



A Bibliometric and Field-Mapping Analysis of a Regional Engineering Journal: The Case of Nigde Omer Halisdemir University Journal of Engineering Sciences (2012–2025)

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ABSTRACT

This study presents a comprehensive bibliometric and field-mapping analysis of the Nigde Omer Halisdemir University Journal of Engineering Sciences (NÖHÜ-JES) over the period 2012–2025. Article-level metadata (publication year, authors, affiliations, abstracts, and keywords) were harvested from the journal website, while citation data were obtained from Google Scholar using the Publish or Perish software. After cleaning and harmonizing the dataset, we analyzed annual publication and citation trends, highly cited papers, contributing institutions, and the collaboration network. In addition, article abstracts and keywords were classified into primary and secondary subject fields by combining a curated domain dictionary with a large language model-assisted screening procedure under human supervision.

The results show that NÖHÜ-JES has evolved into a broad, application-oriented engineering venue anchored in materials and civil engineering, with environmental and electrical/electronics topics playing strong supporting roles. Keyword frequencies highlight the growing prominence of machine learning, deep learning, optimization, and finite element methods, often applied to materials characterization, structural performance, and energy- or environment-related problems. Collaboration maps reveal a clear hub-and-spoke pattern centered on Nigde Omer Halisdemir University, complemented by secondary “bridge” institutions and several regional clusters. Overall, the portfolio points to a mature applied engineering journal with an increasingly data-driven research culture. The findings offer a transparent evidence base for editors and stakeholders interested in positioning regional engineering journals and in designing special issues or thematic calls at the interface of materials, civil, environmental, and data-intensive engineering.

Keywords: Bibliometric analysis; Engineering journals; Field classification; Collaboration networks; Turkey

1. Introduction

Bibliometrics provides quantitative tools to trace how journals and research fields evolve over time, to identify influential topics and contributions, and to map collaboration patterns among authors and institutions. Building on citation indexing and co-authorship analysis, subsequent developments mainstreamed indicators such as the h-index (Hirsch, 2005) and introduced complementary perspectives like altmetrics, while network-mapping tools (e.g., VOSviewer; Bibliometrix) made it practical to chart knowledge structures and co-authorship patterns at scale.

The indicators used in this study were selected to cover three complementary dimensions of journal performance. Citation-based metrics—including annual citation totals, the h-index, and the g-index—capture the visibility and cumulative impact of the journal's output over time. Collaboration network analysis, built on co-affiliation data, reveals the structural patterns of institutional partnerships and helps identify whether a journal draws from a broad or narrow contributor base. Field classification, in turn, addresses the thematic composition of the portfolio—something that citation counts alone cannot capture. Together, these three dimensions allow us to move beyond a simple productivity snapshot and describe how the journal has evolved both in terms of reach and subject identity. This combination of performance, structure, and content analysis has been advocated in the bibliometric literature as a more complete framework for evaluating journal-level output, and we follow that approach here.



For bibliometric analysis, the Niğde Ömer Halisdemir University Journal of Engineering Sciences (hereafter, NÖHÜ-JES) offers a valuable case for longitudinal assessment. Several factors contribute to this suitability. First, the journal has been publishing continuously since 2012, which means there is now enough longitudinal depth to observe meaningful trends in output, citation patterns, and thematic evolution. Second, it operates outside the major international indexing systems—it is listed in TR Dizin rather than Web of Science or Scopus—which places it squarely within the category of regional journals that are systematically underrepresented in the bibliometric literature. Third, the journal covers a broad range of engineering disciplines rather than specializing in a single field, making it an interesting case for field-mapping analysis: the diversity of its portfolio raises genuine questions about how a regional outlet balances breadth and depth over time. Finally, as a journal affiliated with a mid-sized Anatolian university, it reflects the publication dynamics of a growing segment of the Turkish higher education system—one that is increasingly active in research but rarely examined at this level of detail. Since 2012, the journal has published across multiple engineering and applied-science domains, positioning itself as a regional hub with growing national reach.

We first compiled a complete list of articles published in NÖHÜ-JES between 2012 and 2025 (1,249 papers in total) directly from the journal website. Citation counts for these papers (2,776 citations) were then retrieved from Google Scholar using the Publish or Perish software, and this combined dataset was used to describe the journal's publication volume and impact over time, as well as its subject mix and collaboration patterns. The aggregate indicators derived from this corpus show Cites/paper = 2.2, Cites/year $\approx$ 198.3, h-index = 18, and g-index = 25. These baseline statistics provide the context for the deeper analyses presented below and enable comparison with peer outlets of similar scope.

Our contribution is twofold. First, we integrate conventional performance metrics (output, citations, h-/g-index) with field and collaboration analytics to capture both productivity and structure (Egghe, 2006; Hirsch, 2005). Second, we produce reusable, transparent artefacts—yearly citation tables/figures, field-by-year distributions, and an institution collaboration network—that can support editorial planning (e.g., special-issue targeting, reviewer recruitment, and outreach to under-represented domains). To enhance continuity, methodological decisions are made in accordance with the reporting style employed in previous bibliometric articles from the same group.

Journal-level bibliometric studies have largely focused on high-impact international outlets and national flagship journals, whereas regionally anchored engineering journals—particularly those indexed in national databases such as TR Dizin rather than Web of Science or Scopus—have received comparatively little systematic attention. This study aims to fill that gap. We present the first comprehensive bibliometric and field-mapping analysis of NÖHÜ-JES covering its entire publication history from 2012 to 2025. Rather than limiting the analysis to standard performance metrics such as output volume, citation counts, and h-/g-index, we combine a curated domain dictionary with a large language model-assisted screening procedure under human supervision to assign primary and secondary subject fields to all 1,249 articles in the corpus. This layered classification yields a more nuanced picture of the journal's thematic identity than keyword co-occurrence alone can provide, and the resulting artefacts—yearly citation tables, field-by-year distributions, and an institution collaboration network—are designed to be directly useful for editorial planning and positioning. To our knowledge, no prior study has applied this combined methodology to a regional Turkish engineering journal at this scale.

Against this background, the present study is guided by the following research questions:

- How have the publication output and citation impact of NÖHÜ-JES evolved over the period 2012–2025?
- Which institutions and authors have contributed most consistently to the journal, and what does the structure of their collaborative relationships look like?
- What is the thematic composition of the journal's portfolio, and how are primary and secondary subject fields distributed across its articles?
- To what extent do the journal's citation patterns, collaboration structure, and thematic profile reflect broader trends observed in regional applied engineering journals?

2. Methodology

Niğde Ömer Halisdemir University Journal of Engineering Sciences (NÖHÜ-JES) is a peer-reviewed, open-access journal of the NÖHÜ Faculty of Engineering that has published original research and reviews since 2012 across a broad range of engineering fields (e-ISSN 2564-6605). It appears quarterly—January, April, July, October—and charges no fees; articles are distributed under a CC BY-NC 4.0 license. The journal reports a double-blind referee process with at least three reviewers and a structured workflow (pre-check $\rightarrow$ scientific evaluation $\rightarrow$ proofreading), with recent operational metrics indicating acceptance ratios of 63% (2022), 64% (2023), and 53% (2024), and publicly posted time statistics for each editorial stage. As of 2025, the archive lists Vol. 14(4) among its latest issues, and the journal notes inclusion in several discovery/indexing services (e.g., TR Dizin, EBSCO, DOAJ, WorldCat), with the usual caveat to verify status directly on each database.

The analysis covers all research items attributed to NÖHÜ-JES between 2012 and 2025, inclusive. The citation data of journal articles were retrieved via Publish or Perish software (PoP) (Harzing, 2007) using Google Scholar index, and the remaining journal article data (author names, author affiliations, abstract, keywords, year) were gathered via Python scripts from the journal website.

Google Scholar was chosen as the citation source primarily because NÖHÜ-JES is not indexed in Web of Science or Scopus, making it the most practical option with meaningful coverage for this journal. Compared to subscription-based databases, Google Scholar also tends to capture a broader range of citing sources, which is an advantage for a regionally oriented journal. Citation data were retrieved using the PoP software, which provides a reproducible article-level interface for Google Scholar queries. As with any Google Scholar-based study, citation counts should be treated as reliable approximations rather than definitive figures, since indexing coverage and metadata consistency can vary over time. The risks associated with these limitations were mitigated through duplicate removal, dictionary-based standardization, and spot-check validation.

Using PoP software (Google Scholar), after filtration, we retrieved 1,268 title records for NÖHÜ-JES, whereas a manual harvest from the journal website produced 1,249 citable items. The 19-record ($\approx 1.5\%$) surplus in the PoP set is consistent with known Google Scholar artefacts—near-duplicates, early-online versions later merged, and non-article content (editorials, front matter, announcements, corrigenda) that PoP software indexes but the journal does not count as research articles. Historical name variants (e.g., “Niğde University” vs. “Niğde Ömer Halisdemir University”) and cross-hosted copies (institutional repositories, aggregators) can also inflate PoP counts. In this study, PoP data are used solely to supply citation counts. All other analyses—including article counts, authorship, annual output, and collaboration statistics—are based exclusively on the manually curated journal dataset ($n = 1,249$), which serves as the ground truth for the corpus underlying our results.

As a limitation of this study, Google Scholar’s coverage and update rhythm may affect recall and citation counts; metadata variations on the journal website (TR/EN character differences, institutional name variants) can yield residual noise. These risks were mitigated through dictionary-based standardization, duplicate removal by title similarity, and spot-check validation.

3. Data Analysis and Discussion

Using the Publish or Perish software, the citation metrics summarized in Table 1 were calculated.

Table 1. The citation metrics summary for NÖHÜ-JES

Metric	Value
Publication Years	2012–2025
Citation Years	2012–2025
Papers	1268
Citations	2776
Cites/year	198.29
Cites/paper	2.19
Authors/papers	2.11
h-index	18
g-index	25
Papers with Citation Count $\geq 1,2,5,10,20$	654,435,180, 61, 16

In Table 1, h-index refers to Hirsch h-index (Hirsch, 2005) where h is the largest number h such that at least h papers have $\geq h$ citations each, and the remaining papers have $\leq h$ citations. Similarly, g-index (Egghe’s g-index) (Egghe, 2006) is the largest number g such that the top g papers have at least g^2 citations in total. “Papers with citation count $\geq k$ ” term denotes the count of articles that have accrued at least k citations. In this dataset, 654 papers have at least one citation; within that group, 66.5% (435) reach ≥ 2 citations, 27.5% (180) reach ≥ 5 , 9.3% (61) reach ≥ 10 , and 2.4% (16) reach ≥ 20 . Disaggregating the cited set shows 33.5% with exactly 1 citation (219), 39.0% with 2–4 citations (255), 18.2% with 5–9 citations (119), 6.9% with 10–19 citations (45), and 2.4% with ≥ 20 citations (16). This pattern—many papers receiving modest early attention alongside a smaller group achieving wider visibility—aligns with the long-tailed citation distributions commonly reported across journals and fields and suggests a healthy spread of impact without over-reliance on a handful of articles.

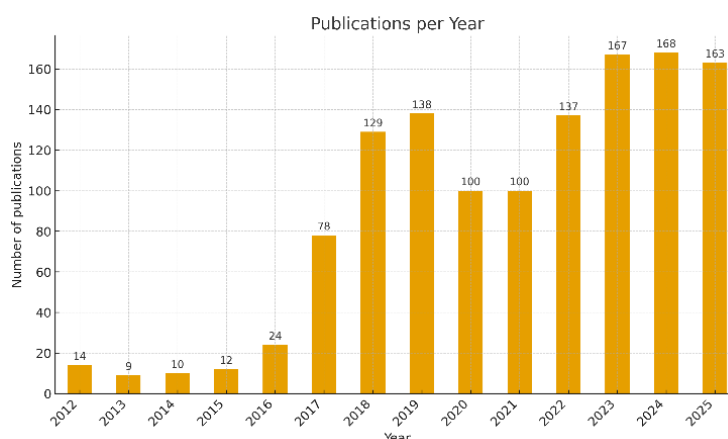


Figure 1. Number of articles published each year

Figure 1 shows the number of articles published by NÖHÜ-JES each year between 2012 and 2025. The number of published articles has increased significantly since 2016. Except for the period between 2020 and 2022 (most likely due to the COVID-19 pandemic), there is an increasing trend that has stabilized over the last three years. Overall, the trajectory suggests a maturing journal with sustained production levels and incremental expansion.

Table 2 lists authors who have six or more publications in the journal. Each appearance of an author in the author list of an article counts for one publication. At the author level, the journal shows both breadth and depth. In total, 2,095 unique authors are present in the 1,249 publications analyzed, which corresponds to a wide contributor base rather than dependence on a narrow set of recurring names. At the same time, a core group of 18 researchers appears as authors on six or more articles. These active contributors might be considered the journal's long-term research community because they frequently appear in collaborative teams, publish regularly, and return to the publication over several years. In several topic areas, the existence of this recurrent author group indicates continuity and thematic depth. On the other hand, the large number of total distinct authors reflects the journal's openness to new contributors and diverse submissions.

Figure 2 summarizes the yearly citation totals received by articles in the journal. The curve shows a clear growth phase, a peak period, and then a gradual normalization. Citations rise sharply after 2016, reaching their highest levels in 2018–2019 (451 and 461 total citations, respectively), which suggests that articles published around this period attracted significant visibility in the field. After 2020, the totals begin to decline, which is expected for two reasons: first, citation impact usually disperses over time rather than concentrating indefinitely in newer volumes; and second, more recent years (2023–2025) have had less time to accumulate citations. The relatively strong citation activity that continues through 2021 and 2022 indicates that the journal is not only producing work that is read but also producing work that is being used and referenced in subsequent research. Overall, the pattern is consistent with a journal that experienced a period of rapid impact growth and continues to generate citable output.

Figure 3 reports the citation distribution of individual articles by publication year, using boxplots. Each box shows the typical range for that year (the interquartile range), the horizontal line inside the box is the median citation count for articles from that year, and the circles above the whiskers represent individual highly cited papers.

Three main patterns emerge: Firstly, most articles receive few citations. For almost every year, the median is close to zero or one citation. This suggests that the “typical” paper is cited modestly, which is common in most journals, especially in applied and specialized fields.

Secondly, a few papers per year attract much closer attention. In almost all years — especially around 2017–2021 — there are clear outliers well above the rest of the distribution. In some cases, these outliers exceed 30, 40, or even 50 citations. This means impact is not evenly shared: a small subset of articles in each cohort becomes highly visible, thereby pulling up the overall citation totals.

As our third observation, older years have had more time to accumulate citations. Earlier publication years (for example, 2017–2019) tend to show both a wider spread and higher-value outliers. Newer years (2023–2025) are much more compressed near zero, which is expected: recent papers have not had enough time in the literature to be cited many times.

Taken together, Figure 3 suggests two things about the journal: (i) it consistently publishes a broad base of articles that receive at least some recognition, and (ii) every year, there are standout papers that become reference points in their topic area. This pattern — a low median but very strong outliers — is typical of journals with active, selective readerships, where certain topics rapidly gain traction in the community.

Table 2. Authors with six or more publications

Author	Number of Publications
Hatice Öznur Öz	8
Muhammet Güneş	8
Münevver Gizem Gümüş	8
Fahrettin Öztürk	7
Mahmut Suat Delibalta	7
Mustafa Korkanç	7
Onur Arslan	7
Serkan Çayırılı	7
Süleyman Savaş Durduran	7
İlker Fatih Kara	7
Aslı Bozdağ	6
Engin Cemal Mengüç	6
Firdevs Uysal	6
Hasan Erhan Yücel	6
Metin Uçurum	6
Serkan Toros	6
Süleyman Kılıç	6
Öner Yusuf Toraman	6

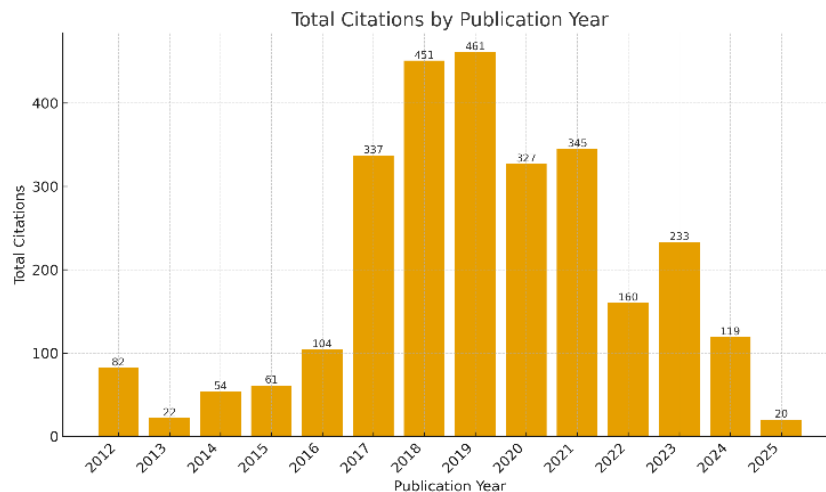
**Figure 2.** Number of citations for articles published each year

Table 3 highlights the five most-cited articles in the dataset and illustrates the topics that have generated the strongest follow-up in the literature. The most frequently cited works are not limited to a single subfield, but instead span decision-making and optimization in industry (“Bulanık MULTIMOORA ile Personel Seçimi,” 52 citations, 2019 (Kuşakcı et al., 2019)), sustainability and energy policy (“Türkiye’de Elektrik Üretiminin Sera Gazı Emisyonları Açısından İncelenmesi,” 52 citations, 2018 (Dulkadiroğlu, 2018)), manufacturing technologies (“Eklemeli Üretim Teknolojileri Üzerine Bir Derleme,” 46 citations, 2020 (Özer, 2020)), information systems and digital infrastructure (“Bulut Bilişim Sistemlerinde Verinin Farklı Boyutları Üzerine Derleme,” 37 citations, 2017 (Şakir & Çelik, 2017)), and environmental/climate analysis at basin scale (“Standart Yağış İndisi... Kızılırmak Havzası,” 36 citations, 2016 (Arslan et al., 2016)). Two points are notable. First, highly cited work is not exclusively experimental research; review/survey-type contributions and methodological studies addressing broad, transferable problems (e.g., additive manufacturing, cloud computing, drought assessment) also attract substantial attention. Second, the publication years of these top papers (2016–2020) align with the period in which the journal’s overall citation totals were at or near their peak, suggesting that visibility gained in those years was driven by articles that connect applied engineering questions with societally relevant themes such as energy, climate resilience, and digital transformation.

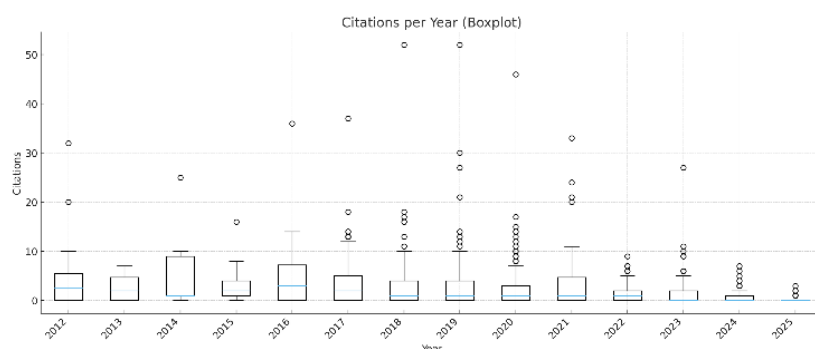


Figure 3. Citation per paper analysis for each year

Table 3. Top five most cited articles (Article titles are translated to English)

Article Title	Authors	Years	Citation Count
“Personnel Selection with Fuzzy MULTIMOORA: An Application in the Aviation Industry” (Kuşakcı et al., 2019)	AO Kuşakcı, B Ayvaz, F Öztürk, F Sofu	2019	52
“Analysis of Greenhouse Gas Emissions from Electricity Generation in Türkiye” (Dulkadiroğlu, 2018)	H Dulkadiroğlu	2018	52
“A Review on Additive Manufacturing Technologies” (Özer, 2020)	G Özer	2020	46
“Compilation on Different Dimensions of Data in Cloud Computing Systems” (Dokuz & Çelik, 2017)	AŞ Dokuz, M Çelik	2017	37
“Meteorological Drought Analysis of the Kızılırmak Basin Using the Standard Precipitation Index Method” (Arslan et al., 2016)	O Arslan, A Bilgil, O Veske	2016	36

Figure 4 reports the top 20 contributing institutions in terms of presence in the journal’s articles. Institutional names were first normalized to a canonical form (e.g., different Unicode spellings of the same university were merged), and each institution was counted at most once per article. Niğde Ömer Halisdemir University is by far the most represented affiliation, appearing in 249 distinct articles in the dataset. Erciyes University follows with 68 articles, and a second tier of high-frequency institutions includes İstanbul Technical University (48 articles), Gazi University (39 articles), and Yıldız Technical University (36 articles). After these, the distribution gradually flattens: many other universities, including Konya Technical University, Aksaray University, Ondokuz Mayıs University, Karadeniz Technical University, and Fırat University, appear in a few dozen articles each. This structure suggests that while the journal has a clear primary contributor institution, it also receives steady, recurring submissions from a broad range of universities across Türkiye, rather than functioning as a single-institution outlet.

Figure 5 maps out how different institutions connect through their publications in the journal. In the network, every node represents an institution, and larger nodes indicate a higher volume of articles from that institution. An edge between two nodes indicates that those institutions have collaborated on at least 3 papers. Greater line thickness reflects a higher number of shared articles. Setting the edge limit to three joint publications filters out weak collaborations. In this way, the network shows only the most active partnerships, remaining clear and easy to read.

Looking at the network, Niğde Ömer Halisdemir University is located at the center. Its node is the largest due to its high number of articles (249). The university collaborates closely and frequently with other universities, including Gazi University, Bayburt University, Aksaray University, Necmettin Erbakan University, Erciyes University, and Karadeniz Technical University. The network highlights how Niğde Ömer Halisdemir University stands out—not just for its research output, but also for its extensive collaboration with others in the academic world.

Erciyes University and Gazi University also play a major role here. Both produce a significant number of publications, making them key players in this collaborative landscape. Compared with other universities, these two universities have a large number of publications. In addition to Niğde Ömer Halisdemir University, these two universities collaborate with other universities. For instance, Bilecik Şeyh Edebali University and Batman University are two additional institutions with which Gazi University works. This implies that certain organizations serve as "bridges". They link smaller or more regionally oriented universities to larger publication streams. These connecting institutions are crucial because they show that cooperation contains multiple secondary bridges that disperse cooperation throughout the network rather than being strictly radial (everyone is connected to a single dominant center).

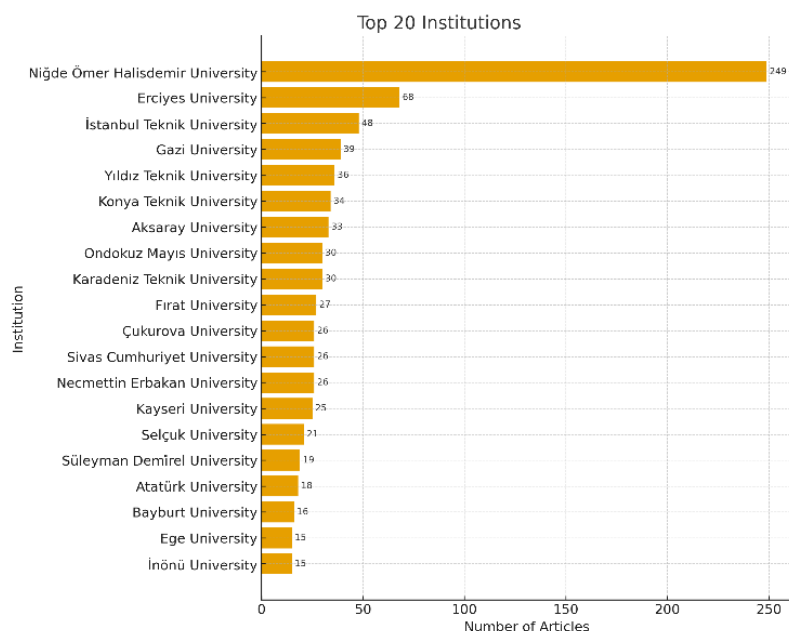


Figure 4. Top 20 institutions based on article count

Institution Collaboration Network (Edges ≥ 3 Shared Papers)



Figure 5. Institution collaboration network

Figure 5 also illustrates the existence of more local, self-sufficient collaboration groups. The triangle formed by Munzur University, Fırat University, and Van Yüzüncü Yıl University is a clear example. While these institutions are not heavily integrated into the main central cluster, their interconnections meet the threshold of " ≥ 3 shared articles." This suggests the existence of a regional collaboration axis. This collaboration could represent a group of universities consistently publishing together, based on the use of shared laboratories in a specific geographic area, faculty mobility, or thematically focused research topics. Similar collaborations can also be seen among different universities. Burdur Mehmet Akif Ersoy University and Süleyman Demirel University—they have several shared articles. A similar case involves Kütahya Dumlupınar University and Yıldız Technical University. Even though they are not close, they continue to collaborate. These do not seem

to be random, one-off projects. These universities consistently publish together, clearing the three-shared-article threshold, which shows their partnerships have real history.

To complement the visual inspection of the collaboration network, we computed a set of basic network metrics. The filtered network (≥ 3 shared articles threshold) contains 18 nodes and 14 edges, yielding a network density of 0.09—meaning that only about 9% of all possible institutional pairings are actually realized. This is entirely expected for co-authorship networks of this scale and reflects the fact that most institutions tend to collaborate within a limited circle rather than across the board. The average degree of 1.56 confirms this picture: a typical institution in the network collaborates with roughly one or two others, though hub institutions such as Niğde Ömer Halisdemir University deviate considerably from this average, given their central position. Taken together, these metrics are consistent with the core-periphery structure visible in Figure 5.

Figure 6 gives the frequency distribution of article keywords of NÖHÜ-JES. The frequency distribution highlights the strong prominence of data-driven themes in the article set. With “machine learning” ($n=24$) and “deep learning” ($n=23$) at the top of the list, and “mechanical characteristics” ($n=22$) not far behind, it is clear that advanced analytics are mostly used to solve challenges focused on materials and performance. A mid-tier cluster—optimization, finite element method, and artificial neural networks (each $n=18$)—shows that conventional computational modeling (finite element methods) and classic AI approaches continue to coexist with newer deep-learning pipelines, often within hybrid methodologies. While classification ($n=13$) highlights the popularity of supervised-learning tasks, topics like adsorption ($n=16$) and microstructure ($n=14$) indicate substantial activity in materials/chemical processing. Despite being less common, climate change ($n=10$) indicates an increasing sustainability lens. Overall, the pattern suggests a field anchored in materials characterization and modeling, with rapid uptake of machine-learning techniques layered onto established simulation and optimization workflows.

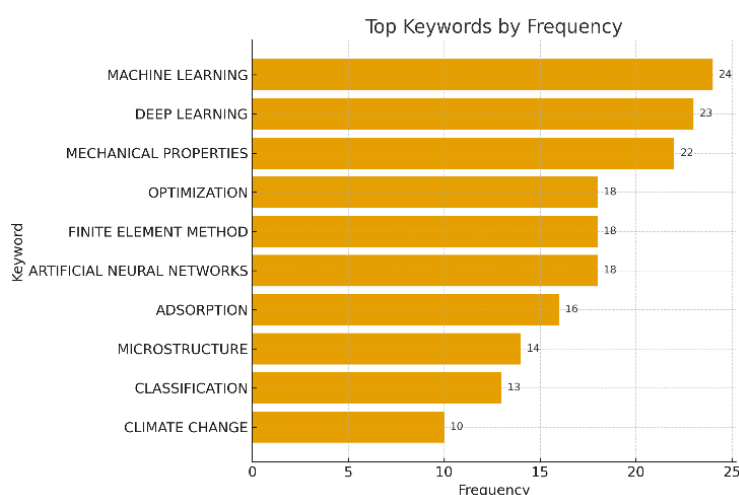


Figure 6. Keywords with frequency ≥ 10

Beyond keyword frequencies, we also classified each article by scientific field; the results are summarised in Figure 7. The classification followed a two-stage process. In the first stage, each article's title, abstract, and author keywords were cleaned and matched against a manually built domain dictionary. This dictionary links technical phrases—such as “finite element,” “compressive strength,” “photovoltaic,” or “graph neural network”—to subject fields. Because authors tend to signal their main topic most directly in titles and keywords, those parts of the text were given slightly more weight than the abstract when computing field scores.

In the second stage, cases where the dictionary returned a tie or an ambiguous result were passed to a GPT-based language model—not to make decisions, but to suggest candidate labels. A human reviewer then checked each suggestion and either confirmed or overrode it. We were aware that LLMs can sometimes latch onto surface-level wording: a paper that uses machine learning to solve a structural engineering problem might get flagged as Computer Science simply because of the method it uses. To catch this kind of drift, we ran a stratified spot-check on a random sample of assignments and adjusted dictionary weights wherever we found a consistent pattern of misclassification.

Ultimately, every article received one primary field—the one with the highest composite score. Where the title, abstract, and keywords together pointed clearly to a second area, a secondary field was recorded as well.

Figure 8 extends this picture by adding secondary field assignments, so bars represent mentions rather than unique papers and totals exceed the corpus size.

A portfolio centered on applied engineering is depicted in Figure 7's 'Primary Field Distribution,' with Materials Science/Metallurgy and Civil Engineering prominently included. With durability, safety, and structure–property interactions

at the forefront of the agenda, this coupling signifies a research ecosystem centered on the built environment and material performance. The main core of the journal combines materials and civil engineering with electrical, electronics and environmental engineering. Together, they show a strong focus on infrastructure and its environmental effects. Computer Science / AI / Data appears near the top of the list, not at the margins. This suggests that data-driven methods are now common tools in many papers, rather than rare experimental add-ons. The visibility of applied mathematics also supports this picture: numerical analysis, modelling and optimisation are used regularly to solve practical engineering problems.

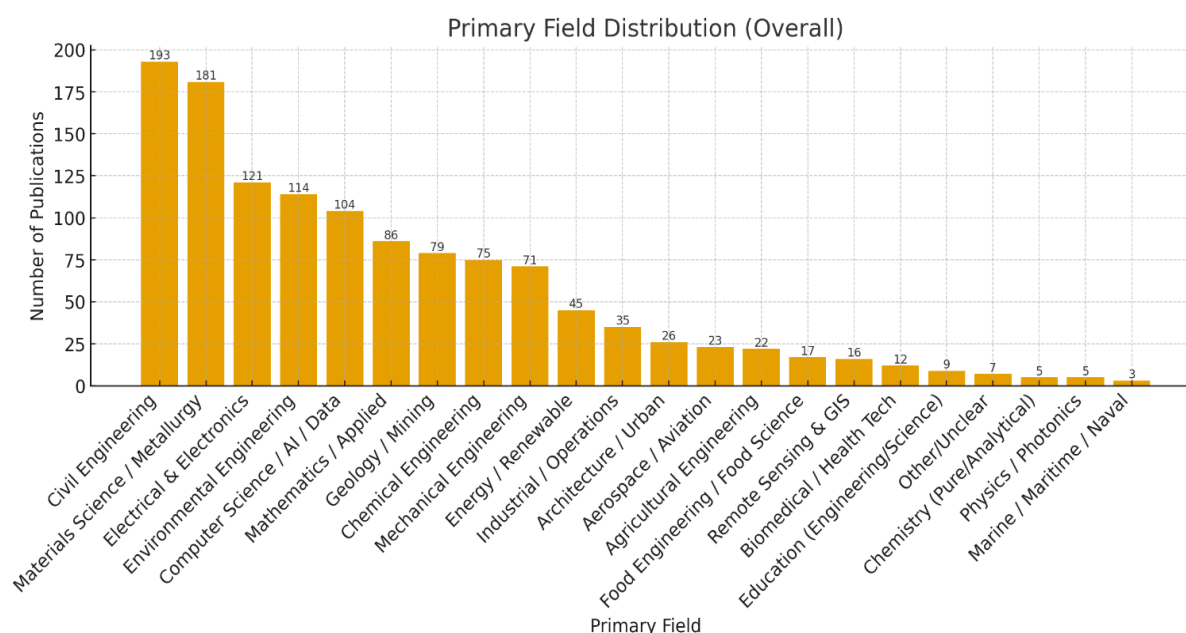


Figure 7. Article counts based on primary field subject assignments

Several mid-range categories help connect these core areas. Geology/Mining, Chemical Engineering, Mechanical Engineering and Energy/Renewable Engineering form a bridge between materials and mechanics on one side and process and energy systems on the other. Many applied studies seem to sit in this middle zone, where material properties affect process design, process limits guide material choices, and energy issues influence both.

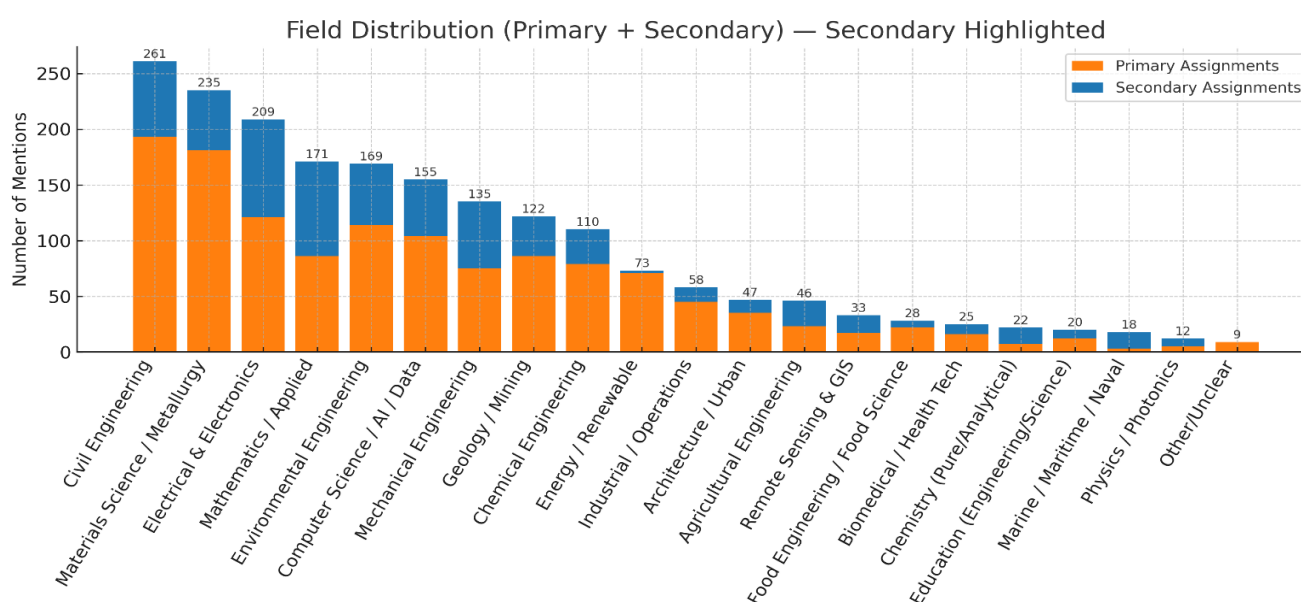


Figure 8. Article counts based on primary and secondary field subject assignments

Smaller but still noticeable shares belong to Architecture/Urban and Industrial/Operations. This is consistent with a journal that mainly publishes field and laboratory work, but does not lose sight of logistics, systems design and the built environment. Beyond this, there are more specialised fields such as Biomedical/Health Technologies, Agricultural and Food Engineering, Remote Sensing & GIS and Aerospace/Aviation. These areas are not dominant, but they show that the journal also hosts a range of niche applications. Although smaller in absolute numbers, these areas are naturally interoperable with the high-volume core: remote sensing couples with civil and environmental monitoring; biomedical and aerospace benefit from established strengths in materials, mechanics, and control; and agro-food systems draw on process engineering and sensing. In fields where focused thematic initiatives or invited reviews could spur growth, the extremely low counts in Education, Chemistry (pure/analytical), Physics/Photonics, and Marine/Maritime/Naval read more as opportunities than as a lack.

Taken together, the pattern that emerges is of a mature applied-engineering portfolio with materials–civil–energy as its gravitational center and a steadily intensifying reliance on AI, data, and mathematical modeling. If the aim is to shape future submissions, the data suggest two levers: method-focused tracks and tutorials that raise the floor for reproducible, well-scoped data-driven studies across application areas; and special issues that pair the core with the tail—AI for structural health monitoring, microstructure–property prediction, or remote sensing for environmental and urban systems—thereby encouraging cross-pollination without diluting identity. To better understand if the growth of AI/data and the momentum in energy-related themes are accelerating trends or steady aspects of the landscape, a time-sliced perspective of these same assignments would be a useful addition to the snapshot.

The engineering core is still prominent when secondary fields are included, as shown in Figure 8. Materials Science/Metallurgy (235 articles) and Civil Engineering (261 articles) remain the portfolio's anchors, but the image is becoming more interdisciplinary. Fields that often appear as method providers or cross-cutting enablers expand markedly: Electrical & Electronics (209), Mathematics/Applied (171), and Computer Science / AI / Data (155) together account for a large share of secondary tags. This is exactly what we would expect if many civil/materials/environmental papers rely on signal processing, control, optimization, numerical analysis, and machine learning. In other words, when we move from “where the problem lives” (primary) to “what tools it runs on” (adding secondary), the methodological spine of the ecosystem becomes visible.

The middle band—Environmental Engineering (169), Mechanical (135), Geology/Mining (122), Chemical (110), and Energy/Renewable (73)—also benefits from secondary tagging. A large portion of this lift is due to bidirectional coupling: energy systems research that emphasizes optimization and control; mechanical and materials articles that extensively rely on finite-element analysis and data-driven property prediction; and environmental studies that rely on GIS/remote sensing or machine learning. Further evidence that systems and planning perspectives often co-travel with lab and field investigations, even when they are not the dominant label, comes from the increase in Industrial/Operations (58) and Architecture/Urban (47) in the mentions plot.

Agricultural Engineering (46), Food Engineering (28), Biomedical/Health Tech (25), and Remote Sensing & GIS (33) appear more prominently in the long tail when supplementary roles are considered. The measurement or application layer on top of civil, environmental, and materials issues is what these classic bridge domains are known for (e.g., satellite-based monitoring of urban heat islands; biosafe materials; process and quality analytics in food/agri contexts). Education (20), Chemistry–Pure/Analytical (22), Marine/Maritime/Naval (18), Physics/Photonics (10), and Other/Unclear (7) are among the very few categories that remain niche. Still, the secondary counts show that authors do use their concepts when appropriate (e.g., spectroscopy, photonics, or marine corrosion considerations).

The primary-only distribution tells us where the venue puts most of its scientific weight; adding secondary fields tells us how the work actually gets done. The strong uplift in Mathematics/Applied and CS/AI/Data mentions signals a research culture that is deeply computational and increasingly data-driven, even when the headline problem is concrete strength, microstructure design, or watershed management. For editors and group leaders, these mentions identify high-value interfaces for special issues and joint calls—AI for structural health monitoring, optimization-driven renewable integration, GIS for environmental and urban systems, data-driven microstructure–property prediction—while also pointing to where tutorials, benchmarks, and reproducibility guidelines would generate the most downstream impact.

4. Conclusions

In this study, we provide a bibliometric analysis of NÖHÜ-JES from 2012 to 2025. Based on our results, NÖHÜ-JES can be considered a typical regional, application-oriented engineering journal. Its strongest areas are materials and civil engineering, while environmental and electrical/electronics engineering are often related themes. AI/data topics and applied mathematics often appear as secondary labels. This pattern suggests that computational methods are now used across many application areas rather than being limited to a single niche.

These findings are easier to interpret when placed in a broader context. The citation trajectory of NÖHÜ-JES—rapid growth through 2018–2019, followed by gradual normalization—is consistent with patterns typically observed in maturing applied engineering journals, where early visibility is often driven by a small number of highly cited papers before impact stabilizes

across a wider base. The growing secondary presence of AI and applied mathematics alongside the core materials and civil engineering fields also reflects a broader methodological shift that has been well documented in the applied engineering literature over the past decade. In this sense, NÖHÜ-JES appears less an outlier and more a representative case of how regionally anchored journals evolve within larger disciplinary currents.

These observations may be useful to editors and researchers working with similar regional engineering journals. One general implication is that data-driven and simulation-based methods (for example, machine learning workflows, finite element modelling, and energy systems optimization) are becoming part of the normal toolbox in many engineering fields. Another implication is that high-volume core areas and lower-volume specialized topics can benefit from being linked more deliberately, for instance, through calls that sit at their interfaces (such as AI for structural health monitoring, data-driven microstructure–property prediction or GIS/remote sensing for environmental and urban systems). Such links may help journals support both depth in their main areas and diversity in emerging topics.

Future studies can build on this work in several directions. First, time-sliced analyses of fields and keywords could be used to measure how quickly different topics gain or lose momentum. Second, citation-context analysis could be applied to understand who cites which papers and why. Third, collaboration mapping could be extended from institutions to author-level and international networks. Overall, the case of NÖHÜ-JES indicates that regional engineering journals can combine stable production, a diversified subject portfolio, and an increasing level of computational content, providing a solid basis for more targeted growth and positioning.

Declarations

Contribution of Authors: This study was prepared by a single author. The conceptual framework, literature review, methodological design, data collection and/or analysis process, evaluation of findings, writing of the manuscript, and final revision were carried out by the author.

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