National Competition for Access to Higher Education (see table 4.1.1).

The program that saw their number of vacancies reduced in 2024/2025 was Textile Engineering. The course with the highest number of places was Computer Engineering, with 170 places, followed by Information Systems Engineering and Management, with 141 places available. The program that did not fill all the vacancies available in the first phase of the competition was Textile Engineering.

In the 1st cycle, it is also important to analyse in more detail the demand from students coming from the National Access Competition.

Programs with the most 1st choice vacancies (with data referring to the 1st access phase): Fashion Design and Marketing (86%), Computer Science (85%), Aerospace Engineering (71%), Civil (71%), Biomedical (71%).

In terms of the minimum entry classification (commonly known as the 'access average'), UMinho's School of Engineering leads the country in the area of Textile Engineering. The course in which the last-placed student had the highest classification was Aerospace Engineering (191.4), followed by Industrial Engineering and Management (175.6), Fashion Design and Marketing (174.4), Biomedical Engineering (171.8) and Computer Engineering (170.6).

4.1.1 – National Competition for Access to Higher Education Results

Programme	**Initial vacancies**	**Placed**	**Last place score (general contingent)**	**Remaining vacancies for 2nd phase**
Aerospace Engineering	31	31	191.4	0
Biomedical Engineering	65	65	171.8	0
Chemical and Biological Engineering	41	41	148.0	0
Civil Engineering	34	34	151.6	0
Engineering and Management of Information Systems	141	141	146.2	0
Fashion Design and Marketing	30	30	174.4	0
Industrial Electronics and Computers Engineering	88	88	121.6	0
Industrial Engineering and Management	67	67	175.6	0
Informatics Engineering	170	170	170.6	0
Materials Engineering	27	27	142.2	0
Mechanical Engineering	83	83	169.6	0
Physics Engineering	35	35	157.2	0
Polymer Engineering	20	20	133.0	0
Telecommunications and Informatics Engineering	36	36	123.0	0
Textile Engineering	19	11	123.8	8
Total	**887**	**879**	-	**8**

4.2 – 1st Cycle Programs

In the 2024/2025 academic year the School of Engineering offers 15 bachelor's degree programs and 14 integrated master's degree programs (the 1st year of the cycle of studies was not offered in 2023/2024), in which 3798 students are enrolled (3343 bachelor's degree and 455 integrated master's degree students). In the 1st cycle, a high demand is confirmed, with the vacancies of the School of Engineering all filled in the majority of its study cycles in the 1st phase of the National Competition for Access to Higher Education. However, one 1st cycle programs did not fill the available places.

Four degrees (submitted between October 2024 and January 2025) were evaluated by A3ES:
- Degree in Information Systems Engineering and Management
- Degree in Industrial Electronics and Computer Engineering
- Degree in Computer Engineering
- Degree in Telecommunications and Computer Engineering

4.2.1 – Evolution of students enrolled – Bachelor degrees*

1st Cycle	**2022**	**2023**	**2024**
Aerospace Engineering	35	70	108
Biomedical Engineering	225	235	220
Chemical and Biological Engineering	129	129	134
Civil Engineering	228	234	215
Engineering and Management of Information Systems	495	495	534
Fashion Design and Marketing	113	109	100
Industrial Electronics and Computers Engineering	336	336	322
Industrial Engineering and Management	275	275	239
Informatics Engineering	724	726	706
Materials Engineering	84	83	70
Mechanical Engineering	277	277	313
Physics Engineering	138	139	132
Polymer Engineering	78	68	59
Telecommunications and Informatics Engineering	121	121	138
Textile Engineering	75	75	53
Total	**3333**	**3372**	**3343**

4.2.2 – Evolution of graduate students - Bachelor degrees *

1st Cycle	**2022**	**2023**	**2024**
Aerospace Engineering			
Biomedical Engineering	41	59	74
Chemical and Biological Engineering	76	33	42
Civil Engineering	47	39	47
Engineering and Management of Information Systems	60	106	110
Fashion Design and Marketing	25	26	34
Industrial Electronics and Computers Engineering	112	71	64
Industrial Engineering and Management	138	71	81

4.2.2 – Evolution of graduate students - Bachelor degrees * (continued)

1st Cycle	**2022**	**2023**	**2024**
Informatics Engineering	141	125	177
Materials Engineering	1	19	27
Mechanical Engineering	90	38	80
Physics Engineering	49	25	41
Polymer Engineering	28	18	19
Telecommunications and Informatics Engineering	9	13	12
Textile Engineering	36	24	16
Total	**853**	**667**	**824**

* Faced with the conversion of Integrated Masters into Bachelor's and Master's study cycles.

4.2.3 – Enrolled Students Total Number – Integrated Masters

Program	**2023/24**	**2024/25**
Biological Engineering	4	2
Biomedical Engineering	58	31
Civil Engineering	19	11
Engineering and Management of Information System	206	112
Engineering and Management of Information System (AW)		
Industrial Electronics and Computers Engineering	58	35
Industrial Management and Engineering	18	12
Informatics Engineering	105	58
Materials Engineering	35	16
Mechanical Engineering	158	115
Physics Engineering	15	13
Polymer Engineering	19	7
Telecommunications and Informatics Engineering	60	40
Textile Engineering	3	3
Total	**758**	**455**

4.2.4 – Evolution of graduate students – Integrated Masters

Program	**2022**	**2023**	**2024**
Biological Engineering	34	1	2
Biomedical Engineering	104	28	22
Civil Engineering	28	2	3
Engineering and Management of Information Systems	70	58	71
Engineering and Management of Information Systems (AW)	15	9	
Industrial Electronics and Computer Engineering	60	50	16
Industrial Management and Engineering	79	29	7
Informatics Engineering	152	37	17
Materials Engineering	20	10	19

4.2.4 – Evolution of graduate students – Integrated Masters (continued)

Program	**2022**	**2023**	**2024**
Mechanical Engineering	98	43	22
Physics Engineering	12	5	0
Polymer Engineering	35	7	8
Telecommunications and Computer Engineering	13	8	7
Textile Engineering	34	5	1
Total	**754**	**292**	**195**

4.3 – 2nd Cycle Programs

The School of Engineering has 40 Masters programs in operation in the year 2024/2025, with a total of 2339 students enrolled.

During the period under review, the EEUM submitted proposals for new 2nd cycles, as well as new non-degree courses at 2nd cycle level.
The process has been submitted and is still awaiting analysis/conclusion:
- Master's Degree in Integrated Design of Wooden Constructions

The following have been accredited by A3ES
- Master's Degree in Sustainable and Resilient Pavement Engineering
- Master's Degree in Advanced Computing
- Master's in Data Science and Engineering
- Master's in Artificial Intelligence
- Master's in Cybersecurity

In addition, 8 master's degrees (submitted between October 2024 and January 2025) were under evaluation by A3ES:
- Master's in Network Engineering and Telematic Services
- Master's in Systems Engineering
- Master's in Mechatronics Engineering
- Master's in Information Systems
- Master's in Information Systems Engineering and Management
- Master's in Industrial Electronics and Computer Engineering
- Master's in Computer Engineering
- Master's in Telecommunications and Computer Engineering

4.3.1 – Total number of students enrolled per program - Master's Degree

Program	**2022/23**	**2023/24**	**2024/25**
Advanced Structural Analysis and Design using Composite Materials - FRP++	10		
Aerospace Engineering	10	23	18
Bioinformatics	70	58	46
Biotechnology	60	50	44
Building Information Modelling - BIM A+	31	18	16
Cities Challenges	6	28	6
Design and Marketing of Textile Products, Apparel and Accessories	23	18	11
Engineering and Operations Management	109	134	138
Engineering and Quality Management	49	32	34
Engineering of Computer Networks and Telematic Services	13	6	3
Engineering Project Management	55	52	57
Fashion Design and Communication	56	41	52
Food Science and Technology	32	20	33
Human Engineering	15	18	12
Industrial Engineering	11 (2nd year)		
Informatics Engineering	369	405	435
Information Systems	65	56	59
Interactive Technologies	3		1
Mechatronics Engineering	26	221	20
Micro/Nano Technologies	11	2	2
Product Engineering	54	46	46
Structural Analysis of Monuments and Historical Construction	21	12	17
Structural Engineering	0	6	4
Sustainable Built Environment	27	7	18
Sustainable Built Environment	5	1	2
Systems Engineering	46	36	33
Urban Engineering	23	20	11
Total	**1200**	**1310**	**1118**

4.3.2 – Total number of students enrolled per program - Continuing Masters

Program	**2022/23**	**2023/24**	**2024/25**
Biomedical Engineering	79	102	160
Chemical and Biological Engineering	73	65	66
Civil Engineering	92	91	108
Engineering and Management of Information Systems	82	171	218
Industrial Electronics and Computers Engineering	141	181	159
Industrial Engineering and Management	165	138	139
Materials Engineering	3	16	38
Mechanical Engineering	121	109	134
Physics Engineering	67	73	74
Polymer Engineering	40	43	47
Telecommunications and Computer Engineering	16	30	36
Textile Engineering	55	54	42
Total	**934**	**1073**	**1221**

4.3.3 – Master's Dissertations

Program	Dissertation Admissions			Concluded Dissertations		
	2021/22	2022/23	2023/24	2021/22	2022/23	2024/25
Advanced Structural Analysis and Design using Composite Materials - FRP++		3	5		3	5
Aerospace Engineering			9			4
Bioinformatics	24	31	22	24	18	22
Biotechnology	13	33	20	15	33	17
Building Information Modelling - BIM A+	13	10	18	17	10	17
Cities Challenges			5			1
Design and Marketing of Textile Products, Apparel and Accessories	18	11	1	11	9	5
Engineering and Operations Management		35	49			32
Engineering and Quality Management	22	20	16	18	19	14
Engineering of Computer Networks and Telematic Services	6	8	4	5	1	1
Engineering Project Management	18	25	17	12	5	14
Environmental Management	3			8	1	
Fashion Design and Communication	20	21	16	21	15	2
Food Science and Technology	21	8	3	30	7	4
Human Engineering	9	10		11	5	2
Industrial Engineering	55			69	5	
Informatics Engineering	174	14	148	50	83	105
Information Systems	16	17	18	7	10	8
Interactive Technologies	1		1	2	2	
Mechatronics Engineering	18	5	4	14	5	3
Micro/Nano Technologies	6	4		10	4	1
Product Engineering	21	23	15	6	13	13
Sustainable Built Environment	3			2		
Sustainable Construction and Rehabilitation	8	9	5	16	10	4
Structural Analysis of Monuments and Historical Construction	5	7	4	5	5	4
Systems Engineering	21	19	14	23	16	9
Urban Engineering	15		10	14	6	7
Total	**510**	**276**	**280**	**390**	**301**	**240**

4.3.4 – Continuing Master's Dissertations *

Program	Dissertation Admissions		Concluded Dissertations	
	2022/23	2023/24	2022/23	2023/24
Chemical and Biological Engineering	1	32	26	23
Biomedical Engineering	56	63	7	49
Civil Engineering	6	23	19	13
Engineering and Management of Information Systems	113	73	2	15
Industrial Electronics and Computers Engineering	12	62	10	45
Industrial Engineering and Management	5	59	66	58
Materials Engineering	16	4		1
Mechanical Engineering	30	56	34	29
Physics Engineering	2	37	15	18
Polymer Engineering	12	22	9	17
Telecommunications and Computer Engineering	7	4	4	1
Textile Engineering	3	21	18	13
Total	**263**	**456**	**208**	**282**

* With the transition from Integrated Masters to Undergraduate Degrees, students did not start submitting their dissertation plan until the 2021/2022 academic year.

4.4 – 3rd Cycle Programs

The School of Engineering had 21 Doctoral Programmes/PhD Programs in operation in the academic year 2023/2024, with a total of 668 students enrolled.
In the Doctoral Programmes (3rd cycle), the vacancies are higher than the demand, with most of the programs not filling all the available places.
The lower demand may be due to several factors, for example, in the case of foreign students, the difficulty in obtaining visas and funding; in the case of national students, the enrolment in the doctoral programmes is often conditioned by the publication of the results of the applications for doctoral grants funded by FCT.
In 2024 there was an increase in the number of completed PhD theses (114), compared to the previous year (72 theses).

Five Doctoral/PhD Programmes (submitted between October 2024 and January 2025) have been evaluated by A3ES:
- PhD in Computer Science
- PhD in Electronic and Computer Engineering
- Doctoral Program in Information Technology and Systems
- Doctoral Program in Informatics (MAP-i)
- Doctoral Program in Telecommunications (MAP-tel)

The Doctoral Program in Advanced Engineering Systems for Industry was abolished.

4.4.1 – Total number of students enrolled in 2023/2024

Program	**Total Enrolled 2023/24**
Bioengineering	1
Advanced Engineering Systems for Industry	4
Biomedical Engineering	33
Chemical and Biological Engineering	59
Civil Engineering	128
Computer Science (MAP-i)	23
Direct Digital Manufacturing for Polymer and Tooling Industries	1
Electronics and Computer Engineering	67
Fashion Design	16
Food Science and Technology and Nutrition	26
Industrial and Systems Engineering	62
Informatics	51
Information Systems and Technology	50
Leaders for Technical Industries	0
Materials Engineering	28
Mechanical Engineering	41
Polymers and Composites Engineering	19
Solid Waste Management and Treatment	9
Sustainable Built Environment	24
Telecommunications MAP-tel	5
Textile Engineering	22
Total	**668**

4.5 – Departments' Activities

4.5.1 – Department of Biological Engineering

Created in 1993, the Department of Biological Engineering (DEB) is a dynamic sub-unit of the School of Engineering that currently comprises 6 employees and 18 career professors (plus two Emeritus Professors). DEB is dedicated to providing students with access to internationally recognized teaching excellence, led by professors recognized as leaders in their respective research field. DEB actively contributes to undergraduate and postgraduate education through its involvement in the Bachelor in Biomedical Engineering, the Bachelor in Chemical and Biological Engineering, and six Master's programs: Bioinformatics, Biotechnology, Biomedical Engineering, Chemical and Biological Engineering, Micro/Nanotechnologies, and Food Technology and Science (the latter in collaboration with the Faculty of Sciences of the University of Porto).

DEB places a strong emphasis on outreach activities, participating in several initiatives tailored for secondary school students to inspire future generations in STEM fields. Its commitment to fostering student engagement extends to partnerships and collaborations with companies, public institutions, and national and international higher education entities, facilitating exchange programs and internships. These opportunities enrich students' experiences with multicultural and multidisciplinary dimensions, making DEB's training programs highly attractive.

Moreover, DEB regularly engages with the broader community through forums, fairs, exhibitions, and events to promote its educational offerings. Its faculty members are deeply involved in research, blending fundamental science with engineering disciplines to develop high-value biotechnological products and processes for the Food, Chemical, Health, Biotechnology and Environmental industries.

Staff

Category	**Total**
Emeritus professor	2
Full professor	4**
Associate professor with Habilitation	6
Associate professor	2
Assistant professor with Habilitation	1
Assistant professor	5
Total	20

** 2 professors on external service

Category	**Total**
Senior technician	1
IT specialist	0
IT technician	0
Technical assistant	3
Operational assistant	2
Total	6

Events

Event	Date	Type
Celebração dos 30 anos do CEB	6/13/2024	Celebration session
Proteome 2 Gene 2 Protein 3	9/19/2024	Workshop
ExpoBioTec - Semana da Biotecnologia de Braga 2024	20-25/05/2024	Demonstrations
20 anos de Bioinformática na Universidade do Minho	4/30/2024	Celebration session
Noite Europeia dos Investigadores	9/27/2024	Demonstrations

Link to Society Projects

Project	Description
Solfarcos, LTD	Artur Cavaco-Paulo, CSO/CEO Solfarcos, LTD Pharmaceutical and Cosmetic Solutions Ltd, was created in 2016 as a "spin-off" company of the University of Minho. The main areas of activity are the development and commercialization of pharmaceutical and cosmetic technologies and analytical techniques for application in biotechnology research. Specialist in research and development in Biotechnology and Nanotechnology in Health, SOLFARCOS provides consulting and management services to support European projects in the field of Nanomedicine.
Aquis, LTD	Artur Cavaco-Paulo, CSO Aquis, LTD
ILSI Europe	Armando Venâncio is Scientific Advisor of the Food Contaminants Task Force (https://ilsi.eu/scientific-activities/food-safety/food-contaminants/) ILSI Europe develops, communicates & disseminates science-based guidance to tackle food, public health and sustainability challenges by facilitating collaboration and consensus building between academic, industry and public service experts.
MIRRI-ERIC	Armando Venâncio is representing Portugal in the Assembly of Members of the European Research Infraestructure MIRRI (https://www.mirri.org/about/governance-people/) The Microbial Resource Research Infrastructure – European Research Infrastructure Consortium (MIRRI-ERIC) is the pan-European distributed Research Infrastructure for the preservation, systematic investigation, provision and valorisation of microbial resources and biodiversity.
Satisfibre	MIguel Gama & Fernando Dourado Satisfibre, S.A. is a company that has dedicated its activities to developing the process of producing bacterial cellulose (BC) and exploiting the technological and commercial potential of BC in the food, cosmetics and (bio)composites industries.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Inês Maria Correia Novo	Lígia Rodrigues		Lactoferrin-loaded extracelular vesicles for colorectal cancer terapy	Master in Biomedical Engineering	
Mariana Afonso	Monica Gonçalves	Mariana Henriques	Validação dum dispositivo médico: implementação em Portugal	Master in Biomedical Engineering	
Luísa Sousa Lima	Mariana Henriques	Silvia Oliveira	Avaliação do Risco Clínico e Não Clínico do Hospital de Braga - Revisão e implementação de melhorias	Master in Biomedical Engineering	
João Paulo Carvalho	Lucília Domingues	Carlos Costa	Development of genome editing tools for probiotic yeast *Saccharomyces boulardii*	Master in Biotechnology	
Mariana da Silva e Sousa	Artur Cavaco-Paulo	Diana Pereira Guimarães	Development of topical formulation based on liposomes for hair growth	Master in Biotechnology	SOLFARCOS - Soluções Farmacêuticas e Cosméticas, Lda.
Sofia Pedrosa de Sousa	Catarina Gonçalves	Ana Pinheiro	Preventive and therapeutic effect of fermented products from primary human gut microbiota on *in vitro* dysfunctional intestinal barrier	Master in Biotechnology	INL- International Iberian Nanotechnology Laboratory
Bárbara Santos da Silva	Artur Cavaco-Paulo	Ana Marques Silva	Development of cosmetic formulations with insect's extract	Master in Chemical and Biological Engineering	SOLFARCOS - Soluções Farmacêuticas e Cosméticas, Lda.
Bruna Martins Ortiga	Maria Olívia Pereira		Avaliação das práticas Environmental, Social and Corporate Governance em contexto empresarial: Ferramenta ESortiGa	Master in Chemical and Biological Engineering	
Cíntia Gomes Mendes	Luis Abrunhosa	Rui Rodrigues	Produção de Colunas de Afinidade para Micotoxinas com Aerogéis de Proteínas	Master in Chemical and Biological Engineering	

4.5.2 – Department of Civil Engineering

Civil Engineering is the branch of Engineering that encompasses the design, construction and maintenance of all structures and infrastructures necessary for the well-being and development of society and the preservation of the built and natural environment. Since 1980, the Department of Civil Engineering integrates the School of Engineering of the University of Minho. Its mission is the development of Civil Engineering according to three vectors: graduate and postgraduate teaching, research and development activities, and partnerships with industry and society.

The Master in Civil Engineering is the main teaching project and aims to train technicians with appropriate skills for their integration in a job market in permanent change and able to contribute to the wealth of companies in the sector and the country. Its recognition has led to the creation of a scholarship and school merit program supported by companies interested in student success.

Also noteworthy in the training offer are the Masters in Sustainable Construction and Rehabilitation, the Masters in Urban Engineering, Master in Structural Engineering and the three International Masters: Building Information Modelling, Structural Analysis and Design using Composite Materials and Structural Analysis of Historic Monuments and Constructions. The latter is recognised by the European Commission with the "Erasmus Mundus" seal of excellence. The Department also collaborates in the Master in Engineering Project Management.

The research and development activities are framed in the Centre for Territory, Environment and Construction and in the Institute for Sustainability and Innovation in Engineering Structures.

Staff

Category	**Total**
Emeritus professor	2
Full professor	4
Associate professor with Habilitation	7
Associate professor	7
Assistant professor with Habilitation	4
Assistant professor	16
TOTAL	42

Category	**Total**
Senior technician	5
IT specialist	0
IT technician	1
Technical assistant	3
Operational assistant	0
Technical Coordinator	1
TOTAL	10

Events

Event	Date	Type
3º Congresso Nacional de Sismologia e Engenharia Sísmica (SÍSMICA 2024)	02/05/2024	Congress
International Probabilistic Workshop - IPW2024	08-11/05/2024	Congress
10th International Conference on Maintenance and Rehabilitation of Pavements	22-26/07/2024	Congress
fib ICCS – International Conference on Concrete Sustainability	11-13/09/2024	Congress
10th PLURIS'24 Congress - Cities and Territories in Transition	16-18/10/2024	Congress

Link to Society Projects

Project	Description
NBSINFRA	CityNature-Based Solutions Integration to Local Urban Infrastructure Protection for a Climate Resilient Society, European project worth approximately five million euros that is looking for natural-based technological solutions to protect critical infrastructures. It involves five European cities, including Aveiro, and aims to minimise the effects of climate change.
Recube	The European project REcube - REthink, REvive, REuse aims to develop and transmit the knowledge necessary for a sustainable, integrated and holistic approach to the conservation and renovation of reinforced concrete heritage buildings in Europe. The students took part in the Regenerate Workshop and developed solutions for the preservation of Hall C of the Turin Exhibition Centre.
INFRAROB	It is intended to contribute: (1) to the reduction of workers' exposure to traffic and construction machinery; (2) to increase the availability of the transport network; (3) for automation, modularization, and consequent reduction in the cost of repetitive tasks and security requirements; and (4) to increase the safety of road users.
SARIL	Due to the globalization of supply chains and prevalence of just-in-time production, all economies depend on flawless functioning of logistics network. On Covid-19, it has become evident that this network can be disrupted. SARIL aims so to propose and implement measures to increase resilience, which focuses on threat prevention, system robustness, with ecological aspects.
MULTICLIMACT	The MULTICLIMACT project aims to develop an integrated framework and tool to support public stakeholders and citizens in assessing the resilience of the built environment and its population at various scales (buildings, urban areas, territories) against natural and natural climate hazards, and supply chains, as well as to help them improve their preparedness and responsiveness throughout their lifecycle.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Cláudio Pereira Leite	José Sena Cruz	Luís Correia	Durability of FRP composites manufactured by pultrusion under the effect of natural and accelerated aging	Master in Civil Engineering	
Maria José Almeida	Fernando Fonseca		Green Space Planning within the Framework of the 15-Minute City: the Case of Porto	Master in Civil Engineering	
João Cortês Pereira	Joaquim Barros	Javad Shayanfar	New reinforcement and rehabilitation system for concrete columns damaged by high temperatures	Master in Civil Engineering	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
André Manso Rodrigues	Paulo Ribeiro		15-minute city. Conceptualisation and Application in the City of Viana do Castelo	Integrated Master in Civil Engineering	
João Piedade Pinheiro	Paulo Ribeiro		Demand Responsive Transport. Case study of Comunidade Intermunicipal do Tâmega e Sousa	Integrated Master in Civil Engineering	
Ana Freitas Ribeiro	Jorge Pais		Application of waste in bituminous mixtures	Master in Urban Engineering	
Nagham Dayoub	Hugo Silva	Teresa Lopez Montero (Universitat Politècnica de Catalunya | UPC)	Modification of Asphalt Mixtures with Plastic Waste by the Wet and Dry Methods	Master in Urban Engineering	
Micaela Fernandes Lopes	Manuela Lima		Life Cycle Analysis of Water Systems for Reuse: A Systematic Review	Master in Urban Engineering	
Genesis Cervantes Puma	Luís Bragança	Adriana Salles	Implementation of Urban Circular Economy Based on Sustainable Development Goals	Master in Sustainable Construction and Rehabilitation	
Thianne Lopes Peixoto	Rute Eires	Raphaele Malheiro	Use of oyster shells and lime kiln dust in the composition of eco-efficient mortars	Master in Sustainable Construction and Rehabilitation	
Maria Gabriela Nunes Barbosa	Manuela Almeida		Implementation of Building Renovation Passport for low-income households in Portugal	Master in Sustainable Construction and Rehabilitation	
Fabian Cofie	João Pedro Couto		Innovations and Challenges in Sustainable Management of Construction and Demolition Waste (CDW): Proposal to Eco-Efficient and Circular Construction	Master in Engineering Project Management	
Hayden Luger	Paulo Lourenço	Rafael Ramírez	Structural assessment of the Castle of Lanjarón, Spain	Master in Structural Analysis of Monuments and Historical Constructions	
Purevdulam Enkhbat	Elisa Poletti	Hélder Sousa	Analysis of timber decay in Mongolian historic monasteries with structural timber elements	Master in Structural Analysis of Monuments and Historical Constructions	
Roberta Scungio	Paulo Lourenço	Massimiliano Gioffrè	Strengthening of masonry arches and vaults using natural composite materials based on hemp ropes and nets	Master in Structural Analysis of Monuments and Historical Constructions +	
Lara Raulino Jacome	Maria Isabel Valente	José Basto Lino	BIM Implementation Guide: Challenges And Impacts in Organisations	BIM A+ European Master in Building Information Modelling	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Petr Šimánek	José Duarte Granja	Miguel Dias Azenha	IDS in Open BIM Workflow: Potential & Limitations	BIM A+ European Master in Building Information Modelling	DiRoots
Aline Hilgemberg da Costa	Miguel Dias Azenha	Filipe Lima	The Value of BIM for Owners: A multi-stakeholder study focused on an office building	BIM A+ European Master in Building Information Modelling	LIMSEN
Emmanuel Oguchi Chukwuemeka	José Sena-Cruz	Luís Correia	Conception and design of FRP composite panels for road information signage	FRP++ European Master Course in Advanced Structural Analysis and Design using Composite Materials	
Minhaj Mahmood Siddique	Joaquim Barros		Advanced composite plate for seismic strengthening of RC buildings	FRP++ European Master Course in Advanced Structural Analysis and Design using Composite Materials	
Arnau Roca Caellas	Luís Correia	Filipe Ribeiro	Investigation into cutting-edge composite materials and adhesively bonded joints for the aeronautics industry	FRP++ European Master Course in Advanced Structural Analysis and Design using Composite Materials	Tekever; ISQ

4.5.3 – Department of Industrial Electronics

Created in 1989, the Department of Industrial Electronics (DEI) is a department of the School of Engineering located in two *campi* of the University of Minho (Azurém *campus* in Guimarães and Gualtar *campus* in Braga). The DEI is composed of an experienced and highly qualified teaching staff, consisting of 29 PhD Professors who develop activities in close collaboration with the scientific community and the business fabric. The main objective of DEI is to offer high quality teaching and research projects in its four Disciplinary Areas: Electronic Instrumentation and Microsystems; Control, Automation and Robotics; Industrial Informatics and Embedded Systems; and Power and Energy Electronics.

DEI participates in teaching projects of the School of Engineering of the University of Minho that contemplate training in several areas, always with a high practical and laboratorial component, having as fundamental objective to train highly qualified Engineers capable of an autonomous work of development and innovation. The participation of DEI in the training of Engineers contributes to the creation and use of new technologies, which improve competitiveness and sustainability in vast areas such as Industrial and Service Robotics, Factory Automation, Electrical Installations, Energy Efficiency, Electrical Machinery, Renewable Energy, Electrical Mobility, Consumer Electronics, Microtechnologies and Microelectronics, Dedicated Microprocessors and Compilers, Software and Multimedia Industry, Information Systems Security, Mobile Cell Networks, Wireless Sensor Networks, Optical Communications Systems and Automotive Electronics.

Staff

Category	**Total**
Emeritus professor	1
Full professor	4*
Associate professor with Habilitation	5
Associate professor	4
Assistant professor with Habilitation	1
Assistant professor	13
TOTAL	**28**

* 1 professor on external service

Category	**Total**
Senior technician	0
IT specialist	1
IT technician	1
Technical assistant	3
Operational assistant	0
Technical Coordinator	1
TOTAL	**6**

Events

Event	Date	Type
Exhibition of projects by students from the Industrial Electronics and Computer Engineering degree course	30/01/2024	Exhibition
Jornadas de Engenharia Eletrónica 2024	26-29/02/2024	Days
Roboparty	21-23/03/2024	Competition

Link to Society Projects

Project	Description
Electronic Toys Adaptation for Children with Cerebral Palsy	Every year, the Automation and Robotics Laboratory organizes a solidarity week with volunteer students from Industrial Electronics Engineering graduation and master to adapt electronic toys so they can be used by children with cerebral palsy during the Christmas season. This initiative has been held annually (since 2006) during the first week of December, with the collaboration of several students from the Robotics Laboratory. The toys are donated to institutions that care for these special children. Each edition sees the adaptation of around 50 to 80 toys.
National Conference "Terra em Foco", 2024	Partipation on the organization of the national conference for Earth Observation, "Terra em Foco", promoted by the Portuguese Space Agency and hosted by the School of Engineeirng, with participation of faculty from DEI as well as Aerospace Eng. Students as volunteers.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Carlos Alves da Silva	Vitor Monteiro		Desenvolvimento de um Sistema de Software para Aquisição de Dados de Máquinas na Empresa Bosch Car Multimedia	Master in Mechatronics Engineering	Bosch
Diogo Pereira Oliveira	Francisco Brito	Vitor Monteiro	Requalificação de motor de combustão interna para aplicação estacionária sustentável	Master in Mechatronics Engineering	
Sérgio Pereira Carvalho	Sérgio Lopes	José Cabral	A web platform for integrated management of sport clubs with independent choice of functionalities	Master in Telecommunications and Informatics Engineering	
Francisco Duarte Gomes Neto	José Cabral	Sérgio Lopes	Development of an integrated management web application for restaurants	Integrated Master in Telecommunications and Informatics Engineering	
Emy Lopes Gervais	José Afonso	José Cabral	Development of an IoT Platform for Anxiety Detection Through Biomedical Signals	Integrated Master in Telecommunications and Informatics Engineering	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Rui Ferreira Loureiro	Paulo Mateus Mendes	José Penteado Fernandes	Low Temperature Thermocompression bonding for ultraminiaturized self packaged MEMS in 8 inch wafers	Master in Physics Engineering	INL-International Iberian Nanotechnology Laboratory
Gonçalo Santos Dores	Paulo Mateus Mendes	Hugo Dinis	Miniaturization of Circularly Polarized Antennas for GNSS Applications	Master in Physics Engineering	
Guilherme de Bastos Silva	Agostinho Teixeira Lopes	António Caetano Monteiro	Remote inspection of coating process on a production line using image analysis techniques	Master in Physics Engineering	
José Vilela Carvalho	Tiago Gomes		FPGA-based Ground Segmentation Algorithm for LiDAR Point Cloudsb	Master in Industrial Electronics and Computers Engineering	Bosch
Pedro Figueiredo Martins	Gabriel Pinto		Development of a Modular Multilevel Converter with Decentralized Control	Master in Industrial Electronics and Computers Engineering	
Pedro Sampaio Dias	Estela Bicho	Flora Ferreira	Design and Evaluation of a Cognitive Vehicle System: Emphasizing User Routine Learning and Interaction	Master in Industrial Electronics and Computers Engineering	
Margarida Gomes Ferreira	Susana Oliveira Catarino	Vera Carreira Faustino	Nanocarrier-based microfluidic system for characterization of malaria-infected cells	Master in Biomedical Engineering - Specialization Area in Medical Electronics	
Bernardo Santos Dores	Eliana Fernandes Vieira		Development of a cell heating system based on a thermoelectric device for magnetoencephalography	Master in Biomedical Engineering - Specialization Area in Medical Electronics	
Lara Cerqueira Teles	Sara Ribeiro Pimenta		Development of a minimally invasive procedure for esophageal correction of atresia	Master in Biomedical Engineering - Specialization Area in Medical Electronics	

4.5.4 – Department of Mechanical Engineering

The Department of Mechanical Engineering is a structural sub-unit of the School of Engineering of the University of Minho. Its mission is the development of the main areas of Mechanical Engineering through three vectors: graduate and post-graduate teaching, research and development, partnerships with industry. The Department of Mechanical Engineering is a structural sub-unit of the School of Engineering of the University of Minho. Its mission is the development of the main areas of Mechanical Engineering through three vectors: graduate and post-graduate teaching, research and development, partnerships with industry. As of the school year 2023/2024, DEM offers a degree in Mechanical Engineering, being also involved in the degrees of Material Engineering, Biomedical Engineering, and Aerospace Engineering. The department is also involved in masters on the same subjects, plus the masters in Micro and Nano Technologies, Product Engineering and it is the main responsible for the Mechatronics Engineering master. DEM is associated with 3 subject areas: Thermofluidics and Energy Technologies; Design, Automation and Mechanical Technology; Metallurgy and Materials Mechanics. The research activities are framed in the METRICS and CMEMS research centres. The Department collaborates actively with the CVR - Centre for the Valorisation of Waste (the President of the Board of Directors is a professor at DEM - Prof. Cândida Vilarinho) and with TecMinho, hosting and directing the Chemical Analysis Laboratory of the latter institution.

Staff

Category	**Total**
Emeritus professor	0
Full professor	5
Associate professor with Habilitation	3
Associate professor	5
Assistant professor with Habilitation	0
Assistant professor	11
TOTAL	24

Category	**Total**
Senior technician	4
IT specialist	0
IT technician	0
Technical assistant	3
Operational assistant	0
Technical Coordinator	0
TOTAL	7

Events

Event	Date	Type
Welcome for 1st Year Mechanical and Materials Engineering Students	09/09/2024	Welcome session
18 students presented their projects as part of the Thermochemical Processes course unit of the master's degree in Mechanical Engineering, Specialisation in Environmental Energy Technologies	12/6/2024	Lecture
AIRCRAFT DESIGN - A Perspective for Future Engineers	01/10/2024	Lecture
"ENERGY AND SUSTAINABILITY" - UPA - Luis Barreiros Martins and Francisco Brito	19/04/2024	Lecture
"CFD: From Fundamentals to Applications" - Professor Miguel Nóbrega	26/04/2024	Lecture

Link to Society Projects

Project	Description
'AXON Hackathon'	'AXON Hackathon' was a 48-hour technological marathon organised by the multinational Petrotec, with the support of the Innovation by Kaizen Institute and UMinho's School of Engineering. A replica petrol station has even been set up in the noble auditorium of the Azurém campus to inspire the participants, who come from UMinho's schools of Economics and Management, Engineering and Architecture, Art and Design. They've worked in small teams and are accompanied by lecturers, mentors and innovation experts, in a multidisciplinary approach to the challenges of design, technology and production in the energy sector. The winning teams could win paid internships at Petrotec (a leader in the field and present in more than 80 countries), as well as trips to international innovation events and professional training courses. The official website is www.axonhack.com. And the winning team was FS1-FormulaStudentUMinho composed by various Mechanical Engineering students.
Study Visit	Group from Greece with 16 students and 2 teachers, who are in the 3rd year of the vocational course in Electricity and Automation at the school "1o EK Lagkada," with the project "Solar Energy Revolution: Mastering the Art of Harnessing Solar Power with Photovoltaic Systems," visit the DEM.
Summer at the Campus	Activities with secondary school students.
Study Visit	"FROM KIDS TO GROWN-UPS – Shaping the Engineers of Tomorrow" – students from the school "O Forte," in Vila do Conde, (06/12/2024).
Study Visit	Study Visit "AIRBUS"

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Rui Silva Ferreira	Óscar Novais de Carvalho		Exploração dos Benefícios da Utilização de Manufatura Aditiva na Produção de Joalharia	Master in Product Engineering	
Cláudia Liberato Nunes	Pedro Lima Marques		Mobilidade do Futuro: o Desenvolvimento de Assistência Virtual para a Indústria Automóvel	Master in Product Engineering	CEiiA
Jorge Moreno Ortega	Nuno Maia Peixinho		Framework for digital twin concept application in mechanically stressed parts	Master in Mechanical Engineering	
Luís Moura da Rocha	António Caetano Monteiro		Estudo do processo de maquinagem assistida por computador de um componente hidráulica	Master in Mechanical Engineering	
Francisco Mendes Gomes	Jorge Gomes Martins	Francisco Pimenta Brito	Enhancement of proportional solenoid valve to manage variable displacement oil pump	Master in Mechanical Engineering	
Manuel Rodrigues Gonçalves	Luís Sousa Barreiros Martins		Centro Social e Paroquial de Mire de Tibães: propostas de melhoria energética, térmica e da QAI	Master in Mechanical Engineering (specialization in Energy and Environmental Technologies)	
Tiago Cunha Veiga	Pedro Moreira Lobarinhas		Construção de um equipamento de purificação de ar “Smart NPS”	Master in Mechanical Engineering (specialization in Energy and Environmental Technologies)	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Ana Martins Simões	Pedro Moreira Lobarinhas		Reabilitação de um edifício escolar atendendo à eficiência energética e qualidade do ambiente interior	Master in Mechanical Engineering (specialization in Energy and Environmental Technologies)	
Jéssica Duarte Ribeiro	Óscar Novais de Carvalho		Laser textured titanium surfaces coated with DNase I enzyme by electrophoretic deposition for inhibition of bacteria	Master in Biomedical Engineering	
Gabriel Ferreira Barbosa	José Martins Alves		Otimização de linha de montagem: Sistemas de manuseamento de material	Master in Mechanical Engineering (Area of specialization in advanced manufacturing)	
Sílvia Oliveira Leal	Hélder Fernandes Puga		Estudo de Sistemas de Gitagem para Fundição em Areia de Ligas de Alumínio	Master in Mechanical Engineering (Area of specialization in advanced manufacturing)	
André da Cruz Pereira	João Assunção Silva		Otimização do Processo de Produção de Módulos para Construção Industrializada: Projeto e Aplicação de Métodos de Revestimento	Master in Mechanical Engineering (Area of specialization in advanced manufacturing)	
Carlos Fernandes Vieira	Raúl Sousa Fangueiro		Ecocompósitos Multiescala para Componentes de Automóveis	Master in Mechanical Engineering (specialization in Mechanical Design and Construction)	
Leonardo Valadares Costa	Nuno Maia Peixinho		Desenvolvimento de Componentes e Ligações para Aplicações Aeroespaciais	Master in Mechanical Engineering (specialization in Mechanical Design and Construction)	
José Gariso Lopes	José Bizarro Meireles		Análise, dimensionamento e validação de vigas alveolares mistas	Master in Mechanical Engineering (specialization in Mechanical Design and Construction)	
Maria Jorge e Cardoso	Óscar Novais de Carvalho		Desenvolvimento de painéis acústicos e térmicos com base em resíduos orgânicos	Master in Materials Engineering	

4.5.5 – Department of Polymer Engineering

The Department of Polymer Engineering (DEP) was founded in 1978 to support the national plastics industry through a specific degree and the creation of a body of experts in polymer engineering. Since then, training actions at various levels have been developed, research on various topics of Polymer Science and Engineering through the Research Centres to which its teachers belong (IPC - Instituto de Polímeros e Compósitos) and cooperation with national and foreign companies. This intense activity has allowed the implementation of well-equipped laboratories dedicated to the characterisation of materials at various scales, processing, measurement of properties, digital manufacturing and numerical modelling. The global quality and relevance of the activity are recognized nationally and internationally. Currently, the teaching staff is composed of 15 members, all with PhD degrees and belonging to the discipline area Science and Engineering of Polymers and Composites. The activity is supported by 5 administrative/technical staff.

Staff

Category	**Total**
Emeritus professor	1
Full professor	1*
Associate professor with Habilitation	3
Associate professor	3
Assistant professor with Habilitation	2
Assistant professor	5
TOTAL	**15**

*1 professor on external service

Category	**Total**
Senior technician	2
IT specialist	0
IT technician	0
Technical assistant	3
Operational assistant	0
TOTAL	**5**

Events

Event	**Date**	**Type**
Jornadas Engenharia de Polímeros 2024	8-9/04/2024	Days
Feira Empresa Engenharia de Polímeros	04/12/2024	Days
DEP Open Day 2024	10/4/2024 & 19/04/2024	Days
INOV.AM International Conference – Shaping Tomorrow	27-28/11/24	Conference

Link to Society Projects

Project	Description
Ciência Viva Clubs with Middle/High Schools	The Department of Polymer Engineering has agreements with almost 20 Middle/High Schools from the North of Portugal to promote joint activities related to Polymer Science and Engineering, and to support their students interested in these areas of knowledge.
Agreement with the Plastic and Mould Industry	The Department of Polymer Engineering has an ongoing agreement with the Plastics and Moulds industry to cover the tuition fees of all students admitted to the Bachelor in Polymer Engineering program. The agreement also includes a tutor from the associated company and internships for students during the summer holidays.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
João Tavares de Melo	António Gaspar Cunha		Projeto de moldes de injeção com canais de arrefecimento conformáveis usando técnicas de Inteligência artificial	Master in Polymer Engineering	
Bárbara Araújo da Silva	Braian Buitrago Uribe	Paulo Soares Antunes	Estudo da adesão de tintas e adesivos estruturais sobre superfícies de componentes compósitos usados em pás eólicas	Master in Polymer Engineering	PIEP – Innovation in Polymer Engineering
Mariana Dias Pinto	Sacha Trevelyan Mould	Sílvia Cruz	Combinação de agentes expansores químicos e físicos na produção de espumas sustentáveis	Master in Polymer Engineering	PIEP – Innovation in Polymer Engineering
Mariana Pires Trigo	Fernando Moura Duarte	Maria Cidália Castro	Estudo da influência das condições de processamento na extrusão de folha termoplástica para termoformação	Master in Materials Engineering	Intraplas
Beatriz Martins Fernandes	António Pontes	Ana Carina Lopes	Analysis of the influence of Powder Bed Fusion process parameters on the properties of parts produced with composite materials	Master in Materials Engineering	
Tito Gouveia Lopes	Ana Vera Machado	Pedro Rodrigues	Desenvolvimento de sistemas poliméricos com aspeto metálico	Master in Materials Engineering	
João Silva Gomes	António Pontes		Acabamento superficial de peças produzidas em fabrico aditivo em alumínio (AlSi10Mg)	Master in Product Engineering	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Vítor Malheiro Pais	António Pontes	Álvaro Sampaio	The Role of the Prototypes in the Product Design and Development Process	Master in Product Engineering	
Bruno Coelho Fernandes	António Pontes		Otimização do processo de marcação por radiação laser em peças plásticas	Master in Product Engineering	
Daniela Névoa Ribeiro	Maria da Conceição Paiva	Natália Alves	Scaffolds for ligament regeneration based on polylactic acid and graphene	Master in Biomedical Engineering	
Joana Filipa Fernandes	Cidália Castro	Maria Elisa Costa	Desenvolvimento de adesivos para tecidos vivos a partir de poliuretanos (PU) de origem natural	Master in Biomedical Engineering	

4.5.6 – Department of Textile Engineering

The Department of Textile Engineering (DET) was founded in 1976 with the aim of meeting the needs of the textile sector by training textile engineers capable of dealing with the specificities of the Portuguese textile industry. Up to 2021, the main engineering course offered by DET was the Integrated Master in Textile Engineering. As of the school year 2023/2024, DET offers a degree in Textile Engineering and a Master course in Textile Engineering with two distinct branches. The courses are tightly connected and include teaching methods based on integrated projects, inspiring students to undertake the development of innovative textile products, using the information provided to them in technological disciplines, with a high scientific basis, to meet the increasingly demanding needs of the sector. The students leave the courses able to assume responsibility in production, management and quality control, but also to follow and implement the latest developments in the various areas of the textile sector.

Another course offered by DET, the degree in Fashion Design and Fashion, enables students to design products in the fashion business. The knowledge of textile technology they acquire allows them to design industrially feasible products. DET is also responsible for the Master courses in Design of Fashion Communication and Design and Marketing of Textile Products, Clothing and Accessories. The department also participates in the Master courses of Micro and Nanotechnologies, Product Engineering, Engineering and Quality Management, Human Engineering, and the degrees in the Industrial Management and Engineering, Product Design, Visual Arts and Chemistry.

Staff

Category	**Total**
Emeritus professor	0
Full professor	1
Associate professor with Habilitation	0
Associate professor	7*
Assistant professor with Habilitation	0
Assistant professor	8
TOTAL	**16**

*1 professor on external service

Category	**Total**
Senior technician	3
IT specialist	0
IT technician	0
Technical assistant	2
Operational assistant	0
TOTAL	**5**

Events

Event	Date	Type
IV Jornadas Engenharia Têxtil - Desbobinar o Futuro da Têxtil	18-20/03/2024	Days
9ª edição do UModa - Zénite	25/5/2024	Presentation
CIMODE 2024	11-13/11/2024	Congress

Link to Society Projects

Project	Description
Scholarship by AcTex - Academia do Têxtil	On October 10, 1st year Textile Engineering student Joana Neto was awarded a scholarship by AcTex - Academia do Têxtil. This scholarship includes summer internships at AcTex's partner companies. This collaboration between the Textile Academy and the University of Minho is fundamental for the professional development of our students and strengthens the link between academia and industry
To-Be-Green and Corte Inglès united to recycle	To mark World Environment Day, which is celebrated every year on June 5, El Corte Inglés and To Be Green, a spin-off from the University of Minho, have announced a partnership to use used clothing collected at El Corte Inglés stores in Lisbon and Vila Nova de Gaia to produce 300 new items from recycled textiles, giving them a second life.
Fashion Design and Marketing degree course students create sustainable uniforms	As part of a protocol between the University of Minho and El Corte Inglés Portugal, a competition has been launched for third-year students on the Fashion Design and Marketing degree course. The challenge? To create sustainable uniforms for the restaurant sector using recycled textiles.
20 students from the Fashion Design Technical course at Escola Profissional do Ave visit DET	20 students from the 10th year of the Fashion Design Technical course at Escola Profissional do Ave visited the Textile Engineering Department and had the opportunity to observe and participate in the production
Scholarship with Academia Sénior de Nine – A MODA NÃO TEM IDADE	Fashion Event (Sunset A Moda Não Tem Age) – the presentation of the sustainable and inclusive fashion collection (clothing for seniors over 75s), developed by the students of the Master's Degree in Design and Innovation of Textile Products from the University of Minho, (which also included other fashion brands), held on July 12th at 7pm, at Nine elementary school.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program
Beatriz Pinto Carneiro	Jorge Padrão Ribeiro	Oscar Novais Carvalho	Study of ultrasonic propagation in fibrous scaffolds and its impact on tumor cell proliferation	Master in Textile Engineering
Beatriz Rodrigues Pinto	Andrea Zille		Aluminosilicates functionalized with biologically synthesized metal nanoparticles for multifunctional textiles	Master in Textile Engineering
Gil Carneiro Dinis	Maria José Marques Abreu		Study on the Influence of Different Types of Fibers and Textile Structures on Thermal Management Capability	Master in Textile Engineering
Noémia Gomes Gil	Inês Martins do Amaral		A moda na Golden Age Of Hollywood: As estrelas e os seus figurinos como impulsionadores de tendências de moda	Master in Fashion Communication Design
Sofia Teles Batista	Maria da Graça Guedes	Daniel dos Santos Cardoso	O papel da moda na expressão das (trans)identidades	Master in Fashion Communication Design
Ana Correia Ribeiro	André Paulo Catarino		Estudo das Estratégias de Comunicação Visual na Indústria da Moda e o seu Impacto na Identidade da Marca e Perceção dos Consumidores. Estudo de Caso da Victoria's Secret	Master in Fashion Communication Design
Corália Machado Moreira	Maria Graça Guedes		The Influence of Market Trends on the Creation of Fashion Collections	Master in Design and Innovation of Textile Products
Luana Cruz Silva	Joana Lourenço Cunha		Sustainability, Circularity and Functionality - Optimizing Baby Clothing	Master in Design and Innovation of Textile Products
Patrícia Machado Gomes	Maria Graça Guedes		Athena Project: A Case Study on Online Fashion Design Courses	Master in Design and Innovation of Textile Products

4.5.7 – Department of Informatics

The mission of the Department of Informatics of the University of Minho (DIUM) is the dissemination of knowledge (foundations, methods and applications) in the areas of Computer Science and Software Engineering, with a particular emphasis on Computer Programming, Verification and Security, Artificial Intelligence, Distributed and Reliable Systems, Information Security and Criptography, High-Performance Computing, Software Engineering, Logic and Formal Methods, Data Science, Intelligent Systems, and Communications and Computer Networks. It promotes a rigorous approach to computer problem solving based on the adoption of formal models and systematic methods of analysis and development. It fulfills its mission by teaching undergraduate, graduate and postgraduate courses - at master and doctorate levels - and carrying out research and development projects in articulation with different research centers, namely the Center Algoritmi and INESCT TEC.

The excellence of the different academic degrees offered by DIUM is witnessed by their everincreasing attractivity nationwwide, as well as by exceptional and continuous demand of DIUM graduates by national and foreign employers. DIUM degrees are backed by an internationally recognised research record carried on in the research structures mentioned above, and several partenrships with external institutions from the International Iberian Nanotechnology Laboratory (INL) to the United Nations University (UNU-EGOV). This makes DIUM a huge training and research ecosystem involving academic staff, researchers, several doctoral students and post-doc fellows.

Staff

Category	**Total**
Emeritus professor	2
Full professor	5
Associate professor with Habilitation	9
Associate professor	7
Assistant professor with Habilitation	2
Assistant professor	22
TOTAL	47

Category	**Total**
Senior technician	2
IT specialist	2
IT technician	1
Technical assistant	2
Operational assistant	0
TOTAL	7

Events

Event	**Date**	**Type**
Jubilation ceremony of Alberto José Proença, Full Professor	14/06/2024	Jubilation ceremony
Bioinformatics Open Days	14-17/02/2023	Days
Codeweek 2024	15-17/10/2024	Days
SEI 2024	06-09/02/2024	Days

Link to Society Projects

Project	Description
CLAV: Classification and Evaluation of Documentation in Portuguese Public Administration	Computer consulting services for the "M51 Platform - CLAV - Digital Archive: Modular platform for the classification and evaluation of public information"; Contractor: Direção-Geral do Livro, dos Arquivos e das Bibliotecas

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Alícia Soares Oliveira	António Luís Sousa	Cláudia Brito	Federated Learning-based Artifact Correction in Brain MRIs in HPC environments	Master in Biomedic Engineering	
Tomás Alves Lima	Victor Alves	Daniel Novák	Segmentation of deep brain nuclei from MRI - Can higher magnetic field help?	Master in Biomedic Engineering	UMinho + Czech Technical University
Ana Coutinho Alves	Victor Alves	Jan Egger	Emerging Technologies in Medical Imaging	Master in Biomedic Engineering	UMinho + IKIM (Essen, Alemanha)
Conceição Francisco Manuel	Solange Rito Lima	Paulo Martins de Carvalho	Caracterização de tráfego de aplicações e serviços atuais: Videoconferência como caso de estudo	Master in Engineering of Computer Networks and Telematic Services	
Adalberto Mendes João	Joaquim Henriques Macedo		Wildlife Conservation Using UAV and LoRa Network	Master in Engineering of Computer Networks and Telematic Services	
Erikson Neves Tomas	António Duarte Costa	Pedro Nuno Sousa	Software Defined Vehicular Networks (SDVN): Traffic Routing Process Management	Master in Engineering of Computer Networks and Telematic Services	
Hélder Maia Martins	José Bacelar Almeida		Quantum Resilient Security Proofs	Master in Engineering Physics	
Eduardo Vieira Araújo	Luís Soares Barbosa	Leonardo Novo	Advantages and Limitations of Spatial Search by Continuous-Time Quantum Walk	Master in Engineering Physics	
Tiago Marques Pereira	João Pedro Alpuim	Luís Ricardo Jacinto	Graphene Transistor Integration in Flexible and Transparent Substrates for Optogenetic Neural	Master in Engineering Physics	
Maria José Costa Ramos	João Tiago Paulo		Injeção de faltas reprodutível em sistemas de armazenamento local	Master in Informatics Engineering	
Joana Esteves Dantas	António Luís Sousa		Implementação de um SIEM	Master in Informatics Engineering	

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Bruno Jardim Machado	Luís Soares Barbosa		Analyzing Quantum Learning protocols with ZX	Master in Informatics Engineering	
Ana Gião Gomes	António Nestor Ribeiro		Modelação e Desenvolvimento de Aplicação Mobile de Seguros de Vida	Master in Informatics Engineering	
Rita Rego Sousa	Hugo Abreu Peixoto		Knowledge Extraction and Management Platform for Internal Audit	Integrated Master's in Biomedical Engineering, Medical Informatics Branch	
Catarina Dias de Oliveira	José Ferreira Machado		Melhorar a Auto-Gestão da Diabetes ao Permitir Intervenções Personalizadas de Mudança de Comportamento: uma Abordagem com Human Digital Twins	Integrated Master's in Biomedical Engineering, Medical Informatics Branch	
Ciarán Tavares McEvoy	Víctor Rodrigues Alves	Tiago Gil Oliveira	Previsão da evolução da doença de Alzheimer - Um estudo com abordagem multimodal	Integrated Master's in Biomedical Engineering, Medical Informatics Branch	
Eva Pires de Castro	Maria João Nicolau (DSI)		Security Data Analytics in 6G Open Networks	Master in Telecommunications and Informatics Engineering	Optare Solutions, Vigo, Spain
José Oliveira Gomes	Adriano Moreira (DSI)	Ivo Miguel Silva (DSI)	Modelos de propagação de Sinais de Rádio em Ambientes Interiores	Master in Telecommunications and Informatics Engineering	
Ana Antunes Marques	Maria João Nicolau (DSI)	António Costa (DI)	Encaminhamento Geográfico em Redes Veiculares	Master in Telecommunications and Informatics Engineering	
Maria Albuquerque Regueiras	Paulo Martins Carvalho	Maria Solange Lima	Detection and Classification of Anonymous Traffic using Machine Learning	Integrated Master's in Informatics Engineering	
Maria Nova Dias	Pedro Rangel Henriques		Authink: A game to train Computational Thinking for Autistic people	Integrated Master's in Informatics Engineering	
Rui Neto Reis	Pedro Rangel Henriques		AI in White Coat: Utilizing Large Language Models for Medical Interviews	Integrated Master's in Informatics Engineering	

4.5.8 – Department of Production and Systems

The Department of Production and Systems (DPS) is an organic subunit of the School of Engineering of the University of Minho, having its origin in the Production and Systems area created in 1976. DPS has a highly qualified and committed PhD teaching staff that assure the quality of the teaching/learning process. The Production and Systems Area was pioneer in the teaching of Industrial Engineering and Management in Portugal, known at the time as Production Engineering, in courses that had as main objective to train Engineers able to deal with the problems of optimization and rationalization of resources in small and medium size industry.

At present, the DPS' mission is to generate, disseminate and apply scientific and technological knowledge in the fields of Systems Engineering and Industrial Processes and Management and Technology, thus contributing to the achievement of the mission of the School and the University of Minho. The main objective of the courses taught is to train staff, not only with technical and scientific skills in the area of Industrial Engineering and Management (production organization, production planning and control, quality, logistics, costs, optimization, information systems, hygiene and safety, project management, computer-assisted manufacturing, etc.), but also with transversal skills (team work, leadership, conflict management, communication, etc.), capable of guaranteeing a competitive performance for the productive systems of the companies where they are inserted.

Staff

Category	**Total**
Emeritus professor	1
Full professor	3
Associate professor with Habilitation	6
Associate professor	9*
Assistant Professor with Habilitation	2
Assistant professor	21
TOTAL	42

*1 professor on external service

Category	**Total**
Senior technician	1
IT specialist	1
IT technician	1
Technical assistant	3
Operational assistant	0
Technical Coordinator	1
TOTAL	7

Events

Event	Date	Type
20th ESICUP Meeting	17-19/04/2024	Conference
30th Anniversary of the Master's Course in Human Engineering	17/05/2024	Workshop
CEP@UMinho2024	08-17/07/2024	Workshop
Jubilation ceremony for Professor M. Madalena T. Araújo	12/3/2024	Jubilation ceremony
Jubilation ceremony for Professor Goran Putnik	6/2/2024	Jubilation ceremony

Link to Society Projects

Project	Description
"Voluntariado na UMinho – UMinho em Campo: Juntos na Transformação"	A group of teachers and students from the 1st year of the Master's in Industrial Engineering and Management took part in the 2nd edition of the EGALITARIAN project, which took place from 26 to 30 August in Denmark. The aim of EGALITARIAN is to foster collaboration between students from different countries by realising real projects whose solutions improve the work and lives of waste pickers in Brasilia.
1st/2nd and 3rd DPS Dinner-Debates	As part of the series of dinner-debates, the first was held on the theme of Guimarães, European Green Capital.The second dinner-debate was held on the theme of Academia as a factor in business development; and the third was held on the theme The importance of Associations in building a good network of contacts.
2ª Edição do Projeto EGALITARIAN	A group of teachers and students from the 1st year of the Master's in Industrial Engineering and Management took part in the 2nd edition of the EGALITARIAN project, which took place from 26 to 30 August in Denmark. The aim of EGALITARIAN is to foster collaboration between students from different countries by realising real projects whose solutions improve the work and lives of waste pickers in Brasilia.
Apresentações Finais do Projeto "Revitalizando Espaços Verdes: Desafios e Oportunidades para a Geração Z"	Special Session featuring the presentations of the projects developed by students from the elective course UMinho Z-Tec+, "Preparing Generation Z Beyond Technologies," during the second semester of the 2023-2024 academic year, in collaboration with the Landscape Laboratory, Guimarães. This session took place on May 28, 2024, at the Landscape Laboratory, Guimarães, and included the special participation of the Director of the Department of Environment and Sustainability of the Municipality of Guimarães and Vice President of the Landscape Laboratory, the Dean of the School of Engineering of the University of Minho, and the Pro-Rector for Sustainability and Campus Management of the University of Minho.
ARQUS project (2024-2026)	Team member of the project "Driving Social innovation with AI-Powered Challenge-Based Learning", project funding by ARQUS Innovation Fund, in colaboration with University of Lyon, Vilniaus Universitetas, University of Minho, Universitat Leipzig, Università Degli Studi di Padova, Universidad de Granada. Main objective: Conduct training sessions for university faculty to introduce a teaching methodology that integrates challenge-based learning, service learning, and artificial intelligence for addressing social issues.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Larissa Ferreira Tomaz	José Dinis Carvalho		Operational Excellence System for Management Research & Development Projects and Teams	Master in Engineering Projects Management	
Ricardo Antunes Noversa	Anabela Pereira Tereso	Paulo Ferreira de Sousa	Application of Design Thinking in the Product Ideation Phase: use of agile methodologies	Master in Engineering Projects Management	
Pedro Teixeira Nunes	Anabela Pereira Tereso	Pedro Abreu Ribeiro	The Best Practices of Governance and Benefit Management in University-Industry Collaborations	Master in Engineering Projects Management	PMO partnership UMINHO-Bosch
Ana Costa Silva	Nélson Costa		Ergonomic evaluation for preventing WMSD in shoes industry	Master in Human Engineering	
Hugo Couto Jesus	Celina Leão	Susana Costa	Human error in accidents at work: Contributions in the transition to industry 5.0	Master in Human Engineering	
Jorge Lobo Peixoto	Paula Carneiro	Álvaro Sampaio (EAAD)	Ergonomic design of a model office for a real estate company	Master in Human Engineering	
Cristiana Torres Andrade	Cristina Rodrigues	Eusébio Nunes	Study of quality requirements in engineering project management	Master in Quality Engineering and Management	Bosch, Braga
Roberth Diniz Pereira	José Pedro Domingues	Carina Pimentel	Analysis of Non-Conformities Raised in ISO 9001 Audits in Portuguese Municipal Chambers	Master in Quality Engineering and Management	EQ. CIDADE SOCIAL UNIPESSOAL LDA
Samuel Fernandes Silva	Eusébio Nunes	Cristina Rodrigues	Risk Management and Quality Gates in New Product Development projects: a case study in the automotive industry	Master in Quality Engineering and Management	Bosch, Braga

Student	Supervisor 1	Supervisor 2	Thesis Title	Program	Company Involved
Ana Veloso Lobarinhas	Senhorinha Fortunas Teixeira	Micael Teixeira Gonçalves	Evaluation of quality management procedures for the implementation of SAP in a luxury leather goods industry	Master in Engineering and Operations Management	ATEPELI
Afonso Falcão Florim	Paulo Martins		Representation of Packaging and Shipping Operations in a Smart Manufacturing System	Master in Engineering and Operations Management	
Guilherme Sousa Silva	Anabela Alves		Improvement of production processes using Lean Thinking principles in a section of an automotive components company	Master in Engineering and Operations Management	Continental Advanced Antenna
Maria Sousa Almeida	Ana Coutinho Rocha	Joel Filipe Soares	Modelling and Optimizing the Charging of an Electric Vehicles Fleet	Master in System Engineering	
Maria Silva Guerra	Maria do Sameiro Carvalho	Carina Oliveira Pimentel	A framework for determining the ideal level of modularization for a construction project – Case study	Master in Industrial Engineering and Management	DST
Ana Coelho Jorge	Rui Pereira Lima		Analysis and improvement of productive processes for a MES System implementation	Master in Industrial Engineering and Management	Continental-Indústria Têxtil do Ave
Bernardo Lemos Fernandes	José Vasconcelos Oliveira	Marcelo Nunes Henriques	Simulation and study of the internal logistics based on AGVs of an electrical components company	Master in Industrial Engineering and Management	WEGeuro

4.5.9 – Department of Information Systems

The Department of Information Systems offer degree programs and training focused on information systems and technologies. Such programs address competencies for a wide range of professional functions that embrace the three pillars of engineering and management of information systems: information technologies, the information processed by those technologies; and the human and social endeavors and situations that encompass the processing of information.

The emerging complexity of the relevant phenomena and professional activities justify the use of systems thinking and systemic approaches. These approaches, combine with other problem-solving strategies like design thinking, are used for the analysis, understanding and redefinition of human activity situations and for the analysis, design and construction of computer-based artifacts. The recognition of the quality of the programs offered by the department is evidenced by the large number of their students and by the abundant and continued demand from domestic and foreign employers for their graduates.

The department seeks to contribute to the advancement of the professional practices in engineering and management of information systems through the development of solutions for information systems and technologies problems and challenges, and through the development of approaches, methods, techniques, and tools for addressing those problems and challenges.

Staff

Category	**Total**
Emeritus professor	0
Full professor	4*
Associate professor with Habilitation	7
Associate professor	3**
Assistant Professor with Habilitation	1
Assistant professor	12***
TOTAL	27

*1 professor on external service;

** 1 professor on external service;

*** 2 professors on external service.

Category	**Total**
Senior technician	1
IT specialist	0
IT technician	1
Technical assistant	3
Operational assistant	0
Technical Coordinator	0
TOTAL	5

Events

Event	Date	Type
Comunidade de Prática de Engenharia de Software da Universidade do Minho	14/01/2024	Debate
18th Research Challenges in Information Science	14-17/05/2024	Conference
Summer School "The Digital Transformation of the Wine Industry and Wine Tourism"	01-06/07/2024	Summer School
Retiro DSI 2024	22/07/2024	Open Day
25th anniversary of the Department of Information Systems	25/10/2024	Ceremony

Link to Society Projects

Project	Description
The Computer Museum and the Smartphone Museum	Preserving history, promoting equipment and giving them the real importance, they had in our lives. At the University of Minho, there are two museums that bring together authentic gems of information technology and smartphones.

Most relevant 2nd cycle dissertations

Student	Supervisor 1	Supervisor 2	Thesis Title	Program
Cristiana Seixas Vieira	Maribel Yasmina Santos	António Costa Vieira	Enhancing Data Analytics and Visualization by Process Mining	Master in Engineering and Management of Information Systems
Helder Pinto Teixeira	Jorge Oliveira e Sá		A Data Drift Approach to Update Energy Prediction Machine Learning Models	Master in Engineering and Management of Information Systems
Pedro Magalhães Gonçalves	Miguel Abrunhosa de Brito		Failure prediction using multimodal classification of PCB images	Master in Engineering and Management of Information Systems
Inês Dias Ferreira	Filipe Lopes Meneses		Development of a Digital Performance Management System	Master in Systems Engineering
Bruno Martins Carvalho	Francisco Monteiro Duarte		Implementing a BackOffice system in a Fintech company	Master in Systems Engineering
Sara Mendes Figueiredo	Rui Dinis de Sousa		BPM Technology: A Comparative Study between SAP Signavio e Celonis	Master in Systems Engineering
Joana Ribeiro Ruivo	Pedro Ribeiro		Documentation and improvement of processes to obtain certification in an information systems company	Master in Engineering Project Management
Pedro Teixeira Nunes	Pedro Ribeiro	Anabela Tereso	The Best Practices of Governance and Benefit Management in University-Industry Collaborations	Master in Engineering Project Management

5 – INNOVATION AND RESEARCH

5.1 – FCT Evaluation

From the nine School of Engineering's research centres, eight were evaluated with Very Good and Excellent by the Foundation for Science and Technology (FCT) in the last evaluation (2019).

Excellent – CEB | CMEMS |ISISE

Very Good – 2C2T | ALGORITMI | HASLAB | IPC | METRICS

Good – CTAC

5.2 – Collaborative Laboratories

Through its research centres the School of Engineering of the University of Minho collaborates with 14 collaborative laboratories.

Collaborative Laboratories
ADVID - Vines&Wines
ARISE - Laboratório Associado para Produção Avançada e Sistemas Inteligentes
BIOREF
BuiltColab
CCG - Centro de Computação Gráfica
CoLab for Data Drive Innovation Services
CoLab4Food
CoLAB VORTEX
DTx - Digital Transformation Colab
ECOLab
LABBELS - ASSOCIATE LAB
Laboratório Associado de Sistemas Inteligentes (LASI)
ProChild
RAIL COLAB

5.3 – Research Centre Activities

5.3.1 – Centre of Textile and Science Technology – 2C2T

The Centre for Textile Science and Technology (2C2T) is recognized for excellent research in the field of Fibrous Materials Engineering and Design and aims to help society tackle the biggest and most pressing problems and to provide the knowledge base for the continuing viability of the textile value chain for global competition. To accomplish this, the Unit adopts a multidisciplinary approach, carrying out research work within the University and in collaboration with other universities, research institutions and companies, covering the complete supply chain. Nowadays, the Unit involves 47 collaborators and 31 Integrated Researchers organized into two research groups, namely the Fibrous Materials Engineering group and the Fibre-based Product Design group. Due to the renovation of the textile industrial sector, the new emerging technologies in this sector and above all the profound changes that have occurred at 2C2T in the last 6 years in terms of research lines, infrastructures and human resources, the current organizational model no longer meets the requirements of the centre.

The previously defined strategy has led, in the 2018-2023 period, to the achievement of the projected results and some indicators exceeded expectations, having observed a significant increase in the annual budget in projects (+110%) and publications in international journals (+73%). However, 2C2T went through significant changes, especially in terms of human resources, with the hiring of more full-time researchers and new laboratory spaces and equipment.

Staff

PhD full members	Internal	External	**Total**
	35	-	**35**
PhD associated members	Total	-	-
	1	-	-
Technical staff	Total	-	-
	6	-	-

Publications

Journals and proceedings (SCOPUS)

Indexed journals (Scimago quartil)	Q1	Q2	Q3	Q4	Non-rated (@ SCOPUS)	**Total**
	42	27	7	1	0	**77**
Indexed proceedings	-					

Books

Type	International	National	Total	
Authoring	-	-	-	-
Edition	-	-	-	
Book of proceedings	-	-	-	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS) book	7	0	**7**	

Other publications

Non-indexed journals	3
Non-indexed proceedings	3

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	36	4	2

Theses and dissertations	Number
PhD theses completed	**3**

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	4	0	**4**
International patents	Submitted	Granted	Total
	4	0	**4**

Achievements

Major achievements	**Identification**		
Flagship publications	**The aqueous processing of carbon nanofibers via cellulose nanocrystals as a green path towards e-textiles with n-type thermoelectric behaviour**	**Sodium alginate-based multifunctional sandwich-like system for treating wound infections**	**Advancing infrastructure resilience: A polymeric composite reinforcement grid with self-sensing and self-heating capabilities**
	Calvo, V.; Paleo, A. J.; González-Domínguez, J. M.; Muñoz, E.; Krause, B.; Pötschke, P.; Maser, W. K.; Benito, A. M. Carbon 2024, 217, 118640, DOI: 10.1016/j.carbon.2023.118640	Ribeiro, A. R., Teixeira, M. O., Ribeiro, L., Tavares, T. D., Miranda, C. S., Costa, A. F., ... & Felgueiras, H. P. (2024). Biomaterials Advances, 162, 213931. DOI: 10.1016/j.bioadv.2024.213931	Abedi, M.; Al-Jabri, K.; Han, B.; Fangueiro, R.; Lourenço, P.B.; Correia, A.G. Constr. Build. Mater. 2024, 435, 136730. DOI:10.1016/j.conbuildmat.2024.136730

Major achievements	Identification		
Flagship projects	**BE@T – Bioeconomia para Têxtil e Vestuário para Reforço da Bioeconomia Nacional**	**AGENDA GREENAUTO - GREEN INNOVATION FOR THE AUTOMOTIVE INDUSTRY**	**Antimicrobial and halocromic fiber-based wound dressings using novel pyrimidine-derived molecules**
	Project for the development of a sustainable bioeconomy, seeking a paradigm shift for the sector and the creation of high value-added products from biological resources, as an alternative to fossil-based materials.	Aims to transform the national automotive industry in the context of the current transition to low-emission vehicles. The University of Minho's participation is aimed at developing technical textiles, airbag modules and HMI steering wheels for the vehicle.	The main objective of this project is to produce a new generation of smart fiber-based nonwoven wound dressings by the incorporation of novel and biocompatible pyrimidine-derived molecules with both halochromic and antimicrobial properties.
Scientific recognition	**Three Researchers from 2C2T Among the Top 2% Most Cited Worldwide**	**Raúl Fangueiro, New Member of the National Council for Science, Technology, and Innovation (CNCTI)**	**Helena Felgueiras awarded a UT Austin Fellowship**
	Helena Felgueiras, Andrea Zille and Raúl Fangueiro are among the most cited scientists in the world. They're are among the 66 scientists from UMinho who rank within the top 2% most cited worldwide over the past year, according to a study by Stanford University (USA) and the Elsevier publishing group.	Raúl Fangueiro, member of 2C2T, joined the National Council for Science, Technology, and Innovation (CNCTI). This council collaborates with the Ministry of Economy and the Sea, as well as the Ministry of Science, Technology, and Higher Education, promoting the development of the national scientific and technological system.	The Assistant Researcher and member of the High-Performance Engineered Textiles research team at 2C2T - Centre for Textile Science and Technology, was the top-ranked candidate in the 2024 edition of the 'Short-Term Research Internships at the University of Texas at Austin' initiative.
Scientific leadership	**Shanghai Global Ranking of Academic Subjects 2024**	**Co-organization of the 7th edition of the International Fashion and Design Congress.**	**Fibrenamics - Institute of Innovation in Fiber-based Materials and Composites**
	In the ShanghaiRanking's Global Ranking of Academic Subjects 2024, UMinho achieved its highest-ever ranking in Textile Engineering, securing 21st place worldwide. UMinho is also the top university in the European Union in this field and ranks among the top 50 textile universities globally.	With the theme "Cultural and Productive Landscapes of Fashion," CIMODE 2024 is the result of a collaboration between our center, Department of Textile Engineering, and the Department of Architecture and Industrial Design at the Università degli Studi della Campania "Luigi Vanvitelli."	Presidency of Fibrenamics - Institute of Innovation in Fiber-based Materials and Composites

5.3.2 – ALGORITMI Centre – CALG

The ALGORITMI Research Centre is a Research Unit of the School of Engineering, UMinho, that develops R&D activity in Information and Communications Technology and Electronics (ICT&E), spreading into six major fields: (1) Computer Science and Technology (CST); (2) Information Systems and Technology (IST); (3) Computer Communications and Pervasive Media (CCPM); (4) Industrial Electronics (IE); (5) Industrial Engineering and Management (IEM); (6) Systems Engineering and Operational Research (SEOR). This centre is a multi-disciplinary Research Unit, with a heterogeneous international activity, maintaining active exchange programs with universities and research centres all around the world.
Furthermore, the MSc and PhD projects supervised by those Faculty members are developed at ALGORITMI. ALGORITMI Research Centre focuses its activity on projects that explore a strong link with the community, namely, the industry and the public administration.
Highlights of achievements:

- Aggregation and organization of human and material resources with the necessary quality and dimension to respond to the specific objectives of national scientific and technological policy.
- Response to public policies and scientific challenges, with innovative, technological, economic, social, environmental and wellbeing-related integrated solutions;
- Response to challenges of industry and organizations combining advanced manufacturing processes, smart technologies.
- Promotion of scientific careers for doctorate holders.
- International boost of science and technology activities.

Staff

PhD full members	Internal	External	**Total**
	106	15	**121**
PhD associated members	Total		
	137		
Technical staff	Total		
	3		

Publications

Journals and proceedings (SCOPUS)

Indexed journals (Scimago quartil)	Q1	Q2	Q3	Q4	Non-rated (@ SCOPUS)	**Total**
	101	80	9	1	15	**206**
Indexed proceedings	230					

Other publications

Non-indexed journals	32
Non-indexed proceedings	4

Books

Type	International	National	Total	
Authoring	-	-	-	**3**
Edition	3	-	3	
Book of proceedings	-	-	-	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS) book	20	-	**20**	

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	96	258	10

Theses and dissertations	Number
PhD theses completed	**37**

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	-	-	**0**
International patents	Submitted	Granted	Total
	-	16	**16**

Participation in collaborative laboratories
DTx - Digital Transformation Colab
ProChild
CoLab for Data Drive Innovation Services
CCG - Centro de Computação Gráfica

Achievements

Major achievements	**Identification**		
	A Dynamic Neural Field Approach for Intelligent Cockpits: Online Learning and Prediction of Traveling Routines	**An intelligent path management in heterogeneous vehicular networks**	**Hybrid approaches to optimization and machine learning methods: a systematic literature review**
Flagship publications	Guimarães, P.; Ferreira, F.; Wojtak, W.; Barbosa, P.; Monteiro, S.; Bicho, E.; Erlhagen, W. IEEE Transactions on Intelligent Transportation Systems Vol. 25 N° 12 (doi/10.1109/TITS.2024.3463389)	Hapanchak, V.; Costa, A.; Pereira, J.; Nicolau, M. Vehicular Communications Vol. 45 N° C (doi/10.1016/j.vehcom.2023.100690)	Azevedo, B.; Rocha, A.; Pereira, A. Machine Learning Vol 113 (doi/10.1007/s10994-023-06467-x)

Major achievements	Identification		
Flagship projects	**PT SMART RETAIL: Portugal como referência para a nova geração de retalho autónomo e inteligente**	**Be.Neutral**	**ATE - Aliança para a Transição Energética**
	This Agenda is aimed at developing, demonstrating and industrialising technologies to support a new generation of retail, with the adoption of process dematerialisation solutions applied to the sector that provide a seamless and ultra-comfortable experience for its users, with significant economic and environmental efficiency and considerable internationalisation potential.	The BE. Neutral Agenda aims to accelerate the development and industrialisation of a new generation of zero carbon mobility products and services from Portugal [zero carbon buses; BEN4Us light vehicle; 6E Microcar; modular 2-wheel vehicle], connected with data and connectivity platforms and energy systems.	Development of power electronics solutions, specifically laboratory prototypes and digital control systems, which will be articulated in agreement with the other project partners.
Scientific recognition	**Best Student Paper Award at the 20th International Conference on Artificial Intelligence Applications and Innovations**	**EEUM Diploma of Recognition of Merit for Scientific Publication**	**World's Top 2% Scientists 2024**
	"A Machine Learning Approach for Points of Interest Extraction and Event Classification" won the Best Student Paper Award at AIAI 2024. This was a joint project between the ALGORITMI & CMAT & CCG teams as part of the Be.Neutral Project – WP6/ PPS 14 – Light Vehicle BEN – Robotics and reports the results of Pedro Dias' master's thesis in Industrial Electronics and Computer Engineering, supervised by Flora Ferreira and Estela Bicho.	Adriano Tavares; Ana Cristina Braga; António Ribeiro; Carina Pimentel; João Luis Afonso; José Machado; Paulo Sampaio; Paulo Cortez; Paulo Novais; Paulo Afonso; Pedro Arezes; Vítor Monteiro.	João Luís Afonso; João Varajão; Paula Ferreira; Paulo Cortez; Sandro Pinto; Vitor Monteiro.
Scientific leadership	**MIT Portugal**	**Associação Portuguesa da Qualidade (APQ)**	**Laboratório Associado de Sistemas Inteligentes (LASI)**
	Pedro Arezes is the director of MIT Portugal Program.	Paulo Sampaio was elected president of the Portuguese Association for Quality (APQ)	The Associated Laboratory for Intelligent Systems (LASI) is led by the Algoritmi Centre and joins the Institute for Polymers and Composites (IPC), with 11 other research centres in the country.

5.3.3 – Centre of Biological Engineering – CEB

CEB was created 30 years ago at the University of Minho, being recognized as a national reference research unit on Biotechnology and Bioengineering.

CEB combines key expertise in fundamental science with engineering sciences, covering the molecular, cellular and process scales, to obtain value-added products or processes in the Food, Chemical, Biotech, and Environmental sectors. CEB develops its research activities in 4 Research Thematic Lines:

- Industrial Biotechnology & Bioengineering – key area holding the potential to revolutionize the way chemicals and energy are currently produced by employing microorganisms as biocatalysts and industrial by-products and wastes as secondary raw materials.
- Food Biotechnology & Bioengineering – aiming to enhance the functionality, quality, safety and nutritional value of food.
- Environmental Biotechnology & Bioengineering - focused on remediation processes for contaminated environments and to valorize recalcitrant and bio-waste materials by converting them into liquid and gaseous bioenergy carriers, bioelectricity, bulk chemicals or new catalysts.
- Health Biotechnology & Bioengineering - comprises biofilm science, virulence of pathogenic fungi, bioactive peptides/proteins, biomaterials and polymers for drug delivery and regenerative medicine and systems and synthetic biology approaches.

Staff

PhD full members	Internal	External	**Total**
	80	5	**85**
PhD associated members	Total		
	2		
Technical staff	Total		
	16		

Publications

Journals and proceedings (SCOPUS)

Indexed journals (Scimago quartil)	Q1	Q2	Q3	Q4	Non-rated	**Total**
	189	38	3	4	9	**243**
Indexed proceedings	4					

Other publications

Non-indexed journals	-
Non-indexed proceedings	53

Books

Type	International	National	Total	
Authoring	15	-	15	**18**
Edition	1	-	1	
Book of proceedings	-	1	1	
Outreach book	-	-	-	
Educacional book	-	1	1	
Non-indexed (@SCOPUS)	-	-	**0**	

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	89	87	15

Theses and dissertations	Number
PhD theses completed	26

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	-	-	**0**
International patents	Submitted	Granted	Total
	1	-	**1**

Participation in collaborative laboratories
ECOLab
BIOREF
ADVID - Vines&Wines
CoLab4Food
LABBELS - ASSOCIATE LAB

Achievements

Major achievements	Identification		
	Non-conductive silicon-containing materials improve methane production by pure cultures of methanogens.	**Engineering Acetobacterium wieringae for acetone production from syngas.**	**Recovery and encapsulation of Dunaliella salina β-carotene through a novel sustainable approach: Sequential application of an ionic liquid as naturally-derived solvent and emulsifier**
Flagship publications	Braga, Cátia S.N.; Martins, Gilberto; Soares, O. Salomé G.P.; Pereira, M. Fernando R.; Pereira, Inês A.C.; Pereira, Luciana; Alves, M. Madalena; Salvador, Andreia F., Bioresource Technology, 408(131144), 2024; https://doi.org/10.1016/j.biortech.2024.131144	Moreira, João P.C.; Montenegro-Silva, Pedro; Alves, Joana I.; Domingues, Lucília., Journal of Environmental Chemical Engineering, 12(6), 114980, 2024; https://doi.org/10.1016/j.jece.2024.114980	Sousa, Vítor; Hijo, Ariel; Lüdtke, Fernanda L.; Vicente, António A.; Dias, Oscar; Geada, Pedro, Food Chemistry, 458(140232), 2024
	BE@T - Biotechnological processes for obtaining materials/ingredients with potential value in the textile and clothing industry	**Blue Bioeconomy Hub Platform**	**GIATEX - Intelligent Water Management at ITV**
Flagship projects	Development of new biotechnological processes and the optimization of methods, namely enzymatic treatment and fermentation processes to obtain new bioactive and functional ingredients from waste from different industries and their recovery through of its application on ITV.	Boost the development of new cutting-edge bioprocesses, based on the sustainable application of marine bioresources in multiple industries.	Aims to create an effective system for managing water consumption in textile finishing companies, from the processes' automation and control to the introduction of recycling practices and reduced water consumption finishing technologies, closing the cycle by implementing the most suitable wastewater treatment technologies for each process typology.
	EEUM Diploma of Recognition for Meritorious Scientific Publication 2024	**Highly Cited Researchers 2024**	**Shanghai Ranking's Global Ranking of Academic Subjects 2024**
Scientific recognition	António Vicente; Artur Paulo; Carla Silva; Francisco Gama; Isabel Belo; José Teixeira; Lígia Rodrigues; Lúcia Simões; Lucília Domingues; Ricardo Pereira.	José António Teixeira, from the Center for Biological Engineering, is one of the two scientists among the most cited in the world by other researchers in the University of Minho.	The CEB areas that stood out the most in the Shanga"y Global Ranking of Academic Subjects 2024, in the University of Minho, belong to CEB: Food Science and Technology (Top 75), Biomedical Engineering (Top 300), Biotechnology (Top 400), and Chemical Engineering (Top 400).

Major achievements	Identification		
	pan-European Microbial Resource Research Infrastructure - MIRRI	**Leadership of the Foundation for Science and Technology**	**Biodata.pt**
Scientific leadership	CEB hosts the headquarters of the pan-European Microbial Resource Research Infrastructure - MIRRI	Previous CEB director, Madalena Alves, was apointed president of the Foundation for Science and Technology.	Miguel Rocha is the president of the Administration Council.

5.3.4 – Centre for Microelectromechanical Systems – CMEMS

CMEMS was established in December 2013 and supports a research team with high degree of multidisciplinary members, from different backgrounds (engineering, physics, medical) and from academic and industrial fields. CMEMS members include senior researchers, national and internationally distinguished collaborators, post-doctoral investigators, PhD and Master students, as well industrial partners. The focus is on modelling computation, development and micro/nano fabrication of devices and components for two major domains: industrial applications (automotive, aerospace, energy, textile) and biomedical applications (neuroengineering, microendoscopy, surgery, rehabilitation).

CMEMS mission includes the integration of research teams with national and regional key players for new technological developments, being aware that excellence can only be achieved through international cooperation. In this way, CMEMS supports research at international level with European, American, Asia, Australia, and Brazilian Universities in the field of micro/nano fabrication and biomedical applications, leading to a significant number of published works that are produced with international investigators (approximately 40%), as well as with industrial partners.

From 2019, the last evaluation process carried out by the National Science Foundation (FCT), CMEMS was awarded with the grade of Excellent. From 2021, CMEMS became a foundational member of the Associate Laboratory LABBELS, together with CEB.

Staff

PhD full members	Internal	External	**Total**
	40	13	**53**
PhD associated members	Total		
	-		
Technical staff	Total		
	2		

Publications

Journals and proceedings (SCOPUS)

Indexed journals (Scimago quartil)	Q1	Q2	Q3	Q4	Non-rated (@ SCOPUS)	**Total**
	52	32	4	-	3	**91**
Indexed proceedings	12					

Books

Type	International	National	Total	
Authoring	-	-	-	**1**
Edition	1	-	1	
Book of proceedings	-	-	-	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS)	1	-	**1**	

Other publications

Non-indexed journals	-
Non-indexed proceedings	24

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	69	8	-

Theses and dissertations	Number
PhD theses completed	9

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	5	-	**5**
International patents	Submitted	Granted	Total
	2	-	**2**

Participation in collaborative laboratories
RAIL COLAB
LABBELS - ASSOCIATE LAB

Achievements

Major achievements	Identification		
	High-performance and self-powered visible light photodetector using multiple coupled synergetic effects	**PDMS porous microneedles used as engineered tool in advanced microfluidic devices and their proof-of-concept for biomarker detection**	**Exploring local chlorine generation through seawater electrolysis to Extend optical sensor lifespan in marine environments**
Flagship publications	José P. B. Silva, Eliana M. F. Vieira, Katarzyna Gwozdz, Nuno E. Silva, Adrian Kaim, Marian C. Istrate, Corneliu Ghica, José H. Correia, Mario Pereira, Luís Marques, Judith L. MacManus-Driscoll, Robert L. Z. Hoyei and Maria J. M. Gomes, Advanced Functional Materials 2024, vol.34, Issue 49, 2409216, https://doi.org/10.1002/adfm.202409216	R. Maia, P. Sousa, V. Pinto, D. Soares, R. Lima, G. Minas, R.O. Rodrigues, Chemical Engineering Journal, 485, 2024, 149725, 10.1016/j.cej.2024.149725	T. Matos, V.C. Pinto, P.J. Sousa, M.S. Martins, E. Fernández, L.M. Goncalves, Chemical Engineering Journal, vol. 500, 2024, 156836, doi.org/10.1016/j.cej.2024.156836
	Horizon Europe - VINNY: Advanced nano encapsulation of bio-based pesticides and fertilisers for a circular and sustainable viticulture.	**Advancing Space Applications through 3D Voxel-based Multi-material Laser Powder Bed Fusion (SpaceFuse)**	**IMAGINE – Next generation imaging technologies to probe structure and function of biological specimen across scales in their natural context**
Flagship projects	4-year European Comission funded Project dedicated to transforming viticulture into a fully sustainable agriculture by developing eco-friendly nanobiopesticides and nanobiofertilizers from grapevines and organic industrial by-products.	European Space Agency: Development of hybrid 3D printed multi-material rockets	Horizon Europe: The mission is to develop the technologies needed to bridge the molecular scale of structure with the organismal scale of function and to bring those technologies to highly specialised central facilities and standard laboratory models, but also out in the field, at Europe's coastline and on the ocean.
	World's Top 2% Scientists 2024	**EEUM Award for Merit in Scientific Publication**	**Best PhD thesis in the European Union 2024 in the field of Powder Metallurgy - EPMA**
Scientific recognition	Filipe Marques; Filipe Samuel Silva; Júlio Souza; Luís A. Rocha; Paulo Flores.	Filipe Silva; Graça Minas; Hélder Puga; Óscar Carvalho.	Bruno Miguel Pereira Guimarães, a recent PhD student from the Mechanical Engineering doctoral programme, won the prestigious competition for the 'Best PhD thesis in the European Union 2024 in the field of Powder Metallurgy', a prize awarded by the EPMA-European Powder Metallurgy Association.
	LABBELS - Associate Laboratory		
Scientific leadership	CMEMS, together with CEB, host the Associate Laboratory based at the University of Minho. LABBELS will enable both step and leap changes in Biotechnology and Bioengineering, aiming at shaping the future by contributing significantly to the global challenges of securing a Sustainable Bioeconomy.		

5.3.5 – Centre for Territory, Environment and Construction– CTAC

The Centre for Territory, Environment and Construction (CTAC) is a research unit of the School of Engineering of University of Minho (UMinho), recognised by the "FCT – Fundação para a Ciência e Tecnologia" (Foundation for Science and Technology), associated to the Department of Civil Engineering (DEC), with whom it shares resources and namely human resources.

The general objective of the unit is to produce knowledge to support its vision of "Sustainable and Resilient Territories", developing innovative materials and technologies and systems in the fields of built environment, systems and infrastructures for transport, water and wastewater and for territory development, contributing to climate-change-resilient buildings and infrastructures, supporting a steady improvement in the quality of life. To fulfil this objective, CTAC combines R&D activities with advanced training, technology transfer, consulting and services, aiming at fostering engineering and construction sectors and environmental entities to support the quality of cities and territories.

CTAC has a dynamic international cooperation through will partnerships covering the development of research projects by participating in international research networks, mainly in the fields of sustainable environment as well as in international projects of knowledge transfer.

The link between research and society constitutes the driving force of intervention of the unit, where, in addition to the contribution for more sustainable built environment, territories, people play the central role, contributing to the improvement of the quality of life.

Staff

PhD full members	Internal	External	**Total**
	22	-	**22**
PhD associated members	Total		
	4		
Technical staff	Total		
	2		

Publications

Journals and proceedings (SCOPUS)

Indexed journals (Scimago quartil)	**Q1**	**Q2**	**Q3**	**Q4**	**Non-rated (@ SCOPUS)**	**Total**
	35	17	2	3	2	**59**
Indexed proceedings	12					

Other Publications

Type	**Total**
Non-indexed journals	5
Non-indexed proceedings	20

Books

Type	International	National	Total	
Authoring	-	-	-	**9**
Edition	3	-	3	
Book of proceedings	3	3	6	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS) book chapters	-	-	-	

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	24	22	2

Theses and dissertations	Number
PhD theses completed	4

Distinctions and dissemination

Participation in collaborative laboratories
BuiltColab
ECOLab

Achievements

Major achievements	Identification		
Flagship publications	**Optimizing Coastal Protection: Nature-Based Engineering for Longitudinal Drift Reversal and Erosion Reduction**	**Eco-Efficient Mortars for Sustainable Construction: A Comprehensive Approach**	**Automated mapping process of frontal area and thermal potential indexes: GIS algorithm development and implementation**
	Vieira, B., Pinho, J., Barros, J., Carmo, J.A., Ocean & Coastal Management, 2024, 256, 107288.	Reis, R., Camões, A., Ribeiro, M., Malheiro, R., Buildings, 2024, 14, 2812.	Favretto, A.P.O., Souza, L.C.L., Rodrigues, D., Urban Climate, 2024, 53, 101799.

Major achievements	Identification		
Flagship projects	**GlassCON - Incorporation of glass powder waste into concrete: can it be an alternative to fly ash?**	**NBSINFRA - CityNature-Based Solutions Integration to Local Urban Infrastructure Protection for a Climate Resilient Society**	**Strategic model to analyse and design transport networks in the Amazon as an alternative to decrease transport costs in Brazil**
	The GlassCON project will study using glass powder as a substitute for fly ash in concrete production following the closure of thermal power plants in Portugal, which reduced the availability of fly ash.	NBSINFRA is a European project worth approximately five million euros that is looking for natural-based technological solutions to protect critical infrastructures.	The project proposes a strategic model for analysis and development of transportation networks, based on the modeling and analysis of transportation networks under the economic, social and environmental conditions of the region.
Scientific recognition	**World's Top 2% Scientists 2024**	**EEUM Diploma of Recognition of Merit for Scientific Publication**	**UMinho Award for Initiation in Scientific Research 2024**
	Fernando Pacheco-Torgal among the 2% most influential scientists in the world, according to a study of Stanford University and Elsevier	José Luís Barroso Aguiar; Sandra Raquel Leite Cunha	Master's student in Civil Engineering Sofia Sousa, winner of the UMinho Award for Initiation in Scientific Research 2024 by CTAC with the project entitled Valorization of glass from fluorescent lamps in mortars: a sustainable contribution to the circular economy. .
Scientific leadership	**World record of indexed books 2024**	**World Federation of Engineering Organizations (WFEO)**	**Mestre Casais Foundation**
	Fernando Pacheco-Torgal holds the world record for publishing the largest number of indexed books in the field of civil engineering.	José Vieira is in the Executive Board of the World Federation of Engineering Organizations (WFEO).	José Mendes is the Executive President of the Mestre Casais Foundation, which is dedicated to Sustainability, including support to Scientific Studies, a Collectionn of Essays on Sustainablitity and a Cycle of Conferences. .

5.3.6 – High-Assurance Software Laboratory– HASLAB

The High-Assurance Software Laboratory (HASLab) was founded in early 2011 by researchers at the Department of Informatics of the School of Engineering, of which it is currently a Research Unit. Briefly after its creation, HASLab joined the Institute for Systems and Computer Engineering - Technology and Science (INESC TEC), an Associated Laboratory with researchers from several higher education institutions in the north of Portugal. UMinho is currently one of the shareholders of INESC TEC, being HASLab the pole of INESC TEC at this university.

HASLab's mission is focused on the design and implementation of high-assurance software systems: software that is correct by design and resilient to environment faults and malicious attacks. Research Lines HASLab accomplishes its mission by anchoring its research on a rigorous approach to three areas of computer science: Software Engineering, Distributed Systems and Cryptography and Information Security.

Most HASLab members collaborate regularly with key national and international research Centres and ICT companies. These collaborations occur mainly in the context of European and consultancy projects, that constitute the main revenue sources of the Centre. The strategy for the Centre evolution, in particular to attract top post graduate students, is also anchored in these connections. The Centre is currently focusing on improving its prototype-level software development tools to production-level open-source tools, targeting a significant user-base and high-profile applications.

Staff

PhD full members	Internal	External	**Total**
	22	-	**22**
PhD associated members	Total		
	5		
Technical staff	Total		
	-		

Publications

Journals and proceedings (SCOPUS)						
Indexed journals (Scimago quartil)	**Q1**	**Q2**	**Q3**	**Q4**	**Non-rated (@SCOPUS)**	**Total**
	8	4	-	-	-	**12**
Indexed proceedings	20					

Books				
Type	**International**	**National**	**Total**	
Authoring	-	-	-	**-**
Edition	-	-	-	
Book of proceedings	-	-	-	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS)	2	-	2	

PhD

Theses and dissertations	Number
PhD theses completed	5

Distinctions and dissemination

Participation in collaborative laboratories
Vortex Colab
DtX CoLAB

Achievements

Major achievements	Identification		
Flagship publications	**When Amnesia Strikes: Understanding and Reproducing Data Loss Bugs with Fault Injection**	**Databases in Edge and Fog Environments: A Survey**	**Assessing the Impact of Hints in Learning Formal Specification**
	Ramos, M., Azevedo, J., Kingsbury, K., Pereira, J., Esteves, T., Macedo, R., Paulo, J., In Proceedings of the VLDB Endowment, Volume 17, Issue 11, Pages 3017 - 3030, Guangzhou, China, August 26-30, 2024	Ferreira, L., Coelho, F., Pereira, J., ACM Computing Surveys, Volume 56, Issue 11, Pages 1 - 40, 2024	Cunha, A., Macedo, N., Campos, JC., Margolis, I., Sousa, E., ACM/IEEE 44th International Conference on Software Engineering: Software Engineering Education and Training, Lisbon, Portugal, April 14 - 20, 2024
Flagship projects	**EPICURE - High-level specialised application support service in High-Performance Computing**	**Ibex - Quantitative methods for cyber-physical programming**	**ENERSHARE – European commoN EneRgy dataSpace framework enabling data sHaring-driven Across- and beyond- eneRgy sErvices**
	The EPICURE project brings together the supercomputers of the European EuroHPC Joint Undertaking (EuroHPC JU) network to support its users. EPICURE is ready to provide a variety of essential services, including code enablement and scaling, performance analysis and benchmarking, as well as code refactoring and code optimisation.	The Ibex project focus on mathematical methods for modelling and analysing flaws in cyber-physical software, contributing to the thorough development of more advanced technology in fields like medicine, automotive industry or energy.	ENERSHARE aims to create of a common data space at European level, while improving on the one hand, the interoperability, assurance, value and governance models of energy sector data and, on the other hand, the development of digital energy and non-energy services based on data sharing along the value chain.
Scientific recognition	**EEUM Diploma of Recognition for Meritorious Scientific Publication**	**PETALL reached the podium of the fourth edition of the IN3+ Award**	
	Luís Manuel Dias Soares Barbosa; Rui Carlos Mendes Oliveira.	The PETALL project aims at ensuring transparency and privacy in digital services, received €250k to support its integration into the market – initially, at the national level, and in public and private services (healthcare, education, and justice).	

Major achievements	Identification		
	Luís Soares Barbosa - Chair of the IFIP Technical Committee 1 - Foundations of Computer Science	**José Creissac Campos - Steering Committee chair of ACM SIGCHI EICS**	**José Nuno Fonseca Oliveira - FME Awards Committee Chair**
Scientific leadership	The International Federation for Information Processing (IFIP) Technical Committee 1 - Foundations of Computer Science (IFIP TC1), an international committee that aims at the development of the theory and computer science and of its bridges with other domains of knowledge and socially relevant applications.	The ACM SIGCHI Engineering Interactive Computing Systems (EICS) conference is one of the most relevant international conferenes devoted to all aspects of engineering usable and effective interactive computing systems.	The FME Awards are a Formal Methods Europe honour that aims to award the FME Fellowship every three years during an FME symposium to researchers and practitioners of formal methods.

5.3.7 – Institute for Polymers and Composites– IPC

IPC is a Research Unit of the Engineering School of UMinho that aims at developing R&D activities in the field of Polymer Science and Engineering. IPC main stated mission is to provide advancements on polymer and composites science and technology for social sustainable development; to generate added value to the polymer, mouldmaking and related industries and, in general, to the society, contributing to the socio-economic growth and to the social wellbeing; and to promote the society awareness of the role and importance of polymeric materials.

IPC is the unique national RU totally devoted to scientific and technological advancements in polymer and composite science and engineering. In this field, IPC adopts a multidisciplinary approach, covering and integrating the scientific disciplines of polymer chemistry, physics, engineering and technology. IPC develops basic research and integrative applied R&D into applications. IPC targets the promotion of scientific excellence and innovation, developing activities at the international leading edge, fostering breakthrough concepts and their practical exploitation.

IPC envisages contributing to the advancement of scientific knowledge in: BASIC KNOWLEDGE R&D AREAS - Advanced materials; Advanced manufacturing technologies; Advanced engineering design. 2. INTEGRATIVE R&D AREAS - Integration of advanced materials Integrative manufacturing; Embedding functions into systems; Immersive engineering. 3. R&D APPLICATIONAL CHALLENGES - Polymers for advanced applications; Circular economy; Digital transformation.

Staff

PhD full members	**Internal**	**External**	**Total**
	22	-	**22**
PhD associated members	Total		
	7		
Technical staff	Total		
	2		

Publications

Journals and proceedings (SCOPUS)						
Indexed journals (Scimago quartil)	**Q1**	**Q2**	**Q3**	**Q4**	**Non-rated (@ SCOPUS)**	**Total**
	37	15	3	-	-	**55**
Indexed proceedings	4					

Other Publications

Type	**Total**
Non-indexed journals	4
Non-indexed proceedings	84

Books

Type	International	National	Total	
Authoring	-	-	-	-
Edition	-	-	-	
Book of proceedings	-	-	-	
Outreach book	-	-	-	
Educacional book	-	-	-	
Non-indexed (@SCOPUS) book chapters	1	-	**1**	

PhD

Year	Number of students	Number of doctorates	Number of Pos-Doc
2024	24	28	1

Theses and dissertations	Number
PhD theses completed	6

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	1	-	**1**
International patents	Submitted	Granted	Total
	2	1	**3**

Participation in collaborative laboratories
DTx - Digital Transformation Colab
LASI- Laboratório Associado de Sistemas Inteligentes

Achievements

Major achievements	Identification		
Flagship publications	**Food Packaging and Shelf Life: Blown film of PLA for packaging with green tea and fish industrial residues: An insight on their properties**	**Composites Science and Technology: Mechanical characterization of polymer-grafted graphene PEG nanocomposites using molecular dynamics.**	**Rapid Prototyping Journal: Development and characterization of composite materials with Multi-Walled Carbon Nanotubes and Graphene Nanoplatelets for Powder Bed Fusion**
	Rodrigues, P., Cunha, A., Andrade, M., Vilarinho, F., Machado, A., Castro, M., 2024, 43, 101283.	Guarda, C., Faria, B., Canongia Lopes, J. N., & Silvestre, N., 2024, 250, 110514	Lopes, A.C., Sampaio, A.M. and Pontes, A.J. (2024), 30, 1355-2546.
Flagship projects	**New Generation Storage**	**INOV.AM – Inovação em Fabricação Aditiva**	**EMBALAGEM DO FUTURO + Ecológica + Digital + INCLUSIVA**
	The New Generation Storage (NGS) project is fully aligned with the European Union's energy transition strategy up to 2040 and the call for the complete electrification of mobility by 2035.	This project aims to develop and disseminate technologies and materials for additive manufacturing, with a view to their application in a wide range of application areas, enabling the production of customized products with high added value.	The project envisages the creation of new products, services and production lines capable of producing sustainable packaging, from raw materials to product design, engineering, molds and tools, processing and manufacturing, information systems and digital transition, social marketing, collection and recycling.
Scientific recognition	**EEUM Diploma of Recognition of Merit for Scientific Publication**	**World's Top 2% Scientists 2024**	
	Ana Vera Alves Machado Nóbrega; Loic Hugues Gilles Hilliou.	Loic Hilliou	
Scientific leadership	**Associated Laboratory for Intelligent Systems (LASI)**	**T-MOB HUB**	
	The Associated Laboratory for Intelligent Systems (LASI) is led by the Algoritmi Centre and joins the Institute for Polymers and Composites (IPC), with 11 other research centres in the country.	This platform covers the main transportation modes and intends to cooperate intensively with the main national actors in the area, along with several international partners. UMinho research centres involved in the project are Algoritmi, CTAC, IPC, ISISE, CMEMS, MEtRICs and 2C2T.	

5.3.8 – Institute for Sustainability and Innovation in Structural Engineering– ISISE

ISISE was created in 2007 involving the Civil Engineering Departments from Universities of Minho and Coimbra. The objective is to continually achieve recognition in research, having leading clusters in Structural Engineering, with top quality R&D+I, and active members. The Unit is based on strong leaderships, with a proven record of internationalization, contracted research, cooperation with industry, top level dissemination in the international arena, PhD students and post-doc collaborators. Therefore, outstanding fundamental and applied research is the driving force of ISISE.

The unit is now organized in four Research Groups, namely: Functional Performance (FP), Historical and Masonry Structures (HMS), Structural Composites (SC), and Steel and Mixed Construction Technologies (SMCT).

The Unit aims to increase the structural and functional performance of Civil Engineering Works, from a perspective of advanced technology and innovation, from Materials to Life Cycle Performance. The approach includes aspects such as advances in experimental and numerical techniques, product development and technology transfer to the industry, durability and reliability, recycle, reuse, conservation and rehabilitation, condition assessment, and risk assessment. In short, ISISE aims at promoting innovation and sustainability, with a link to the construction industry and an up-to-date focus on a swiftly changing world.

The information in the following sections concerns only ISISE at UMinho.

Staff

PhD full members	**Internal**	**External**	**Total**
	49	1	**50**
PhD associated members	Total		
	-		
Technical staff	Total		
	6		

Publications

Journals and proceedings (SCOPUS)						
Indexed journals (Scimago quartil)	**Q1**	**Q2**	**Q3**	**Q4**	**Non-rated (@ SCOPUS)**	**Total**
	134	34	6	1	1	**176**
Indexed proceedings	14					

Other Publications

Type	**Total**
Non-indexed journals	31
Non-indexed proceedings	55

Books				
Type	**International**	**National**	**Total**	
Authoring	3	2	5	**45**
Edition	-	-	-	
Book of proceedings	7	3	10	
Outreach book	30	-	30	
Educacional book	-	-	-	
Non-indexed (@SCOPUS)	-	-	**45**	

PhD

Year	**Number of students**	**Number of doctorates**	**Number of Pos-Doc**
2024	165	56	10

Theses and dissertations	**Number**
PhD theses completed	14

Distinctions and dissemination

Scientific dissemination and Knowledge transfer			
National patents	Submitted	Granted	Total
	1	1	**1**
International patents	Submitted	Granted	Total
	2	2	**2**

Participation in collaborative laboratories
BuiltColab
Laboratório Associado para Produção Avançada e Sistemas Inteligentes (ARISE)

Achievements

Major achievements	Identification		
Flagship publications	**Circular Economy Design and Management in the Built Environment: A Critical Review of the State of the Art**	**Proceedings of the 4th International Conference "Coordinating Engineering for Sustainability and Resilience" & Midterm Conference of CircularB "Implementation of Circular Economy in the Built Environment"**	**A practical guide to the New European Bauhaus self-assessment method and tool**
	Bragança, L., Griffiths, P., Askar, R., Salles, A., Ungureanu, V., Tsikaloudaki, K., Bajare, D., Zsembinszki, G., & Cvetkovska, M. (Eds.). Springer Tracts in Civil Engineering. Springer. https://doi.org/10.1007/978-3-031-73490-8	Ungureanu, V., Bragança, L., Baniotopoulos, C., & Abdalla, K. M. (Eds.). Lecture Notes in Civil Engineering. Springer. https://doi.org/10.1007/978-3-031-57800-7	European Commission, Joint Research Centre, Lourenço, P. B., Maloutas, T., Santamouris, M., Widera, B., Ansaloni, F., Balaras, C., Katurić, I., Kolokotsa, D., Rossetto, T., Senatore, G., Tomaszewicz, A., Medeiros, E., Gkatzogias, K., Pohoryles, D., Romano, E., Acri, M., Becerik-Gerber, B., Bisello, A., Campbell, A., Canelas, P., Cimellaro, G. P., Cotella, G., Dimoudi, A., Istrati, D., Jokilehto, J., Lagaros, N., Manley, E., Menteşe, E., Moro, A., Potluka, O., Rivera, F., Roupas, C., Ruge, P., Sadia, T., Salihbegović, A., Salwa, M., Skovgaard Nielsen, R., Stefanakis, A., Tedeschi, M., Torabi Moghadam, S., Tulumello, S., van der Zwet, A., Vecco, M., Gkatzogias, K., Romano, E. and Negro, P. editors, Publications Office of the European Union, Luxembourg, 2024, https://data.europa.eu/doi/10.2760/9581060, JRC139118 (2024).
Flagship projects	**CircularB - Implementation of Circular Economy in the Built Environment**	**STEADYDOME: Shaking table tests for assessment of the dynamic response of domes and masonry structures to earthquake actions**	**NoRisk - International Masters in Risk Assessment and Management of Civil Infrastructures**
	The CircularB project's main mission is to drive the transformation of the construction industry through the adoption of circular economy principles.	New MSCA Individual Fellowship (seven since 2020) to Francesco Barsi. The research aims to carry out a systematic series of shaking table tests on scale models, suitably supplemented by a large set of reliable simulated experiments by discrete element models, with the goal of characterising the dynamical behaviour of masonry domes.	NORISK is a European Master funded by the European Commission in the ERASMUS+ framework with 2.9M€, and led by ISISE/UMinho. The first intake started in October 2024. NORISK focuses on the topic of risk analysis and infrastructure management, which is a subject of high socioeconomic relevance to meet current and future challenges.

Major achievements	Identification		
Scientific recognition	**António Guimarães Rodrigues Scientific Publication Award & Diploma of Recognition for Meritorious Scientific Publication**	**World's Top 2% Scientists 2024**	**Shanghai Global Ranking of Academic Subjects 2024**
	Daniel Oliveira won the António Guimarães Rodrigues Scientific Publication Award, and is one of the distinguished with the EEUM Diploma of Recognition for Meritorious Scientific Publication, as well as: Hélder Manuel Silva Sousa Joaquim António Oliveira Barros	Joaquim Barros; José Sena-Cruz; Mayank Mishra; Paulo Lourenço.	Civil Engineering in UMinho is in the world's Top 150 higher education institutions.
Scientific leadership	**Laboratório Associado para Produção Avançada e Sistemas Inteligentes (ARISE)**	**"2024 IABSE Early Career Prize" to Hélder Sousa**	**WG4.T2 Project Team**
	ISISE joins the Laboratório Associado para Produção Avançada e Sistemas Inteligentes (ARISE), with another five national entities.	The International Association for Bridge and Structural Engineering (IABSE) is a scientific / technical Association comprising members in 100 countries and 3000 memebrs. It was founded in 1929 it has its seat in Zurich, Switzerland.	Member of the WG4.T2 Project Team (contract SA/CEN/GROW/EFTA/515/2017-08), Mandate M/515, Phase 3, with the aim of developing the 2nd generation of Eurocodes.

5.3.9 – Mechanical Engineering and Resource Sustainability Centre– MEtRICs

Information not available

6 – INTERNATIONALISATION

6.1 – Evolution of EEUM mobility abroad

	2021/2022	2022/2023	2023/2024
Students	186	171	142
Teaching staff	37	45	40
Non-teaching staff	8	12	7
Total	231	228	189

6.2 – Student mobility through exchange programs

	2021/2022		2022/2023		2023/2024	
	OUT	IN	OUT	IN	OUT	IN
Erasmus+	186	69	171	51	141	155
Erasmus+ ICM	0	6	0	1	1	2
Erasmus Mundus	-	-	-	-	0	0
Interchange with Brazil	0	2	0	7	0	7
Others	0	3	0	0	0	0
Total	186	80	171	59	142	164

6.3 - Community Projects in the field of Education and Mobility

The School of Engineering is involved in a large number of projects and networks, within the framework of mobility and educational programmes.
26 applications for Erasmus projects were submitted and 2 approved in 2023/2024. The project applications approved in 2024 are presented below.

ERASMUS+ KA2 – Cooperation Partnerships

Application	Programme /Initiative	Coordinating Institution	Project Title	UMinho Participation
2024	Cooperation partnerships	Technical University of Ostrava	International Collaborative Learning in OSH (COLOSH)	Nelson Costa (EE/DPS)

ERASMUS+ KA2 – Partnerships for Innovation

Application	Programme /Initiative	Coordinating Institution	Project Title	UMinho Participation
2024	Partnership for Innovation	Associação ISCTE-Conhecimento e Inovação - Centro de Valorização e Transferência de Tecnologias	Alliance for expanding the capacity of Enterprises to adopt European Health Data Space related standards (X-PANDING ALLIANCE)	Manuel Santos (EE/DSI)

Joint Masters Erasmus Mundus

Advanced Structural Analysis and Design using Composite Materials - FRP++

The Department of Civil Engineering (DEC) at EEUM coordinates the European Master's Degree in Advanced Structural Analysis and Design using Composite Materials - FRP++, which received around €2.7M in funding from the funding from the ERASMUS+ Program (Erasmus Mundus Joint Master) to support the
for 6 academic years, starting in 2022/2023. In addition to supporting management, mobility and integration activities, the funding in question allows for the award of around 84 scholarships to students, covering the costs of enrolment and monthly allowance.

The Master's Degree has three partner institutions with funding: the University of Girona (UdG), Spain, the University of Naples Federico II, UNINA, Italy, and the National Institute of Applied Science in Toulouse of Applied Science in Toulouse / University Toulouse III - Paul Sabatier, INSA/UT3, France.

It also has more than 50 associated institutions, mainly from industry, promoting integration between the content taught and the needs of professional practice. The FRP++ Master's Degree lasts one year, with 60 ECTS, including six curricular Units in the first semester and the dissertation in the second semester.

The Master's program is directed by José Sena Cruz, Associate Professor and member of the ISISE Research Unit.

The second edition, corresponding to the 2023/2024 academic year, of the FRP++ Master's Degree began on October 1, 2023 and included 28 students from 10 different countries. However, only 19 completed the master's degree. In the first semester of the 2023/2024 academic year, the master's part of the master's took place simultaneously at UNINA and INSA/UT3. In turn, the students completed their master's dissertations at the four partner institutions. Of the students who attended FRP++, 18 students successfully completed the 2023/2024 edition - 5 students completed their dissertation at UMinho. The third edition (2024/2025) with 20 students attending FRP++ (out of 26 students selected) from 17 different countries.

The teaching part is taking place at UMinho and UdG, with the dissertation taking place at the four partner institutions. The coordination of FRP++ has constantly sought to enrich the contents of its website (https://msc-frp.org/), YouTube channel (https://www.youtube.com/@msc-frp), and social networks.

European Master in Building Information Modelling – BIM A+

The Department of Civil Engineering of EEUM coordinates the European Master in Building Information Modelling BIM A+ (www.bimaplus.org), which received 2.1M€ of funding from the ERASMUS+ Programme to support its operation from 2019 to 2023. The objective of BIM A+ is to offer an advanced education programme on BIM integrated design, construction and operation processes. In addition to supporting management, mobility and integration activities, the funding in question enabled the award of around 70 grants to students, covering registration and monthly allowance costs. The Master has two partner institutions: the University of Minho (Portugal) and the University of Ljubljana (Slovenia). It also has more than 39 associated institutions, mainly from Industry, promoting the integration between the contents taught and the needs for professional practice. The 2024–2025 academic year marks the second year
without EACEA funding; however, Consortium and Industry scholarships are still available for the most outstanding candidates.

The Master lasts 1 year, with 60 ECTS, including the completion of 6 Curricular Units in the first semester, and the dissertation in the second semester. The supervision of the Master is assured by Miguel Azenha, Associate Professor with Habilitation at the Civil Engineering Department of EEUM and member of the ISISE

Research Unit. In addition to several teachers of the Dept. of Civil Engineering of UM, it should be noted the direct participation of the School of Architecture of UM through Bruno Figueiredo, Assistant Professor at EAAD. In the editions from 2019/2020 to 2023/2024 156 dissertations were presented, varied in collaboration with associated institutions. The sixth edition of the Master's Degree began on 1st October 2024, with 28 students from 18 different countries. In the first semester of the academic year 2024/2025 the teaching part of the Master takes place simultaneously at the University of Ljubljana with 11 students and at the University of Minho with 17 students. In the second semester the students are distributed among the two partner universities.

SAHC International Master

The 17th edition of the SAHC International Master's Degree (2023/2024) saw the participation of 12 students from 7 countries (Afghanistan, Belgium, Canada, Philippines, Italy, Mongolia and Pakistan) successfully completed their dissertations. The continued participation of students from North America and, for the first time, Mongolia.

The 18th edition of the SAHC Master's Degree (2024/2025) is underway, with 17 students taking part from 13 countries (Germany, Canada, China, Korea, USA, Philippines, Latvia, Morocco, Mexico, Nepal, New Zealand, Pakistan and Peru). Of particular note was the participation for the first time of students from Latvia.

The start of the SAHC Master's degree academic year is characterized by a number of activities to integrate the students. This included a presentation and welcome session, a guided tour of the historic center of Guimarães, an introductory Guimarães, an introductory session on researching scientific information and a lecture on communication. Every year, visits are made to various emblematic monuments this year's edition is a visit to the rehabilitation works of a medieval bridge in Guimarães.

6.4 - International Partnerships and Protocols

In 2024 the School of Engineering maintained the following international partnerships and programmes: MIT Portugal Program, University of Texas at Austin, CMU Portugal.

With regard to formalising cooperation with higher education institutions and other international entities, 39 agreements were signed in 2024, namely 18 memoranda of understanding, 6 addenda, 4 non-disclosure agreements, and 11material transfer agreements.

6.5 – Visits from External Delegations and International Representation

In the year 2024 the School of Engineering received the following international entities/personalities:

16th January - Western Michigan University - represented by Paulo Zagalo-Melo da Western Michigan University (WMU), Steve But, president of WMU College of Engineering and Applied Sciences;

16th January – A delegation from the Estonian University of Life Sciences;

12th October - A delegation from the Budapest University of Technology and Economics, the University of Miskolc, the Institute of Metallurgy, Plastic Forming and Nanotechnology, the Bay Zoltán Foundation and the Hungarian Embassy in Portugal visited the 2C2T - Textile Science and Technology Centre and the IPC - Institute of Polymers and Composites Research Centres, as well as the Fibrenamics interfaces and the PIEP - Polymer Engineering Innovation Centre.

From 25th to 27th November - Chinese delegation from Zhuhai College of Science and Technology - Liu, Ming - President of Zhuhai College of Science and Technology; Liang, Yanchun - Professor in Jilin but currently professor at ZCST; Li, Zi in charge of ZCST's Internationalisation Department/service.

7 - INTERACTION WITH SOCIETY

7.1 - Initiatives promoted by EEUM

In 2024 the Presidency of the School of Engineering organised various events with the aim of divulging and promoting the institution's educational offer, bringing the student community closer to the business world and the labour market, as well as initiatives aimed at divulging the research that is carried out internally, and also social responsibility initiatives, bringing together the efforts and commitment of this community, which constitutes almost 1/3 of the University of Minho, for the common good of the society in which we are inserted.

With regard to activities related to employment and integration into the labour market, or the acquisition of other complementary skills, the School of Engineering, under the Tomorrow Needs You Agenda, held 16 sessions/initiatives with companies and alumni, as well as holding the most important event on this Agenda, the Employment Days, which took place on 20th February. The 11th edition of this event brought more than 3000 career opportunities to the School of Engineering students and alumni, provided by 75 companies/entities registered at the event, from the most varied sectors of activity.

On 21st February, the School of Engineering prepared a Graduation Ceremony for its 1320 graduating students, which took place in the central nave of the Azurém campus and featured guest speakers Ricardo Costa and Beatriz Oliveira. The Almedina, APGEI - Portuguese Association of Industrial Management and Engineering and Iberomoldes awards were presented at the ceremony.

The 49th anniversary of the School of Engineering was celebrated on the 4th October, in the main auditorium of the University of Minho, in the Azurém campus. The ceremony was marked with tributes, prizes and awards to teachers, researchers, administrative and management staff, retirees, as well as recognition awards to the company Iberomoldes and the Mestre Casais Foundation. This year's ceremony included an EEUM tribute to António Guimarães Rodrigues, whose name was given to the Merit Award for Scientific Publication.

The Engineering School also held a new exhibition of spin-offs, start-ups and interfaces, similar to the one held in 2023, bringing more than 40 organisations to the Azurém campus. The event showcased the breadth and diversity of areas of activity, products and services of UMinho Spin-offs, Interfaces and Co-Labs, whose socio-economic impact on the region is undeniable. The programme included a lecture on 'Innovation and entrepreneurship as a driving force for economic and social development', given by State Councillor Luís Marques Mendes, the presentation of EEUM's Innovate and Entrepreneur Agenda, and a business ideas' competition.

7.2 - Initiatives promoted by the Rectorate with the collaboration of EEUM

In 2024 the School of Engineering of UMinho collaborated with the Rectorate in the main following events:

UPA - Universidade de Portas Abertas – from the 18th to 20th May the School of Engineering received around 1200 secondary school students, letting them know the educational offer of the institution.

Verão no Campus 2024 – 120 secondary school students from schools all over the country took part in the 7 activities organised by EEUM, which involved departments, research centres and interfaces from both campi: Gualtar e Azurém. The 16th edition of "Summer on Campus" took place from 22 to 26 July.

"VEM 2024 – Come and try UMinho": under the theme "Engineering for a Sustainable Future", the School of Engineering at the University of Minho hosted VEM 2024, welcoming 32 high school students from the Minho region, selected for their outstanding academic performance in the 11th and 12th grades.

The School of Engineering also participated with the University of Minho in education fairs organized by external entities such as Unlimited Future, in Braga, Qualifica, in Porto, and Futurália in Lisbon.
Also, as part of the promotion of the educational offer, and in coordination with the rectory of the University of Minho, dozens of visits were made to secondary schools in the region throughout 2024.

7.3 – Image and Communication

In 2024, the EEUM Communication and Image Office continued to be committed to closer and wider communication through online communication media. Some results of this strategy are presented here.

Social Media Networks

Facebook

Unique Visitors: 23.4K
Followers: 9.8K
Reach: 97.9K

Instagram

Unique Visitors: 20K
Followers: 4.9K
Reach: 27.9K

Linkedin

Unique Visitors: 2.7K
Followers: 11.6K
Reach: 178K

YouTube

Views: 16.3K
Live views (livestreaming): 12.4K
Hours seen: 9.2K hours
Reach: 52.4K

Website ENG.UMINHO.PT

Unique Visitors: 73.1K
Pages Viewed: 584K
Traffic origin (Countries): Portugal (59K), Brazil (2.8K), Angola (1K)
Traffic origin (Regions): Braga (21.9K), Lisbon (15.3K), Porto (14.9K)

Portal ENGIUM.UMINHO.PT

Unique Visitors: 17K
Pages Viewed: 34K

Newsletter ENGINEWS

Subscribers (external to the UMinho institution): 1587

Apertures: 73K

Clicks: 4.1K

Click Through Rate (CTR): 5.57% (Education average CTR in 2024 was 2.9%, according to Mailchimp)

7.4 – National Partnerships and Protocols

In 2024, the School of Engineering saw 26 cooperation protocols signed with various entities, with the involvement of almost all of its subunits, 12 of which with educational institutions. These protocols affirm our institution's commitment to society, allowing a great rapprochement with various players at regional and national level.

8 – HUMAN RESOURCES

8.1 – Teaching Staff

256 PhD Faculty and 70 Invited Professors
- 28 Full Professors
- 46 Associate Professors with Habilitation
- 47 Associate Professors
- 13 Assistant Professors with Habilitation
- 114 Assistant Professors
- 9 Emeritus Professors

In 2024, four Habilitation Exams were held at the School of Engineering, which resulted in the following professors being conferred the Habilitation degree:
- Doctor José António Silva Carvalho de Campos e Matos (Civil Engineering) - 29 April 2024
- Doctor Rui Manuel Sá Pereira Lima (Industrial and Systems Engineering) - 21 and 22 May 2024
- Dr Jorge Manuel Gonçalves Branco (Civil Engineering) - 9th July 2024
- Doctor Manuel Alcino Pereira da Cunha (Computer Science) - 15th and 16th July 2024

8.2 – Research Staff

140 Integrated Researchers

8.3 – Administrative and Management Technical Staff

122 Non-Teaching Staff
- 70 Higher Technicians
- 4 IT Specialists
- 5 IT Technicians
- 33 Technical Assistants
- 2 Operational Assistants
- 3 Technical Coordinator
- 1 Unit secretary