

## *THE World University Rankings by subject 2024 – Engineering*

### Key takeaways:

- Aglo-saxon dominance in the global top 10;
- US universities feature 6 institutions in the Top 10 worldwide;
- The UK ranks 4 institutions in the European top 10
- ULisboa generally improved its rank and performance:
  - Portugal: 2<sup>nd</sup>
  - Europe: 109<sup>th</sup> (from 141<sup>st</sup>)
  - World: 342<sup>rd</sup> (from 452<sup>nd</sup>)
  - ULisboa moved up to the top 25% worldwide (1374 ranked institutions)
- Broadly speaking, institutions improved their general score with the introduction of new indicators and recalibration of weightings;

## 1. Background

This document aims to analyse the 2024 edition of the Times Higher Education (THE) by subject rankings, more specifically the sector ranking related to the fields of Engineering. This option is due to an attempt to observe a potential performance of Instituto Superior Técnico (IST) within the University of Lisbon (ULisboa) by isolating and observing only the fields corresponding to subjects taught at Técnico.

## 2. Methodological information

A new methodology was introduced with recalibrated weightings, which are briefly analysed below:

- The latest edition of the Ranking THE by subject (Engineering) was published in October 2023 and will be in force until October 2024;
- **Institutional data** (human resources, students, financial information), which resulted from the submission by the institutions of their institutional data on the THE portal, is for the year 2021;
- **Bibliometric data** (citations, international collaborations) for 2022 reflects the interval between 2018 and 2022;
- **Reputational data** is derived from the combined results of surveys conducted between October 2022 and January 2023;
- **Patents data** refer to patents published between 2018 and 2022, and sourced from the World Intellectual Property Organisation, the European Patent Office, and the patent offices of the US, the UK and Japan.

- For this year, the Engineering ranking consists of 1374 institutions (1306 last year);
- The Engineering sector ranking covers: general engineering, electrical engineering, mechanical and aerospace engineering, civil engineering, chemical engineering;
- Starting at position 100 in the ranking, institutions are grouped into rank and score bands. For these cases, exact ranks and score were calculated;
- The score<sup>1</sup> for each institution that determines its rank is calculated based on the following groups of indicators and respective weightings, which have undergone some changes in relation to the previous year:
  - **Teaching: the learning environment**  
28 per cent
  - **Research environment: volume, income and reputation**  
29 per cent
  - **Research quality: strength, influence and excellence**  
27.5 per cent
  - **International outlook: staff, students and research**  
7.5 per cent
  - **Industry: income and patents**  
8 per cent

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<sup>1</sup> [https://www.timeshighereducation.com/sites/default/files/breaking\\_news\\_files/the\\_2024\\_world\\_university\\_rankings\\_methodology.pdf](https://www.timeshighereducation.com/sites/default/files/breaking_news_files/the_2024_world_university_rankings_methodology.pdf)

### 3.Global results for 2024

TABLE 1. TOP 10 INSTITUTIONS – ENGINEERING RANKING

World			Europe	
Rank	Institution	Score	Institution	Score
1	Harvard University (US)	98.1	University of Oxford (UK)	96.4
2	Stanford University (US)	96.7	University of Cambridge (UK)	96.3
3	Massachusetts Institute of Technology (US)	96.5	Imperial College London (UK)	92.8
4	University of Oxford (UK)	96.4	ETH Zurich (CH)	92.5
5	University of Cambridge (UK)	96.3	Delft University of Technology (NE)	89.2
6	University of California, Berkeley	95.9	École Polytechnique Fédérale de Lausanne (CH)	87.3
7	California Institute of Technology (US)	94.9	Technical University of Munich (DE)	84.6
8	Princeton University (US)	94.6	RWTH Aachen University (DE)	77.3
9	National University of Singapore	93.2	KTH Royal Institute of Technology (SW)	75.5
10	Imperial College (UK)	92.8	University of Manchester (UK)	74.4

Table 1 shows the top 10 ranking worldwide and in Europe. Globally, the United States institutions dominate, featuring six of the top ten positions, as was the case in 2023. Considering only the European institutions, there continues to be a slight predominance of UK universities, with 4 in the top ten places. ULisboa took the 342<sup>nd</sup> spot (from 452<sup>nd</sup>) and the 109<sup>th</sup> in Europe (from 141<sup>st</sup>), scoring 42.6 points (from 36.1 last year).

### 4.Performance and benchmark of Portuguese Institutions

There are 12 Portuguese universities in the current edition of the ranking. ULisboa stands 2<sup>nd</sup> in Portugal. The national ranking is led by the University of Porto.

TABLE 2. PORTUGUESE UNIVERSITIES' RANKING

World	Europe	Portugal	Institution	Score
325		1	Universidade do Porto	43.3
342	109	2	Universidade de Lisboa	42.6
444		3	Universidade do Minho	39.1
467		4	Universidade de Aveiro	38.1
502		5	Universidade de Coimbra	37.0
516		6	Nova University of Lisbon	36.6
564		7	University of Beira Interior	35.5
792		8	Polytechnic Institute of Porto	28.7
836		9	Instituto Politécnico de Bragança	27.7
903		10	University of Algarve	25.8
934		11	ISCTE	25.0
979		12	Universidade de Trás-os-Montes e Alto Douro	24.0

In this edition, it is not possible to make direct comparisons from last year, because of the already mentioned introduction of new indicators and the recalibration of weightings. However, table 3 below shows that, in terms of scores per criteria, ULisboa stands out in Research Quality, which measures the citations impact and the research influence, strength and excellence, with a 30% weight.

Another dimension in which ULisboa performs better than the 2<sup>nd</sup> ranked institution in Portugal, UPorto, is Industry, but worse than UMinho, which measures industry income and patents, with a 8% weight.

In all other three dimensions, ULisboa is slightly behind UPorto in International Outlook (which includes international students, international staff and co-authorship) and Research Environment (with a large component in research reputation), but in Teaching there is a huge gap from UPorto. This dimension weighs heavily with 28% for ranking purposes, as it includes a teaching reputation survey, institutional income and three composite indicators: student/staff ratio, doctorate/bachelor ratio and doctorate/staff ratio.

TABLE 3. PERFORMANCE PER DIMENSION OF THE TOP 3 PORTUGUESE INSTITUTIONS

Institution	Research Quality	Industry	Intl Outlook	Research Environment	Teaching
University of Porto	66,1	62,2	49,5	28,6	28,9
University of Lisbon	69,2	66,2	49,1	27,7	23,4
University of Minho	61,2	71,9	46,8	22,2	23,3

TABLE 4. SCORE EVOLUTION OF THE PORTUGUESE TOP 2 IN A 5-YEAR PERIOD

	2020	2021	2022	2023	2024
Universidade do Porto	35.1	35.1	35.1	37.1	43.3
Universidade de Lisboa	34,5	34,6	37,1	36,1	42,6

The Portuguese top 2 has remained the same since the 2020 edition, however with some changes. UPorto has remained 1<sup>st</sup> since 2023, but ULisboa has gained ground in terms of score.

Interesting enough is the fact that, in 1374 ranked institutions worldwide in Engineering, and out of 12 Portuguese institutions, UPorto and ULisboa are in top 25%, Quartile 1, and 5 in Quartile 2 and Quartile 3, respectively.

## 6. International Benchmark

University rankings provide a common basis for comparison between Universities. In this regard, a comparison was conducted between ULisboa and a selection of Europe's highest ranked.

Firstly, it was decided to compare/analyse the universities placed in position 15 and 100 at European level (Table 5). The comparison with the 15<sup>th</sup> position has to do with the strategic objective of IST/ULisboa to reach this position by 2030. As the 15<sup>th</sup> position is an ambitious objective, it was also decided to compare it with the 100<sup>th</sup> position, a more viable short-term objective.

TABLE 5. BENCHMARK WITH EUROPEAN HEIS – POSITIONS 15 AND 100

Position (Europe)	Institution	Research Quality	Industry	Intl Outlook	Research Environment	Teaching	Score	Gap %
15	KIT – Karlsruhe Inst. of Tech.	64,7	81,2	68,1	65,1	52,7	67.6	59%
100	University of Trento	76.9	65.4	55.5	18.9	25.7	43.2	1%
109	Universidade de Lisboa	69.2	66.2	49.1	27.7	23.4	42.6	-

It was also decided to contextualize and compare ULisboa to the institutions of the CLUSTER network, which concentrates the best engineering and technology schools in Europe (Table 6). This comparison was considered pertinent as we are talking about a set of similar institutions. It should be read in a comprehensive manner and with some caution since these are institutions from different countries and they have different realities in terms of higher education strategies and policies.

Despite some changes in rank, these universities have generally improved their global score and rank.

TABLE 6. BENCHMARK WITH CLUSTER NETWORK INSTITUTIONS

Rank (Europe)	Rank (World)	Institution	Research Quality	Industry	Intl Outlook	Research Environment	Teaching	Global score
9	39	KTH- Royal Inst. of Tech.	77.1	85.6	74.6	75.9	70.8	75.5
13	53	KU Leuven –	80.8	100	74.6	68.5	53.7	70.7
15	64	KIT – Karlsruhe Inst. of Tech.	75.1	99.4	73.5	65.2	52.2	67.6
32	121	Aalto University	80.6	86.2	74.6	38.8	43.1	58.0
40	143	TU Darmstadt	65	99.3	58.2	47.2	37.5	54.4
53	172	Polito	81	75.1	48.5	35.9	34.8	52.1
61	199	Trinity College Dublin	77.9	71	85.2	30.2	27.4	49.9
63	202	Université Grenoble Alpes	61.3	71.5	70.7	35.8	39.8	49.4
79	258	Univ Catholique de Louvain	58.5	91.4	72.9	30.3	29.7	46.0
109	342	Universidade de Lisboa	69.2	66.2	49.1	27.7	23.4	42.6
126	403	UPC – Univ. Politecnica de Catalunya	49.8	62.3	55.4	28.7	32.9	40.4

## 7. Final Remarks

ULisboa has resumed an upward trend both in term of rank (Europe and World) and global score. Its best performing dimensions are Research Quality and Industry, but in terms of Teaching, its lowest scored dimension, improvements are required, as it has been consistently deteriorating from last editions.

There is still a long way to go for the 2030 strategic goals to be reached, but there is a positive outlook. The fact that in Engineering, ULisboa is among the top 25% institutions, corroborates this idea.

As there were significant changes in the methodology, it was not possible to draw hypothetical scenarios. Nevertheless these changes seemed to have a positive impact on the institutions' scores and ranks.

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