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Bibliometric Analysis of Research Output of NITK

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Abstract

In the field of Engineering Teaching, the top institutions in India are the Indian Institute of Technology. The National Institute of Technology are deemed universities and enjoys the second priority after IITs. The present paper presents the results of a study conducted on the research output of NITK in the form of publications. Total 2589 publications were contributed in the last ten years. Highest number of publications (503) were contributed in 2016 followed by second highest (479) in 2017. The average number of authors per publication is 3.43. The degree of collaboration in the contributions under study is found to be 0.95. The major area of research output of NITK is Engineering with 48.4% of publication. The second area is computer science with 40.13% publications. The highest foreign collaboration is with United States.

Keywords: NAAC; NITK.

Introduction

In the field of Engineering Teaching, the top institutions in India are the Indian Institute of Technology. The National Institute of Technology are deemed universities and enjoys the second priority after IITs. The faculty and researchers engaged in these NITs also contribute research papers in addition to their job of teaching and research. One of the parameters to gauge the quality of an academic institution is the number of research papers contributed by its faculty and researchers. The accreditation agencies like NAAC also recognize this parameter.

National Institute of Technology Kurukshetra (NITK) was established in the year 1963. It has made rapid strides toward excellence. A sprawling lush green campus, outstanding infrastructure, state-of-the-art support system, contemporary curriculum and a dedicated faculty provide an enabling environment for quality teaching, learning and research.

The institute recognizes the significance of Institute-industry Interface and promotes interaction with the industry through student placements, consultancy services, joint research projects and jointly organizing workshops, seminars, conferences, etc.

Presently, NITK offers undergraduate (B. Tech.) as well as post graduate (M. Tech.) programs in Civil, Computer Science, Electrical, Electronics and Communication, Mechanical Engineering, Industrial Engineering and Management, Information Technology and Master of Business Administration (MBA) – Marketing, Finance, Human Resource Management, Information Technology along with programs in Engineering, Technology, Applied Sciences, and Humanities & Social Sciences at doctorate level. The institute also offers excellent facilities for advanced research in the emerging areas of science and technology [1].

Objectives

The aim of the present study is to identify the various bibliometric aspects of the research output of the faculty and researchers of National Institute of Technology, Kurukshetra. The specific objectives can be mentioned as under:

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- To know the authorship pattern.
- To identify the proportion of single versus multi authored publications.
- To identify the degree of collaboration.
- To analyse the trend in the average number of authors per paper.
- To analyse the year-wise growth pattern of publications.
- To know the most preferred journals.

Methodology

The study is conducted by attempting an advanced search on Scopus database. The search is restricted to National Institute of Technology, Kurukshetra and time period from 2008 to 2017. After importing the data, it was codified. To get results in tabular form, SPSS has also been used. The analysis facility of Scopus has also been utilized.

Results

The analysis of the results is being presented in tabular form along with description of the same under different sub-headings:

Year Wise Distribution

The total number of publications contributed by NITKduring the period of study is 2589. Highest number of publications (503) were contributed in 2016 followed by second highest (479) in 2017. The year 2008 fetched the least number of publications i.e. 95. Most importantly the rise in number of publications is significantly high setting the upside trend.

Table 1: Showing year-wise publications

Year	Number of publications
2017	479
2016	503
2015	374
2014	379
2013	176
2012	184
2011	168
2010	124
2009	107
2008	95
Total	2589

Authorship pattern

It is revealed from the results that the pattern of single authorship is not predominant as mere 128 publications out of 2589 are single authored. The majority of publications (54.04%) are either double authored or triple authored which is almost equal to KUK and MDU contributions [2]. As many as twelvepublications were contributed by involving ten and more authors. The average number of authors per publication is 3.43.

Table 2: Showing authorship-wise publications

Authorship	Number of Publications
Single	128
Double	712
Triple	687
Four	512
Five	292
Six	154
Seven	54
Eight	32
Nine	6
Ten and More	12
Total	2589

Degree of Collaboration

To measure the collaboration in research formula designed by K Subramanyam [3] is used. The formula is:

C = NM/ (NM+NS)

Where C is the degree of collaboration, NM is number of multi-authored contributions and NS is number of single-authored contributions. In other words it is the ratio of the number of multi-authored contributions to total contributions.

The degree of collaboration in the contributions under study is found to be 0.95 which support the results of Raja Ramanna Centre for Advanced Technology contributions [4]. The faculty of NITK also have foreign collaborations with more than forty countries. The top ten foreign collaborative countries have been listed in the below table along with the number of publications. The highest foreign collaboration is withUnited States. The second highest foreign collaborative country is Malaysia.

Subject-wise distributions of contributions

Obviously, the major area of research output of NITK is Engineering with 48.4% of publication. The second area is computer science with 40.13% publications. The areas like Energy; Physics and Astronomy; Materials Science; Mathematics; Chemistry; and Chemical Engineering are the other areas of publications. It is interesting to note that NITK has contributed even in the area of arts and humanities.

Table 3: Showing Country-wise collaboration

Country	No. of publications
United States	51
Malaysia	24
Japan	14
United Kingdom	14
Germany	10
Jordan	9
Australia	7
Brazil	7
South Korea	7
Czech Republic	6
Iran	6

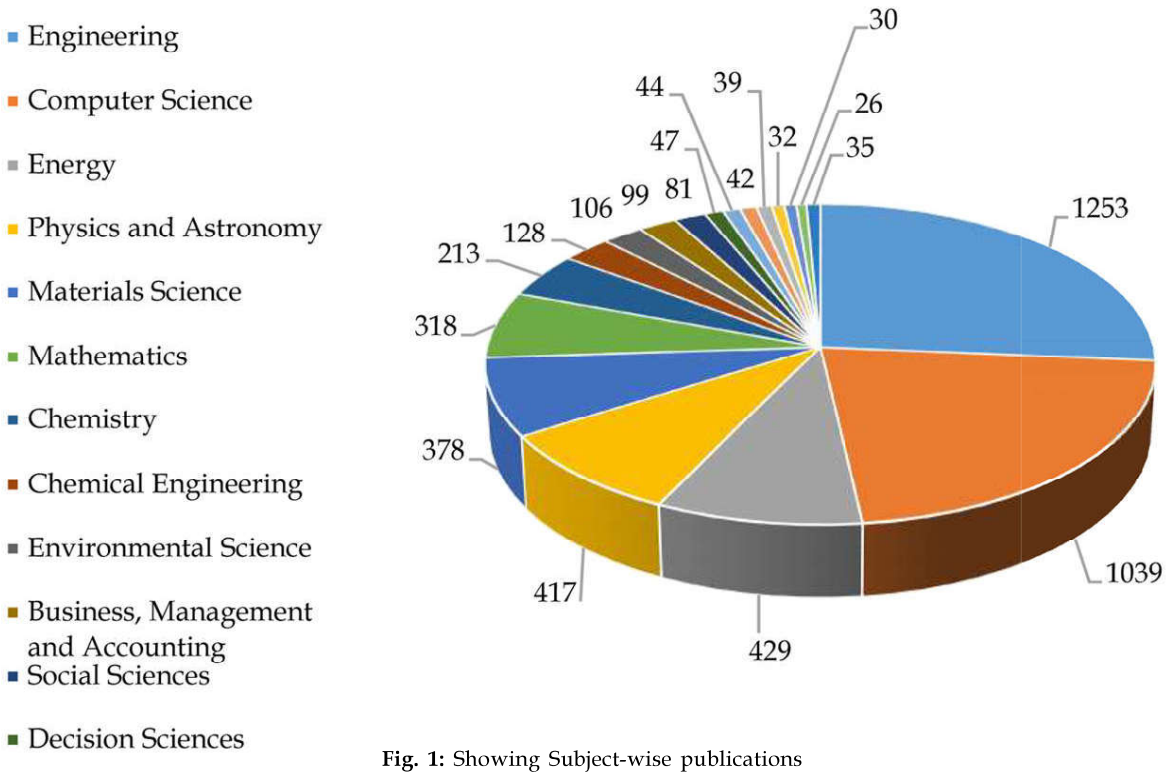

Fig. 1: Showing Subject-wise publications

Document type wise distribution of publications

An analysis of type of document of publications indicates that 53.88% contributions were published in the form of research articles and 41.01% as conference proceedings. Rest of the contributions were reviews, book chapters, editorial, letter, and short survey etc.

Table 4: Showing Document type-wise publications

Document Type	Number
Article	1395
Conference Paper	1062
Article in Press	48
Review	41
Book Chapter	27
Editorial	9
Others	7

Table 5: Showing Top Ten Source publication

Source Title	Number of Publications
Procedia Computer Science	50
Aip Conference Proceedings	34
Wireless Personal Communications	32
Communications In Computer And Information Science	30
Advances In Intelligent Systems And Computing	29
Applied Mechanics And Materials	25
Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics	19
Superlattices And Microstructures	18
Indian Journal Of Pure And Applied Physics	17
International Journal Of Electrical Power And Energy Systems	17
Journal Of Materials Science Materials In Electronics	16

Preferred Journals

The publications of NITK were published in various journals. To observe the preferred or popular journal, the list of source titles was analysed. There is no single journal which has attracted more than even two percent of total contributions. However, the highest number of publications (50) are published in Procedia Computer Science and 34 inAIP Conference Proceedings.

Wireless Personal Communications, Communications in Computer and Information Science, and Advances in Intelligent Systems and Computing published 32, 30 and 29 papers respectively.

Conclusions

The results clearly reflect that still the trend of multi-authorship prevails. Arora and Pawan [5] emphasized that increase in multi authorship and collaboration between researchers is an indication of growing professionalism in different fields. Hence it can be viewed that team research is predominant over solo research. As majority of the publications are in the form of articles, this highlights the academic and research interest of the faculty of NITK.

References

1. http://www.nitkkr.ac.in/
2. Kaushik, Sanjay Kumar. Research Contributions of KUK and MDU: A Bibliometric Study. Indian Journal of Library and Information Science. 2017;11(2);180-84.
3. Subramayam, K. Bibliometric study of research collaboration: A review. Journal of Information Science. 1982;6:33-38.
4. Rajendiran, P. Quantitative analysis of research publications of Raja Ramanna Centre for Advanced Technology, Indore: A bibliometric study from 1995-2004. IASLIC Bulletin. 2006;51(4):228-233.
5. Arora, J and Pawan, U. Collaborative research and authorship patterns in immunology: Correlation between multiple authorship and citedness. IASLIC Bulletin. 1995;40(2):73-83.