EngiRank 2026: Ranking Assumptions

Engineering education plays a key role in ensuring Europe's sustainable development. It is essential for developing cutting-edge technologies and educating innovative engineers who can apply scientific knowledge to address contemporary challenges while considering the societal implications of their actions. To meet these challenges in an era of rapid technological development, we need a tool to promote and compare the quality of engineering and technology programmes offered by European universities.

University and programme rankings have become an accepted means of comparison and assessment, widely understood by a broad range of stakeholders.

The European Ranking of Engineering Programmes, *EngiRank*, addresses the lack of comprehensive and reliable information on engineering education, research and innovation at European universities and other higher education institutions (HEIs)[1] with a strong engineering profile.

Our primary concern in developing *EngiRank* was to ensure the highest possible reliability of the rankings. The geographical scope of *EngiRank* encompasses 37 countries[2] belonging to the European Higher Education Area (EHEA), including all European Union Member States. One reason for this broad geographical coverage is the right of EU citizens to study in other Member States under the same conditions as nationals of those countries. Furthermore, promoting student mobility and graduate employability are key objectives of the EHEA, which extends beyond the EU. Increased student mobility creates a demand for information on the quality of European higher education institutions. In addition, consortia comprising institutions from different Member States and countries associated with Horizon Europe can apply for research and innovation funding through Horizon Europe programmes. The European Universities Initiative, launched in 2017, fosters long-term cooperation between European higher education institutions. These measures help level the playing field for higher education institutions across the EU and, more broadly, throughout the EHEA, making comparisons between them more meaningful.

Another factor considered essential to the credibility of *EngiRank* is the quality and reliability of the data. The rankings are based exclusively on trustworthy external databases containing information on European higher education institutions (HEIs) collected in a consistent and standardised manner. These sources include the Scopus bibliographic database, the EPO Worldwide Patent Statistical Database (PATSTAT), information on participation in European Commission initiatives (the Community Research

[1] The term *higher education institutions other than universities* refers to institutions such as *grandes écoles* in France or the Sant'Anna School of Advanced Studies in Pisa, Italy.

[2] Ukrainian universities are grouped into a separate category, as the conventional ranking methodology cannot be used to assess the performance of universities operating under wartime conditions.

and Development Information Service – CORDIS – and the European Education Area website), and databases of programmes accredited by quality assurance agencies.

The design principles underlying *EngiRank* make it possible to compile the rankings entirely on the basis of data obtained from external sources. Nevertheless, the data used to calculate the ranking indicators are made available to universities in advance, allowing them to raise any objections or identify potential errors. This approach helps minimise errors (which may arise, for example, from delays in updating databases) and enhances the transparency of the rankings.

To improve the accuracy of the rankings and avoid comparing institutions that differ too substantially, it was decided to limit the diversity of universities included. *EngiRank* achieves this by including only institutions with a strong engineering profile that meet a specified minimum size threshold.

The following stakeholder groups were given priority consideration in the development of *EngiRank*:

- **Prospective students and their parents** – the rankings will help them choose a field of study and a European institution that offers the best prospects of securing satisfactory employment after graduation. It will also help students interested in exchange programmes, such as Erasmus+, select an appropriate host institution.
- **Employers**, including Europe's high-tech industry – *EngiRank* will help them identify talented graduates from engineering and technology institutions.
- **University managemen**t – the rankings will help university managers monitor the effects of institutional governance and improve operational quality

Entry requirements

The **ENTRY CRITERIA** comprise the following quantitative requirements:

- **Subject profile**: Higher education institutions (HEIs) were considered eligible if at least 30% of their publications indexed in Scopus over the five-year period 2021–2025 were in engineering and technology (E&T)[3]. However, an adjustment was made to recognise the outstanding research performance of institutions whose average citation impact placed them among the top 10% of European HEIs. For these institutions, the minimum threshold for the share of E&T publications was reduced to 25%.

  Furthermore, to ensure the inclusion of institutions from all European Union Member States, where no institution in a given country met the standard threshold, the rankings included the institution with the highest share of E&T publications (or, where a couple of institutions had very similar shares, all such institutions). The last exception applies when an institution already included in EngiRank experiences a minor shortfall in its share of E&T publications during a subsequent reference period. This provision ensures greater stability in the rankings.

  Conversely, institutions whose publications in 2021–2025 were predominantly in medical and health sciences or social sciences were not considered to have a strong engineering profile and therefore were not included in *EngiRank*.

[3] The classification of disciplines adopted in *EngiRank* follows the OECD Fields of Research and Development (FORD) classification, both at the level of one-digit major fields (e.g. 2. Engineering and technology; 3. Medical and health sciences; 5. Social sciences) and at the level of two-digit categories (e.g. 2.1 Civil engineering; 2.2 Electrical engineering, electronic engineering and information engineering).

- **Minimum publication thresholds**: The following minimum numbers of publications indexed in Scopus over the five-year period 2021–2025 were required in the main engineering disciplines:
    - chemical engineering – 200,
    - civil engineering – 100,
    - electrical engineering, electronic engineering, information engineering – 200,
    - environmental engineering – 100,
    - materials engineering – 250,
    - mechanical engineering – 200,
    - medical engineering – 100.

The **subject rankings** in each of the above disciplines include HEIs that meet both quantitative criteria: a share of publications in E&T of at least 30% and a number of publications in the relevant discipline equal to or exceeding the specified threshold. With regard to the latter threshold, an exception similar to that applied to the E&T publication share was introduced: if an institution included in a subject ranking experiences a minor shortfall in the number of publications in the relevant discipline during a subsequent reference period, it remains included in the ranking.

The **institutional ranking** within *EngiRank* includes HEIs that are featured in at least three subject rankings.

Rankings Criteria and Indicators

Innovative approach

When designing *EngiRank*, particular attention was paid to the extent to which institutions fulfil their economic and societal missions. To reflect the transfer and practical application of academic knowledge by universities, the ranking includes indicators measuring collaboration between academic and industry researchers, the use of research outputs in successful patent applications, universities' own patenting activity and, where appropriate, their contributions to the Sustainable Development Goals.

EngiRank is a composite ranking based on several categories of indicators. Since research and innovation exhibit increasing returns to scale, larger-scale university activities create greater opportunities for students and academic staff. Consequently, indicators reflecting the scale of institutional activities, such as the volume of research output, the amount of research and innovation funding, the number of patents mentioned above, as well as the number of publications related to selected Sustainable Development Goals, play an important role in the rankings

The inclusion of subject ranking scores in the institutional ranking reflects returns to scope and recognises the value of multidisciplinarity, which can foster interdisciplinary research. The rankings also incorporate conventional efficiency indicators expressed in relative terms, such as citations per publication, the share of publications in the top 10% of journals, the average number of patent citations received per publication, and the percentage of publications co-authored with industry researchers or international collaborators

The introduction of a dynamic indicator – the change in citation impact – is a novel feature in the landscape of university rankings. Finally, qualitative indicators reflecting the accreditation of engineering degree programmes and membership of a European university alliance have also been

included. These indicators are closely linked to the European Higher Education Area (EHEA) and represent measures intended to enhance the quality of study programmes.

Institutional ranking

The institutional ranking is based on five criteria. The two most important in terms of weighting are **Research** (28%) and **Innovation** (25%), which together account for 53% of the total score. The third criterion, **SDG 9: Industry, Innovation and Infrastructure**, recognises the institution's efforts to contribute to the achievement of this Sustainable Development Goal and accounts for 10% of the score. The fourth criterion, **Internationalisation**, accounts for 16%, while the final criterion, **Multidisciplinarity**, links the institutional ranking to the subject rankings and accounts for 21% of the total score.

RESEARCH (28%)

This criterion comprises four indicators derived from the Scopus bibliographic database. **Publications** measures the institution's research output in absolute terms, while **Citations** and **Publications in Top 10% Journals** are expressed in relative terms. The final indicator, **Change in Impact**, captures changes in citation impact over time. Further details of each indicator are provided below

- **Publications:** The number of publications affiliated with the institution and indexed in Scopus between 2021 and 2025 in the *Engineering and Technology* field (FORD classification). *Source: Scopus/SciVal (10%)*
- **Publications in Top 10% Journals:** The percentage of the institution's publications in the *Engineering and Technology* field published between 2021 and 2025 in journals ranked in the top 10% by CiteScore. *Source: Scopus/SciVal (6%)*
- **Citations:** The average number of citations received by the institution's publications in the *Engineering and Technology* field, indexed in Scopus and published between 2021 and 2025. *Source: Scopus/SciVal* (6%)
- **Change of Impact:** A dynamic indicator calculated as the ratio of the field-weighted citation impact (FWCI) of the institution's publications in the *Engineering and Technology* field in 2021–2025 to the FWCI of its publications in the same field in 2016–2020. *Source: Scopus/SciVal* (6%)

INNOVATION (25%)

The criterion comprises four indicators. **Research and Innovation Funding** and **Patents** are expressed in absolute terms and relate to European frameworks for research and innovation funding and patenting, respectively. The data for calculating the other two indicators, **Patent-Citation Count per Scholarly Output** and **Academic-Corporate Collaboration**, are drawn from the Scopus bibliographic database. Both are expressed in relative terms. Further details of each indicator are provided below.

- **Research and Innovation Funding:** The value of grants awarded to the institution under EU framework programmes for research and innovation between 2021 and 2025, adjusted for purchasing power parity (PPP). *Source: CORDIS and World Bank* (10%)
- **Patents:** The number of patents granted to the institution by the European Patent Office between 2021 and 2025[4]. *Source: EPO-PATSTAT* (5%)
- **Patent-Citation Count:** The average number of patent citations received per scholarly output published by the institution in the *Engineering and Technology* field between 2021 and 2025. *Source: Scopus/SciVal* (5%)
- **Academic-Corporate Collaboration:** The percentage of publications in the *Engineering and Technology* field co-authored by researchers affiliated with institutions outside academia and published between 2021 and 2025. *Source: Scopus/SciVal* (5%)

SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE (10%)

This criterion consists of a single indicator measuring the institution's contribution to Sustainable Development Goal 9: Industry, Innovation and Infrastructure, based on the number of publications assigned to both SDG 9 and the *Engineering and Technology* field.

- **SDG 9:** The number of publications from 2021 to 2025 assigned to both the United Nations *Sustainable Development Goal 9: Industry, Innovation and Infrastructure* and the *Engineering and Technology* field (FORD classification). *Source: Scopus/SciVal* (10%)

INTERNATIONALISATION (16%)

The criterion comprises three indicators. **International Collaboration** and **International Collaboration Impact** are derived from the Scopus bibliographic database, while the third indicator relates to the institution's participation in a European university alliance. Further details of each indicator are provided below

- **International Collaboration:** The percentage of the institution's publications in the *Engineering and Technology* field published between 2021 and 2025 that have co-authors affiliated with institutions in different countries. *Source: Scopus/SciVal* (10%)
- **International Collaboration Impact:** The citation impact of the institution's publications in the *Engineering and Technology* field published between 2021 and 2025 that involve international co-authorship. *Source: Scopus/SciVal* (2%)

[4] Under Swedish law, intellectual property rights belong to inventors (i.e. researchers) rather than universities. Consequently, a value of zero for the *Patents* indicator for Swedish universities is misleading and does not imply an absence of inventive activity. To avoid penalising Swedish universities for this reason, the weighted sum of the remaining indicators has been multiplied by 100/95. It should also be noted that, before the final rankings were compiled, universities were given the opportunity to supplement the data used to calculate the ranking indicators, including data on university patents.

- **European university:** A binary indicator identifying whether the institution was a full member of a European university alliance as of 15 August 2026. *Source: European Education Area website* (4%)

MULTIDISCIPLINARITY (21%)

This criterion links the institutional ranking to the subject rankings. It rewards institutions that are included in a large number of subject rankings and achieve high scores in them.

- **Multidisciplinarity:** Scores achieved by HEIs in the subject rankings. *Source: EngiRank subject rankings* (3% for each subject)

Rankings by subject

The *EngiRank* subject rankings in the following disciplines are based on three criteria: **Research** (64%), **Innovation** (26%) and **Teaching Quality** (10%):

- chemical engineering,
- electrical engineering, electronic engineering, information engineering,
- materials engineering,
- mechanical engineering.

For the remaining three disciplines, the contributions of university research to the following Sustainable Development Goals (SDGs) were assessed:

- civil engineering – SDG 11: Sustainable cities and communities,
- environmental engineering – SDG 6: Clean water and sanitation,
- medical engineering – SDG 3: Good health and well-being.

Accordingly, an additional criterion, **Contribution to SDGs** (5%), was introduced for each of these disciplines, while the weightings of **Research** and **Innovation** criteria were reduced to 60% and 25%, respectively.

Each indicator in the subject rankings relates exclusively to a specific discipline. Some indicators used in the institutional ranking and the subject rankings are based on the same metrics, differing only in the scope of publications or grants considered. Although indicators from the subject rankings are indirectly incorporated into the institutional ranking through the Multidisciplinarity criterion, this should not be regarded as a duplication of indicators.

It should be noted that some HEIs are not included in all subject rankings. In particular, only around half of the HEIs included in the institutional ranking are also featured in the *Medical Engineering* ranking. Furthermore, even HEIs included in all subject rankings have publications and grants that are not covered by the subject ranking indicators. These include *general engineering*; *nuclear energy and engineering*; *control and systems engineering*; *safety, risk, reliability and quality*; *media technology*; *bioengineering*; and *other miscellaneous engineering* fields, all of which are covered exclusively by the institutional ranking.

RESEARCH (60%/64%)

The criterion comprises four indicators, all calculated using data from the Scopus bibliographic database.

- **Publications:** The number of publications affiliated with the institution and indexed in Scopus in the relevant discipline between 2021 and 2025. *Source: Scopus/SciVal* (15%/16%)
- **Publications in Top 10% Journals:** The percentage of the institution's publications in the relevant discipline published between 2021 and 2025 in journals ranked in the top 10% by CiteScore. *Source: Scopus/SciVal* (15%/16%)
- **Citations:** The average number of citations received by the institution's publications in the relevant discipline, indexed in Scopus and published between 2021 and 2025. *Source: Scopus/SciVal* (15%/16%)
- **Change of Impact:** A dynamic indicator calculated as the ratio of the field-weighted citation impact (FWCI) of the institution's publications in the relevant discipline in 2021–2025 to the FWCI of its publications in the same discipline in 2016–2020. *Source: Scopus/SciVal* (15%/16%)

INNOVATION (25%/26%)

The criterion comprises two indicators. **Academic-Corporate Collaboration** is calculated using data from the Scopus bibliographic database, while **Research and Innovation Funding** is based on information from the CORDIS database.

- **Academic-Corporate Collaboration:** The percentage of publications in the relevant discipline published between 2021 and 2025 that are co-authored by researchers affiliated with institutions outside academia. *Source: Scopus/SciVal* (15%/16%)
- **Research and Innovation Funding:** The value of grants awarded to the university under EU framework programmes for research and innovation to fund research projects in the relevant discipline between 2021 and 2025, adjusted for purchasing power parity (PPP). *Source: CORDIS and World Bank* (10%)

TEACHING QUALITY (10%)

This criterion comprises a single indicator, measured by the number of degree programmes accredited by ENAEE-authorised agencies, ABET or RIBA (further information on ENAEE, ABET and RIBA is provided in the box below).

- **Accreditations:** The number of engineering degree programmes in the relevant discipline accredited by an agency authorised by the European Network for Accreditation of Engineering Education (ENAEE), the Accreditation Board for Engineering and Technology (ABET) or the Royal

Institute of British Architects (RIBA), with accreditation valid in 2026[5]. *Source: databases of EUR-ACE-labelled programmes (ENAEE-authorised), ABET-accredited programmes and RIBA-accredited programmes (10%)*

The **European Network for Accreditation of Engineering Education (ENAEE)** is a non-profit organisation bringing together accreditation and quality assurance agencies from various countries, primarily EU Member States, and providing a pan-European framework for the accreditation of engineering education programmes. Although ENAEE does not itself accredit engineering programmes, it has established the EUR-ACE (European Accredited Engineer) label. Following a positive evaluation of the policies and procedures applied by its member accreditation and quality assurance agencies, ENAEE authorises them to award the EUR-ACE label to the engineering programmes they have accredited.

Currently, 17 agencies are authorised by ENAEE to award the EUR-ACE label. These agencies have signed a mutual recognition agreement, known as the EUR-ACE Accord, under which they recognise one another's decisions on the accreditation of bachelor's and master's degree programmes.

Since ENAEE was founded in 2006, the EUR-ACE label has been awarded to more than 5,000 engineering degree programmes offered by approximately 1,000 higher education institutions in over 60 countries across Europe and worldwide.

The **Accreditation Board for Engineering and Technology (ABET)** is a non-governmental organisation founded in the United States in 1932, originally under the name Engineers' Council for Professional Development. ABET currently accredits 4,863 post-secondary education programmes in applied and natural sciences, computing, engineering and engineering technology at 950 institutions across 42 countries, including Austria, Poland, Portugal, Spain and Türkiye.

The **Royal Institute of British Architects (RIBA)** is a professional membership body for architects, founded in the United Kingdom in 1834. RIBA validates over 230 architectural programmes at more than 120 schools of architecture worldwide. Its validation process assesses whether architectural education programmes meet internationally recognised standards and prepare students for professional practice. RIBA-validated programmes are offered by institutions in the United Kingdom and in countries across Europe, Asia, the Middle East and the Americas.

CONTRIBUTION TO SDGs (0%/5%)

This criterion comprises a single indicator measuring the institution's contribution to selected Sustainable Development Goals (SDGs) in specific subject areas, based on the number of publications.

[5] Institutions with eight or more accreditations in a single subject were assigned a maximum score of 100 for that subject's *Accreditations* indicator.

- **SDG 3: Good health and well-being** (*medical engineering only*): The number of publications from 2021 to 2025 assigned to both United Nations Sustainable Development Goal 3: Good Health and Well-being and the *Medical engineering* field (FORD category 2.6). *Source: Scopus/Scival*
- **SDG 6: Clean water and sanitation** (*environmental engineering only*): The number of publications from 2021 to 2025 assigned to both United Nations Sustainable Development Goal 6: Clean Water and Sanitation and the *Environmental engineering* field (FORD category 2.7). *Source: Scopus/Scival*
- **SDG 11: Sustainable cities and communities** (*civil engineering only*): The number of publications from 2021 to 2025 assigned to both United Nations Sustainable Development Goal 11: Sustainable Cities and Communities and the *Civil engineering* field (FORD category 2.1). *Source: Scopus/Scival*

The table below provides an overview of the weightings assigned to the indicators in the individual subject rankings.

RANKINGS BY SUBJECT	Publications	Publications in Top 10% Journals	Citations	Change of Impact	Academic-Corporate Collaboration	Research and Innovation Funding	Accreditations	SDG 3: Good health and well-being	SDG 6: Clean water and sanitation	SDG 11: Sustainable cities and communities
Chemical engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Civil engineering	15%	15%	15%	15%	15%	10%	10%	-	-	5%
Electrical eng., electronic eng., information engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Environmental engineering	15%	15%	15%	15%	15%	10%	10%	-	5%	-
Materials engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Mechanical engineering	16%	16%	16%	16%	16%	10%	10%	-	-	-
Medical engineering	15%	15%	15%	15%	15%	10%	10%	5%	-	-

EngiRank includes 310 higher education institutions (HEIs) from 37 countries belonging to the European Higher Education Area (EHEA), including all European Union Member States:

Austria – 6
Belgium – 3
Bosnia and Herzegovina – 1
Bulgaria – 4
Croatia – 3
Cyprus – 4
Czechia – 10
Denmark – 2
Estonia – 1
Finland – 3
France – 53
Germany – 33
Greece – 9
Hungary – 5
Ireland – 3
Italy – 19
Latvia – 3
Lithuania - 2
Luxembourg – 1
Malta – 1
Moldova – 1
Montenegro – 1
Netherlands – 3
North Macedonia - 1
Norway – 3
Poland – 23
Portugal – 11
Romania – 8
Serbia – 4
Slovakia – 4
Slovenia – 1
Spain – 12
Sweden – 9
Switzerland – 2
Türkiye – 33
Ukraine – 9
United Kingdom - 19

The subject rankings include the following numbers of HEIs:

- chemical engineering - 223,
- civil engineering - 192,
- electrical engineering, electronic engineering, information engineering - 228,
- environmental engineering - 248,
- materials engineering - 247,
- mechanical engineering - 223,
- medical engineering - 147.

The institutional ranking includes 247 HEIs.

Scoring Procedure

The *EngiRank* rankings are constructed using Multi-Attribute Value Theory (MAVT). This approach is based on several assumptions. First, it is assumed that the value, or overall score, of each HEI (and of each discipline under consideration) can be estimated by considering the contributions of individual criteria, as measured by the corresponding indicators. Secondly, if the criteria are not equally important, their contributions can be made comparable by assigning appropriate weights to the

corresponding indicators. Thirdly, the additivity of the weighted criteria is assumed, meaning that the final score is a linear combination of the partial scores. Finally, indicators with asymmetric distributions are generally transformed (using square or cube roots) to reduce skewness.

The sub-scores for each indicator are calculated relative to the score of the leading institution. A score of 100 is assigned to the HEI with the highest value for a given indicator, while the scores of other institutions are calculated proportionally to their values relative to that of the leading institution. Membership of a European university alliance is treated as a specific binary indicator: a score of 100 is assigned to each of the 144 universities included in the institutional ranking that belongs to a European university alliance.

The sub-scores obtained by each HEI for all indicators in both the subject and institutional rankings are aggregated using the appropriate weights. The HEIs are then ranked in descending order according to their weighted sums of sub-scores. The leading institution is assigned a final score of 100, while the scores of the remaining institutions are calculated proportionally to their weighted sums relative to that of the leading institution. The positions of HEIs in the rankings are determined using a discrimination threshold of 1 percentage point of the final score. This means that institutions whose final scores differ by less than 1 percentage point are assigned the same rank.