

Ranking of Universities: A Study for Last Four Years of Top 25 Indian Universities

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(Received 10 October 2021; Accepted 11 November 2021; Available online 22 November 2021)

Abstract - National Institutional Ranking Framework (NIRF) is a system adopted by the Ministry of Education, Govt. of India (formerly referred to as Ministry of Human Resource Development (MHRD)), to rank all higher educational institutions. However, all things considered the NIRF results from a separate perspective this complete exercise has laid the very foundations of data-driven education and e-governance. The NIRF Ranking System is predicated on five parameters i) TLR, ii) RP, iii) GO, iv) OI and v) PR. A stress on adopting five key parameter frameworks to make sure a gentle real-time flow of the multifaceted datasets from institutions could have helped the cause during a much remarkable manner. This study is meant to analyzing the contributions made by the highest 25 Universities as ranked by NIRF within the aspects of various sub-parameters scores under five key parameters. This article analyses data on four years (2019, 2020 & 2021 of India Rankings to assess its impact on performance of Teaching, Learning and Resources (TLR), Research and Professional Practice (RP), Outreach and Inclusivity (OI), Graduation Outcomes (GO), Peer Perception (PR) parameters and their sub-parameters of top 25 universities are discussed. The analysis of knowledge on four years of India Rankings, i.e., 2018 to 2021 on various performance sub parameters of top 25 universities provides a stimulating rank and score reveals that participating institutions are improving every year and getting improved scores. The HEIs are also making tremendous efforts to enhance their performance on various parameters or sub-parameters identified by the NIRF for ranking of universities.

Keywords: National Institutional Ranking Framework, NIRF, Ranking Parameters, Top 25 Universities-Ranking, Performance of Ranking Parameters and Sub-Parameters

I. INTRODUCTION

The institutional rating is a high phenomenon for measuring an institution's potentiality and highbrow power in converting contexts. The ratings of universities and different academic establishments have turn out to be famous in countrywide and global scenarios. Higher academic establishments are a high section for countrywide development, and it has a full-size effect on studies productivity. The continuous rating can create a surrounding to assess the power and weaknesses of the establishments. It has an essential function in comparing, criticizing, competition, perception, and loose promoting of a college or university. A better function at the worldwide and

countrywide ranges creates an acquainted getting to know surroundings for the scholarly community.

II. NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

The NIRF [1] was set up by the Ministry of Education (formerly known as Ministry Human Resource Development - MHRD), Government of India and launched by the Honourable Minister, of MHRD on 29th September 2015. The aim of India Ranking is to identify capabilities as a world-class university among 900+ universities and 50,000+ standalone institutions. The NIRF outlines a methodology to rank higher educational institutions across the country. A Core Committee has set up by MHRD to identify the broad parameters for ranking various universities and institutions. The methodology arises from the overall recommendations and broad understanding arrived at by the Core Committee. India Rankings 2016 was released on 4th April 2016. The categories of education institutions ranked under NIRF based on this framework are given below table.

A. Categories of the Higher Educational Institutions as NIRF [2]

1. Engineering
2. Universities
3. Management
4. Pharmacy
5. Medical
6. Architecture
7. Law
8. Overall
9. Colleges
10. Dental

B. NIRF Ranking - Key Parameters

The higher education institutions are ranked under NIRF as per below 5 different parameters [3].

1. Teaching, Learning & Resources (TLR) - to check the key activities in the higher education institutions.

2. Research and Professional Practice (RP) - high quality in teaching and learning is firmly related with the scholarship.
3. Graduation Outcome (GO) - To find out the effectiveness of learning and teaching.
4. Outreach & Inclusivity (OI) - settle special importance on the representation of women.
5. Peer Perception (PR) - emphasize the importance to the perception of an institution.

III. OBJECTIVES OF THE STUDY

1. To identify top 25 universities and their rank from 2018-2021 in NIRF system.
2. To identify scores from 2018-2021 for top 25 universities in NIRF system.
3. To measure the performance of TLR, RP, GO, OI, PR parameters and their sub parameters' score from 2018-2020 in NIRF system.
4. To compare the top 25 universities parameter and their sub-parameter score from 2018-2021 in NIRF system.

IV. LITERATURE REVIEW

Nassa, *et al.*, (2021) [4] This article analyses data on five years of India Rankings to assess its impact on performance parameters of institutions of higher education in terms of publications, citations, patents, highly-cited publications and research funding under broad category of parameter named "Research and Professional Practices". The analysis on data on five years of India Rankings, i.e., 2016 to 2020 on various performance parameters of HEIs provides an interesting insight and reveals that participating institutions are making strenuous effort to improve their performance on various parameters or sub-parameters identified by the NIRF for ranking of HEIs. Most ranking systems allocate larger weightage to Bibliometric parameters including publications, citations, HCP, patents, etc. Moreover, it is a well-accepted fact that increase in high-quality publications by an HEI would invariably result in improvement of its ranking. This study reflects that ranking has influenced the performance of HEIs in a positive way.

Vijaya kumar *et al.*, (2018) [5] examination the research trends in thirteen central universities which were established during 2009. The study analyses collaborative research as affiliations and major subject research within the central universities as per published publications. During nine-years (2009 to 2017), the expansion of publications is increasing steadily in central universities. Science, engineering and science are the main subject areas of publications. The study also found that the research collaboration among the peer isn't only with Indian institutes but also with foreign countries.

Mukherjee (2019) [6] has discussed the viability of the research and professional practices in NIRF ranking and teaching, learning & resources, research, professional practices, etc. NIRF parameters. He studies found out that

only selected universities in the fields of science and applied science are published the good amount of research. This study suggested that developing quality infrastructure in the existing universities or institutes are required to get more research works.

Reddy (2015) [7] has discussed the current situation of higher education, high-impact research and university rankings in India. The study shows that India is on the 9th rank for citable documents in all subject categories, the United States is 1st and China is on 2nd. This study also found out that high impact research is influenced by three important factors, namely individual, university and country-specific factors.

Hazelkorn (2011) [8] says that "Rankings are creating a social norm against which all institutions are measured". While higher education has always been competitive, "rankings make perceptions of prestige and quality explicit".

Sivakumaran (2017) [9] shows that the IIMs (Indian Institute of Management) published publications are indexed 20.55% in Web of Science, 65.50% in Scopus and 13.95% in Indian Citation Index. It is also established a new parameter "h index" to assess the contributions of institutions, authors and departments and recommended to adopt.

Vernon *et al.*, (2018) [10] has discussed the utility of ranking systems and identify opportunities to support research and performance improvement by evaluating 13 eligible ranking systems. It found that 100% weightage on research performance is given by most of the ranking systems. It was observed that 76% of the total ranks are associated with research, and 24% associated with academic or teaching quality.

Verma and Brahma (2017) [11] has discussed the Ranking of National Institutes of Technology (NITs) of northeast vicinity of India on the idea of net effect aspect. The result found was that the NIT Silchar from Assam tops with the highest number of web pages and highest number of Internal and External Links. It is found that according to the Simple Web Impact Factor, External Web Impact Factor and Internal Web Impact Factor NIT, Silchar was ranked at the top, while website of NIT Sikkim is at 2nd rank, NIT Mizoram have 3rd rank and NIT Nagaland have 4th rank while NIT Meghalaya and NIT Arunachal are respectively last in rank.

V. METHODOLOGY

To conduct the study, the universities have been selected from the list of NIRF rankings of the top 25 universities. Information related to parameters and sub parameters scores is retrieved from NIRF website. The data concerning of five key parameters and their sub parameters of selected Universities from 2018 to 2021 have been derived for the study from the website of National Institutional Ranking

Framework (<https://www.nirfindia.org>). The institutions have been categorized into ten groups based on domains or categories e.g., Overall, Universities, Engineering, Management, Pharmacy, College, Medical, Law, Architecture, and Dental.

There are 100 Universities have been listed under university domain called top 100 universities. The study considered to top 25 universities that rank in the top 25 ranked university category in Indian Ranking (NIRF) 2018, 2019, 2020 and

2021. The data thus extracted were exported to Ms-Excel for further analysis.

VI. SCOPE AND LIMITATION

The scope of the study is limited to top 25 universities in NIRF system. Moreover, only the score of TLR, RP, GO, OI, PR parameters and their sub-parameters from 2018-2021 were considered for the present study.

VII. DATA ANALYSIS AND DISCUSSION

TABLE I STATE WISE CLASSIFICATION OF UNIVERSITIES PARTICIPATED IN NIRF FROM 2019-2021

State where University located in India	No. of University			NIRF 2019		NIRF 2020		NIRF 2021	
	NIRF 2019	NIRF 2020	NIRF 2021	Govt.	Private / Deemed University	Govt.	Private / Deemed University	Govt.	Private / Deemed University
Delhi	4	4	4	4	0	4	0	4	0
Karnataka	2	2	3	1	1	1	1	2	1
Uttar Pradesh	3	2	3	3	0	2	0	2	1
Tamil Nadu	5	6	5	3	2	3	3	2	3
West Bengal	2	2	2	2	0	2	0	2	0
Telangana	1	1	1	1	0	1	0	1	0
Maharashtra	3	3	3	3	0	3	0	3	0
Rajasthan	1	1	1	0	1	0	1	0	1
Andhra Pradesh	1	1	1	1	0	1	0	1	0
Odisha	1	2	1	0	1	0	2	0	1
Kerala	1	1	0	1	0	1	0	0	0
Chandigarh	1	0	1	1	0	0	0	1	0
Total	25	25	25	20	05	18	07	18	07

It is observed that among those top 25 Universities, 5 Universities (3 are Government funded public Universities and 2 are privately funded universities) in the year 2019, 6 Universities (3 are Government funded public Universities and 3 are privately funded universities) in the year 2020, and 5 Universities (2 are Government funded public Universities and 3 are privately funded universities), in the year 2021 are located in the state of Tamil Nadu and next to that, 4 Universities located in the capital city of Delhi in 2019, 2020 and 2021 are managed to get into the top 25 ranking positions and all of these are Central Government funded Universities.

Whereas, 3 Universities located in Maharashtra are secured their slots in the top 25 ranking table in 2019 and 2020 and 2021 and all of these are Government funded Universities. 3 Universities in the year 2019 and 2021 and 2 Universities in the year 2020 located in the state of Uttar Pradesh (all of these are Government funded Universities, except one is private funded university in 2021) are secured their slots in the top 25 ranking table.

It is to note that 2 universities secured rank in the top 25 Universities in 2018, 2019, and 2020 located in the state of

West Bengal and Karnataka, and both of the Universities are State Government-funded universities in West Bengal, where as one university is funded by Central Government and one is a public-funded university in Karnataka. Among those top 25 Universities, 20 of them are run by the government and the rest of the 05 are run by private management in the year 2019, on the other hand, 18 of them are run by government and rest of the 07 are run by private management in the year 2020 and 2021.

A. Performance of Five Key Parameters

1. Teaching, Learning, and Resources (TLR)

As per Table II, it is observed that among the top 25 universities, only one university i.e., Indian Institute of Science, Bengaluru secured a comparatively well score (i.e., 82.23, 83.16, 84.55 and 79.13 respectively) under the TLR parameter in IR 2018-2021. On the other hand, it is observed that Jadavpur University and Calcutta University secured comparatively fewer scores (i.e., 53.28 and 59.26) in this parameter but secured quite an impressive rank (i.e., 5th and 7th) in IR 2020. It is further observed that the top 25 ranked universities have not achieved a 100% score (i.e., 100) in this parameter.

TABLE II PERFORMANCE OF FIVE KEY PARAMETERS OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2021 IN NIRF SYSTEM

Top 25 Universities in NIRF 2020	Performance of five key parameter from 2018-2021																			
	TLR				RP				GO				OI				PR			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	84.55	83.16	82.23	79.13	91.08	83.16	92.16	91.48	75.48	89.24	82.88	82.67	43.7	78.56	52.84	58.39	100	100	100	100
Jawaharlal Nehru University, New Delhi	74.72	76.75	74.98	71.2	42.6	41.85	44.8	44.96	99.12	99.87	100	78.23	79.32	75.87	75.1	73.36	46.28	55.27	67.24	67.88
Banaras Hindu University, Varanasi	65.15	69.72	70.92	64.5	50.76	46.47	44.88	44.99	95.42	96.37	85.65	95.07	53.13	57.02	58.76	53.22	43.62	47.28	53.99	58.57
Amrita Vishwa Vidyapeetham, Coimbatore	74.05	73.02	69.74	64.23	45.56	43.77	52.11	54.33	71.03	70.28	73.66	100	58.27	70.23	65.83	65.54	31.44	31.01	44.33	71.35
Jadavpur University, Kolkata	57.09	54.39	53.38	51.71	57.07	51.89	52.96	52.02	91.39	90.28	90.38	71.35	36	45.48	78.66	50.17	35.50	51.83	71.44	87.77
University of Hyderabad, Hyderabad	74.36	74.81	71.15	69.58	45.35	43.77	42.93	40.74	84.45	83.65	81.18	77.44	55.7	58.77	54.01	58.72	21.66	36.71	58.32	77.44
Calcutta University, Kolkata	45.46	62.26	59.26	70.7	50.26	47.01	48.58	43.95	86.81	91.54	91.03	91.72	46.71	60.14	61.66	60.98	26.30	37.39	47.99	91.72
Manipal Academy of Higher Education, Manipal	76.04	77.9	75.24	67.68	44.16	38.32	41.81	48.17	61.29	69.71	75.35	76.05	64.23	66.78	66.21	65.25	26.30	30.21	43.95	86.67
Savitribai Phule Pune University, Pune	70.71	69.25	67.65	62.96	43.64	44.42	45.48	42.77	84.55	86.04	85.36	86.96	55.3	54.33	56.22	50.92	15.04	16.55	44.99	86.96
Jamia Millia Islamia, New Delhi	72.33	73.75	71.35	66.45	33.21	32.04	38.29	43.43	82.26	88.53	88.52	86.67	68.86	71.97	73.05	72.35	11.76	14.26	31.60	86.67
University of Delhi, Delhi	52.62	47.86	50.18	42.66	58.16	53.8	55.39	54.23	85.14	87.18	85.21	82.66	57.27	55.41	60.37	59.59	33.15	41.11	53.44	82.66
Anna University, Chennai	57.31	56.39	56	51.92	60.76	72.09	48.62	43.09	79.15	78.07	77.49	73.11	52.54	53.16	62.37	51.35	63.22	62.72	65.89	73.11
Bharathiar University, Coimbatore	65.54	66.93	67.47	61.79	41.7	45.04	46.47	47.44	76.95	76.53	75.58	74.17	52.63	52.11	52.81	53.21	22.63	31.20	37.18	74.17
Homi Bhabha National Institute, Mumbai	84.13	83.25	59.41	68.64	14.17	25.25	30.44	36.44	70.13	71.18	69.82	65.98	44.75	47.29	48.72	50.79	9.85	4.33	33.54	34.35
Birla Institute of Technology & Science, Pilani	61.03	56.67	62.76	55.82	35.55	34.15	40.72	43.13	69.33	73.06	72.48	72.05	57.72	52.26	60.97	59.5	35.32	34.41	41.37	72.05
Vellore Institute of Technology, Vellore	50.28	48.7	48.72	48.43	47.42	47.63	34.83	56.83	68.43	66.55	67.26	69.94	59.97	57.01	58.15	59.38	36.71	35.31	49	69.94
Aligarh Muslim University, Aligarh	70.27	76.69	70.97	69.66	36.87	35.38	40.78	40.86	90.56	85.66	55.71	80.06	49.03	57.57	5.74	56.93	26.30	18.46	38.89	80.06
Institute of Chemical Technology, Mumbai	53.84	54.67	51.99	49.32	48.52	48.41	48.02	55.82	69.18	72.61	75.32	75.96	52.55	51.49	46.08	46.07	15.90	20.28	44.07	75.96
Andhra University, Visakhapatnam	66.08	59.37	63.77	55.04	25.12	23.17	25.99	25.59	83.14	86.61	86.10	85.84	54.75	55.74	56.87	53.5	9.53	14.55	39.82	73.11
Siksha 'O' Anusandhan, Bhubaneswar	74.34	72.96	72.43	63.9	23.44	21.17	25.73	29.92	66.21	69.84	71.13	70	63.07	61.04	63.78	54.45	7.17	20.02	30.40	71.34
Jamia Hamdard, New Delhi	67.67	69.64	69.78	57.83	32.29	29.92	28.48	27.62	74.48	74.12	73.16	69.75	52.2	63.52	61.71	60.64	2.01	6.86	23.16	23.67
University of Madras, Tamil Nadu	66.06	64.29	80.21	61.35	33.4	33.27	33.15	31.82	68.69	68.25	68.21	66.43	53.08	54.18	55.23	53.88	26.52	30.01	38.30	38.17
Kerala University, Kerala	65.17	74.8	73.77	64.77	19.79	18.84	19.03	19.93	83.76	75.70	86	89.11	47.60	51.2	51.56	51.53	7.17	8.59	21.54	21.44
Kalinga Institute of Industrial Technology, Odisha	57.32	66.01	67.83	62.4	22.52	18.1	22.58	27.78	69.57	71.70	72.25	70	65.94	69.37	76.15	78.42	3.55	14.55	31.30	71.74
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	53.44	55.55	63.86	58.59	34.57	32.37	35.91	38.28	64.43	65.16	65.46	66.30	58.95	57.13	57.76	57.78	11.45	6.86	34.20	66.30

2. Research and Professional Practice (RP)

From Table II, it is observed that the top 25 ranked universities have not achieved a 100% score (i.e., 100) in this parameter in any of the IR 2018, 2019, 2020 and 2021. On the other hand, it is also found that most of the universities secured a score below 50 out of 100 under the RP parameter. It can be said that the performances of most of the universities are not well in this parameter except the Indian Institute of Science, Bengaluru. So, Universities should take more initiatives to improve the Research Professional Practice.

3. Outreach and Inclusivity (OI)

It is observed that among the top 25 universities, only one i.e., JNU secured the highest score (i.e., 75.1, 75.87, 79.32 and 73.36 respectively) under Outreach and Inclusivity (OI) parameter in IR 2018, 2019, 2020 and 2021 but secured the 2nd rank. On the other hand, it is observed that Indian Institute of Science, Bengaluru secured the score of 43.7, 78.56, 52.84 and 58.39 respectively in IR 2018, 2019, 2020 & 2021 but secured the 1st rank in consecutively three years.

However, under this parameter, most of the universities have secured fewer scores compared to other parameters. It can be said that Universities need to take more initiatives to improve outreach and inclusivity.

4. Graduation Outcomes (GO)

From Table II, it is observed that among the top 25 universities, only one university (i.e., JNU) secured a 100% score (i.e., 100) in this parameter in 2020 and in other two years also secured more than 99 in 2018 & 2019 but 78.23 in 2021. On the other hand, it is observed that most of the universities secured a score of above 70 out of 100 in this parameter from IR 2018-2020.

However, under this parameter, most of the universities performed far better compared to other parameters.

5. Peer Perception (PR)

From Table II, it is observed that among the top 25 universities, only one university i.e., Indian Institute of Science (IISc-B), secured a 100% score (i.e., 100) in this parameter. On the other hand, it is observed that most of the universities secured the score below 60 out of 100 in this parameter in IR 2018-2021.

B. Performance of Teaching, Learning and Resources (TLR) Sub Parameter

1. Student Strength (SS)

As Table III, under the Performance of Student Strength sub-parameter, Banaras Hindu University secured the

highest score of 18.62 in 2018, 19.01 in 2019, 19.93 in 2020 and 20 in 2021, This means, out of the top 25 universities, Banaras Hindu University has core more in students' strength.

2. Faculty Student Ratio (FSR)

As Table III, in the year 2018 under the performance of Faculty-Student ratio sub-parameter, Indian Institute of Science, University of Hyderabad, Homi Bhabha National Institute, and Siksha 'O' Anusandhan secured the highest score 30, Manipal Academy of Higher Education secured a score of 29.97, Amrita Vishwa Vidyapeetham secured score 29.83.

In the year 2019 and 2020 under the Performance of Faculty Student Ratio sub-parameter Indian Institute of Science, Jawaharlal Nehru University, Amrita Vishwa Vidyapeetham, University of Hyderabad, Manipal Academy of Higher Education, Amrita Vishwa Vidyapeetham, Jamia Millia Islamia, Bharathiar University, Homi Bhabha National Institute, Aligarh Muslim University, and Siksha 'O' Anusandhan, have secured highest score 30. However, no institute has secured 30 in 2022 in Student ratio sub-parameter. These institutes are maintained high standard in Faculty Student Ratio.

3. Faculty's Qualification and Experience (FQE)

As Table III, in the year 2018, 2019 under the Performance of Faculty's Qualification and Experience sub-parameter University of Hyderabad secured the highest score 19.63 in 2018, 19.52 in 2019, 18.97 in 2020 and 19.70 in 2021 and the Indian Institute of Science secured the score of 18.30 in 2018, 18.29 in 2019, 18.45 in 2020 and 18.34 in 2021. So, it can be said Faculty of the University of Hyderabad is more qualified and experienced than the other universities in the last 4 years, however, placed 6th in the ranking.

4. Financial Resources and their Utilization (FRU)

As Table III, under the Performance of Financial Resources and their Utilization sub-parameter, Homi Bhabha National Institute secured the highest score 28.83 in 2018, 26.84 in 2019, 25.19 in 2020, and 16.83 in 2021, however, 2nd highest score secured by the Indian Institute of Science with score of 26.30 in 2018; 24.52 in 2019, 23.60 in 2020 and 15.33 in 2021.

So it can be said that Homi Bhabha National Institute is the richest university out of the top 25 universities and then Indian Institute of Science and accordingly expenditure per student is also higher in these universities. It can also be said that Homi Bhabha National Institute and Indian Institute of Science has also used available funds properly and in a more efficiently, however placed in 13th in the rank.

TABLE III PERFORMANCE OF TEACHING, LEARNING AND RESOURCES (TLR) SUB PARAMETER OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2021 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Performance of Sub Parameter of Teaching, Learning and Resources (TLR)																
	Student Strength-SS (20)				Faculty Student Ration-FSR (2018-2020 = 30 2021 = 25)				Faculty's Qualification and Experience-FQE (20)				Financial Resources and their Utilisation-FRU (30)				OE (15)
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2021
Indian Institute of Science, Bengaluru	10.25	10.35	10.18	10.46	30	30	30	25	18.30	18.29B	18.45	18.34	26.30	24.52	23.60	15.33	10
Jawaharlal Nehru University, New Delhi	13.51	13.88	18.6	15.50	29.34	30	30	24.73	17.07	17.25	17.23	16.98	14.80	15.62	13.89	8.99	5
Banaras Hindu University, Varanasi	18.62	19.01	19.93	20	21.64	24.44	24.95	18.56	14.43	16.26	16.95	14.88	10.46	10.01	9.45	7.06	4
Amrita Vishwa Vidyapeetham, Coimbatore	15.33	16.22	15.03	17.39	29.83	30	30	25	16.55	16.07	15.51	15.66	12.34	10.73	9.12	6.18	0
Jadavpur University, Kolkata	17.64	17.38	17.65	17.32	19.69	18.75	19.11	15.74	12.70	12.27	11.06	12.57	7.06	6.29	5.56	3.58	2.50
University of Hyderabad, Hyderabad	12.11	13	11.90	12.82	30	30	30	25	19.63	19.52	18.97	19.70	12.62	12.29	10.28	6.06	6
Calcutta University, Kolkata	12.49	16.59	16.64	17.52	15.52	24.03	22.24	24.21	10.48	14.41	13.57	16.02	6.97	7.23	6.81	9.45	3.5
Manipal Academy of Higher Education, Manipal	15.39	16.73	16.87	17.75	29.97	30	30	25	16.03	16.83	16.83	16.79	14.65	14.34	11.74	8.14	0
Savitribai Phule Pune University, Pune	14.51	14.77	15.04	13.22	24.07	24.72	24.94	19.35	14.44	14.27	15.01	13.94	17.69	15.49	12.66	8.45	8
Jamia Millia Islamia, New Delhi	15.95	16	16	16	28.47	30	30	25	16.10	16.45	16.22	16.01	11.81	11.30	9.13	6.44	3
University of Delhi, Delhi	17.54	18.07	18.19	17.65	15.35	12.54	14.94	11.10	9.68	8.34	9.41	8.48	9.95	8.91	7.64	5.43	0
Anna University, Chennai	15.78	16.60	16.26	15.62	21.87	21.62	22.03	19.49	12.60	12.29	12.52	12.94	7.06	5.88	5.19	3.87	0
Bharathiar University, Coimbatore	8.67	8.93	10.41	11.57	28.86	30	30	25	17.34	18.94C	18.73	18.86	10.67	9.06	8.33	6.36	0
Homi Bhabha National Institute, Mumbai	7.87	8.97	9.36	8.73	30	30	30	25	17.44	17.44	17.86	18.08	28.83	26.84	25.19	16.83	0
Birla Institute of Technology & Science, Pilani	14.27	14.37	16.50	16.50	21.47	19.04	21.99	18.19	13.27	12.49	14.48	14.51	12.02	10.77	9.79	6.62	0
Vellore Institute of Technology, Vellore	15.77	15.27	16.10	17.18	17.51	16.91	17.18	15.64	10.04	10.16	10.54	12.02	6.98	6.36	4.90	3.59	0
Aligarh Muslim University, Aligarh	17.65	18.33	13.54	20	24.94	30	30	24.09	15.66	17.25	17.15	16.79	12.02	11.11	10.28	6.18	2
Institute of Chemical Technology, Mumbai	8.19	8.26	8.32	8.72	19.96	20.66	18.32	17.87	13.42	13.75	12.52	14.53	12.25	12.01	12.83	8.92	0
Andhra University, Visakhapatnam	14.93	14.97	16	15.96	25.33	25.86	21.53	16.40	15.40	16.36	14.15	12.83	10.42	12.18	12.09	8.35	1.50
Siksha 'O' Anusandhan, Bhubaneswar	15.12	14.59	16.06	16.22	30	30	30	25	17.32	17.02	15.67	15.33	11.90	11.35	10.70	7.35	0
Jamia Hamdard, New Delhi	10.09	12.21	15.29	13.97	29.90	30	30	22.44	17.29	16.78	17.04	15.74	10.39	10.65	9.45	5.68	0
University of Madras, Tamil Nadu	9.77	10.39	10.78	10.53	27.69	27.07	28.34	24.51	18.16	17.91	18.36	17.35	10.44	8.92	7.90	4.96	4
Kerala University, Kerala	9.17	8.56	8.85	11.50	24.88	30	30	25	14.69	17.18	17.02	16.12	16.43	69.06	17.90	12.15	0
Kalinga Institute of Industrial Technology, Odisha	17.39	19	19	19	19.71	24.34	26.51	24.62	11.29	14.26	15.68	17.25	8.93	8.41	6.64	1.53	0
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	15.50	15.48	13.84	15.15	21.82	23.27	30	24.13	10.99	12.11	14.71	15.25	5.13	4.69	5.31	4.06	0

As Table III, under the sub-parameter of “Student Strength-SS”, JU, BHU, University of Delhi, KIIT, Manipal Academy of Higher Education have secured good scores than IISc-B in the year 2018, 2019, 2020 and 2021 respectively, whereas IISc-B secured the first rank in four consecutive years. So, JU, BHU, and DU have more students than the IISc-B, but IISc-B secured the highest rank. Besides under the sub-parameter of “Faculty-Student

Ratio (FSR)”, Faculty’s Qualification and Experience (FQE)”, Financial Resources and their Utilization (FRU)”, IISc-B and JU secured the highest score than other universities in consecutive three years. IISc and JU have a very impressive Faculty-Student ratio, Faculty Qualification and Experience, and Financial Resources and their Utilization than the other Universities in India.

TABLE IV PERFORMANCE OF RESEARCH AND PROFESSIONAL PRACTICE (RP) SUB PARAMETER OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2020 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Performance of Sub Parameter of Research and Professional Practice (RP)															
	Combined Metric for Publications-PU (35)				Combined Metric for Quality of Publication-QP (35)				IPR and Patents: Published and Granted-IPR (15)				Footprint of Projects, Professional Practice and Executive Development Programmes-FPPP (15)			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	35	35	35	35	35	35	35	35	14	12	12	13	7.08	7.24	10.76	8.48
Jawaharlal Nehru University, New Delhi	17.50	19.11	20.06	20.15	19.96	18.68	19.72	20.56	3	3	4	3	2.14	1.06	1.02	1.25
Banaras Hindu University, Varanasi	17.45	18.21	18.13	18.18	27.19	23.26	22.92	23.64	1.50	1.50	1	1	4.62	3.51	2.83	2.17
Amrita Vishwa Vidyapeetham, Coimbatore	15.10	16.68	18.88	19.82	18.47	15.17	17.16	18.37	3	6	9	11	6.99	5.92	7.07	5.14
Jadavpur University, Kolkata	23.33	23.70	23.56	22.54	27.39	24.43	24.51	24.57	2.50	3	1	1.50	3.85	3.76	3.89	3.41
University of Hyderabad, Hyderabad	21.09	20.38	19.15	18.84	20.68	19.94	18.86	19.05	1.50	1.50	3	1	2.08	1.95	1.92	1.85
Calcutta University, Kolkata	17.80	17.66	16.76	15.86	22.14	19.41	18.54	18.04	8	8	9	6	2.32	2.03	4.28	4.03
Manipal Academy of Higher Education, Manipal	16.03	16.69	17.91	18.30	19.05	16.29	17.64	19.29	5	1	3	3	4.08	4.34	4.07	7.58
Savitribai Phule Pune University, Pune	18.57	19.56	19.28	18.52	20.86	20.04	20.29	19.05	1	2	2	2	3.21	2.82	3.91	3.20
Jamia Millia Islamia, New Delhi	12.56	13.25	14.76	16.60	17.13	15.81	17.99	19.93	1	1	3	3	2.52	1.98	2.54	3.90
University of Delhi, Delhi	20.94	21.35	21.44	21.13	30.01	26.35	26.62	26.34	3	3	3	3	4.21	3.10	4.33	3.76
Anna University, Chennai	24.79	24.02	17.91	17.90	25.88	23.59	21.50	19.60	5	2	5	2	5.09	4.48	4.21	3.59
Bharathiar University, Coimbatore	21.88	22.41	23.13	22.64	18.51	20.89	21.56	21.29	0.50	0.50	1	2	0.81	1.24	0.78	1.51
Homi Bhabha National Institute, Mumbai	2.15	9.10	12.06	15.66	9.42	12.67	14.49	17.27	0	0	0	0	2.60	3.48	3.89	3.51
Birla Institute of Technology & Science, Pilani	14.70	15.20	16.45	16.86	19.11	17.03	17.57	19.15	1	1	4	3	0.74	0.92	2.70	4.12
Vellore Institute of Technology, Vellore	19.89	21.80	22.73	23.23	26.19	24	26.32	27.91	0.50	1	5	5	0.84	0.83	0.78	0.69
Aligarh Muslim University, Aligarh	13.82	14.53	15.40	15.84	22.02	19.08	19.97	20.94	0.50	0.50	3	2	0.53	1.27	2.41	2.08
Institute of Chemical Technology, Mumbai	17.97	19.36	19.36	19.28	17.22	19.69	19.50	19.39	11	7	7	15	2.33	2.36	2.16	2.15
Andhra University, Visakhapatnam	9.43	10	10.15	10.27	9.97	8.94	9.10	9.60	0.50	0	1	0.50	5.22	4.23	5.74	5.22
Siksha 'O' Anusandhan, Bhubaneswar	9.30	9	9.68	11.03	12.62	10.04	11.92	13.58	0.50	1	3	4	0.98	1.13	1.13	1.31
Jamia Hamdard, New Delhi	12.69	12.11	11.29	10.60	15.87	13.46	13.32	13.58	2	3	1	1	1.73	1.35	2.97	2.44
University of Madras, Tamil Nadu	15.30	15.01	14.83	14.63	15.19	15.35	15.05	13.77	2	2	2	2	0.91	0.91	1.27	1.42
Kerala University, Kerala	9.07	8.72	8.76	9.13	9.13	9.04	9.50	10.15	1	0.50	0	0	0.59	0.58	0.77	0.65
Kalinga Institute of Industrial Technology, Odisha	5.33	6.62	7.51	9.41	11.92	8.67	10.31	12.19	0.50	0.50	2.50	3	4.77	2.31	2.26	3.18
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	14.11	13.93	14.96	15.22	17.12	14.50	15.48	17.03	1	2	1	1.50	2.34	1.94	4.47	4.53

C. Performance of Sub Parameter of Research and Professional Practice (RP)

1. Combined Metric for Publications (PU)

As Table IV, under the Performance of Combined Metric for Publications (PU), the Indian Institute of Science secured the highest score 35.00 in 2018, in 2019, in 2020 and in 2021. However, the second highest score secured with a score 24.79 in 2018, and with score of 24.02 in 2019 by Anna University, by Jadavpur University with score of 23.56 in 2020 and by Vellore Institute of Technology with score of 23.23 in 2021. Indian Institute of Science is publishing a greater number of research papers in all the last four years, than the other universities and placed 1st rank among the Universities. It further reveals that Homi Bhabha National Institute which is the richest university has spent more money per students and secured 2.15, 9.10, 12.06 & 16.86 scores in the year 2018, 2019, 2020 and 2021 respectively which is lesser than any other top 25 universities. However, Homi Bhabha National Institute secured 14th rank among the Universities.

2. Combined Metric for Quality of Publication (QP)

As Table IV, in the year 2018, 2019, 2020 and 2021 under the Performance of Combined Metric for Quality of Publication (QP), the Indian Institute of Science secured the highest score 35.00 in all the four years and then University of Delhi secured the second highest score of 30.01 in 2018, 26.35 in 2019, and 26.62 in 2020 and in 2021 Vellore Institute of Technology has secured the second highest score with 27.91. So, it can be said highest impact factors papers are published by IISc in all four years in 2018, 2019, 2020 and 2021, so their quality of papers is also very good.

After IISc, other universities published good quality papers are University of Delhi, Jadavpur University and then Vellore Institute of Technology.

3. IPR and Patents: Published and Granted (IPR)

As Table IV, under the Performance of IPR and Patents: Published and Granted (IPR), the Indian Institute of Science (IISc) secured the highest score 14, 12, and 12 in 2018, 2019, 2020 respectively and secured second highest in 2021 with score of 13. Institute of Chemical Technology (ICT) secured a second highest score 11.00 and 8.00 in 2018 and 2019 and however they have secured highest score with improved score of 15 in 2021.

So, IISc has secured highest score under the Performance of IPR and Patents: Published and Granted (IPR). This indicates IISc-B has registered, granted and published highest number of IPR and patents in 2018, 2019 and 2020, however highest number of IPR and patents has registered, granted and published in 2018 is by ICT.

4. The Footprint of Projects, Professional Practice and Executive Development Programmes (FPPP)

As Table IV, under the Performance of “Footprint of Projects, Professional Practice, and Executive Development Programmes (FPPP)”, the Indian Institute of Science has secured the highest score 7.08, 7.24, 10.16 and 8.08 in the year 2018, 2019, 2020 and 2021 respectively and Amrita Vishwa Vidyapeetham has secured a second highest score of 6.99, 5.92 and 7.07 in the year 2018, 2019 and 2020 respectively. However, Manipal Academy of Higher Education has secured a second highest score of 7.58 in 2021.

5. Region Diversity (RD)

As Table V, under the Performance of Region Diversity (RD), Jawaharlal Nehru University has secured the highest score 24.16, 25.86, and 25.30 in the 2018, 2019, and 2020 respectively and in 2021, highest score has secured with 24.92 by Kalinga Institute of Industrial Technology, and Jawaharlal Nehru University has secured 24.50 in 2021. So, it can be said that under the sub-parameter of “Performance of Region Diversity (RD), Jawaharlal Nehru University has secured the highest score among the universities in all three consecutive years. So, Jawaharlal Nehru University has got more diversity of students and researchers from the different regions than the other Indian Universities.

6. Women Diversity (WD)

As Table V, under the Performance of Women Diversity (WD), Bharathiar University have secured the highest score 30 in all the four years. However, Calcutta University and Kerala University have also secured highest score of 30 in 2019, 2020 & 2021 and Jawaharlal Nehru University has secured the highest score of 29.69, 30.00 in 2018 and 2019. It is also found that many Universities have secured good score. So, it can be said that under the sub-parameter of “Performance of Women Diversity (WD), Bharathiar University has secured the highest score among the universities in all the consecutive years 2018, 2019, 2020 & 2021. So, Jawaharlal Nehru University has got more diverse of women students and researchers from the different regions than the other Indian Universities always. It also can said that many Universities have good number of women students and researchers.

7. Economically and Socially Challenged Students (ESCS)

As Table V, in the year 2018 under the Performance of Economically and Socially Challenged Students (ESCS), Savitribai Phule Pune University has secured the highest score of 5.96, then Jawaharlal Nehru University secured 5.47 score with a second-highest score. In the year 2019 under the Performance of Economically and Socially Challenged Students (ESCS), Calcutta University has secured the highest score 6.85, then Savitribai Phule Pune University secured a 6.22 score.

TABLE V PERFORMANCE OF OUTREACH AND INCLUSIVITY (OI) SUB PARAMETER OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2020 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Performance of Sub Parameter of Outreach and Inclusivity (OI)															
	Region Diversity-RD (30)				Women Diversity-WD (30)				Economically and Socially Challenged Students-ESCS (20)				Facility for Physically Challenged Students-PCS (20)			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	21.12	21.99	21.02	21.90	9.50	10.06	9.45	9.21	4.08	4.42	4.37	7.27	9	12	18	20
Jawaharlal Nehru University, New Delhi	24.16	25.87	25.30	24.50	29.69	30	29.80	28.86	5.47	0	0	0	20	20	20	20
Banaras Hindu University, Varanasi	7.25	8.88	9.36	9.61	22.39	24.58	25.62	24.33	3.49	3.56	3.78	3.28	20	20	20	16
Amrita Vishwa Vidyapeetham, Coimbatore	9.22	21.63	17.19	16.14	28.46	28.21	27.74	28.12	0.59	0.39	0.90	1.28	20	20	20	20
Jadavpur University, Kolkata	3.30	3.49	3.85	2.55	21.50	20.29	20.44	20.28	2.20	1.17	6.37	7.34	9	20	18	20
University of Hyderabad, Hyderabad	13.04	19.73	16.26	15.19	25.66	28.04	25.75	25.53	0	0	0	0	17	11	12	18
Calcutta University, Kolkata	1.83	3.29	3.92	3.98	27.32	30	30	30	0.56	6.85	7.74	7	17	20	20	20
Manipal Academy of Higher Education, Manipal	17.67	19.01	18.12	17.21	25.69	26.74	27.01	27.01	0.57	1.03	1.08	1.03	20	20	20	20
Savitribai Phule Pune University, Pune	2.90	2.99	3.53	3.14	26.44	27.12	27.80	25.19	5.96	6.22	6.89	2.59	20	18	18	20
Jamia Millia Islamia, New Delhi	18.64	9.78	19.99	17.40	27.06	26.97	26.93	26.59	3.16	5.22	6.13	8.36	20	20	20	20
University of Delhi, Delhi	4.70	10.50	12.96	13.71	26.44	24.58	27.12	25.60	0.13	0.33	0.29	0.28	20	20	20	20
Anna University, Chennai	1.09	1.94	1.60	0.82	26.70	27.68	27.16	27.19	4.75	3.54	3.61	3.34	20	20	20	20
Bharathiar University, Coimbatore	2.43	3.69	2.88	3.21	30	30	30	30	3.20	2.42	1.93	2	17	16	18	18
Homi Bhabha National Institute, Mumbai	2.15	11.44	12.04	13.13	9.42	20.85	21.68	22.66	0	0	0	0	2.60	15	15	15
Birla Institute of Technology & Science, Pilani	19.76	19.40	23.92	23.07	16.57	14.86	17.02	16.36	1.39	0	0.03	0.07	20	18	20	20
Vellore Institute of Technology, Vellore	16.89	15.56	17.22	17.83	20.55	20.32	20.80	21.44	2.58	0.13	0.13	0.11	20	20	20	20
Aligarh Muslim University, Aligarh	6.79	7.96	8.59	8.37	25.23	26.01	25.78	25.84	3.01	3.60	3.03	2.72	14	20	20	20
Institute of Chemical Technology, Mumbai	3.16	3.33	4.52	6.24	24.97	24.55	24.65	24.89	4.42	3.61	2.91	1.94	20	20	14	13
Andhra University, Visakhapatnam	2.04	2.60	2.57	1.51	28.96	29.08	29.69	29.32	3.75	4.06	4.61	3.62	20	20	20	20
Siksha 'O' Anusandhan, Bhubaneswar	11.82	12.41	13.61	15.07	28.73	28.35	29.45	30	2.52	0.28	0.72	0.83	20	20	20	20
Jamia Hamdard, New Delhi	12.69	15.44	14.89	13.80	15.87	29.26	28.55	28.01	2	0.82	0.27	0.83	1.73	18	18	18
University of Madras, Tamil Nadu	15.30	5.25	5.23	4.39	15.19	28.93	30	29.49	2	0	0	0	0.91	20	20	20
Kerala University, Kerala	9.07	1.20	1.56	1.53	9.13	30	30	30	1	0	0	0	0.59	20	20	20
Kalinga Institute of Industrial Technology, Odisha	5.33	19.22	24.56	24.92	11.92	27.47	29.13	30	0.50	2.68	2.46	3.50	4.77	20	20	20
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	14.11	6.97	8.57	9.22	17.12	29.68	27.91	27.86	1	0.48	1.28	0.70	2.34	20	20	20

In the year 2020 under the Performance of Economically and Socially Challenged Students (ESCS), Calcutta University secured the highest score of 7.74, then Savitribai Phule Pune University secured a 6.85 score as second highest. Jadavpur University has secured highest score with 7.34 and Indian Institute of Science has second highest secured score with 7.27 in 2021.

So, Calcutta University and Savitribai Phule Pune University have more students and researchers from economically and socially challenged groups and more facilities have been provided to this group of students, than the other universities in India.

8. Facility for Physically Challenged Students-PCS

As Table V, in the year 2018 under the Facility for Physically Challenged Students (PCS), Jawaharlal Nehru University, Banaras Hindu University, Savitribai Phule Pune University, Amrita Vishwa Vidyapeetham, Manipal Academy of Higher Education, Jamia Millia Islamia, University of Delhi, Anna University, Vellore Institute of

Technology, Andhra University and Siksha `O` Anusandhan have secured the highest score of 20 out of 20 in all the consecutive last four years. So, these universities have all facilities for Physically Challenged Students. This is also to note that as per table 5, most of the top 25 universities have secured good scores, and they have all strong facilities for Physically Challenged Students.

TABLE VI PERFORMANCE OF GRADUATION OUTCOMES (GO) SUB PARAMETER OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2020 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Performance of Sub Parameter of Graduation Outcomes (GO)							
	Metric for University Examinations-GUE (60)				Metric for Number of Ph.D. Students Graduated-GPHD (40)			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	47.13	48.31	52.41	50.60	28.13	30.25	30.47	27.63
Jawaharlal Nehru University, New Delhi	60	60	60	59.55	39.12	39.87	40	35.52
Banaras Hindu University, Varanasi	60	60	51.23	60	35.42	36.37	34.42	40
Amrita Vishwa Vidyapeetham, Coimbatore	60	60	60	59.40	11.03	10.28	13.66	11.95
Jadavpur University, Kolkata	58.94	57.22	58.77	60	32.45	33.06	31.61	27.77
University of Hyderabad, Hyderabad	60	57.98	56.33	55.45	24.45	25.67	24.65	21.99
Calcutta University, Kolkata	60	60	60	60	26.81	31.54	31.03	31.72
Manipal Academy of Higher Education, Manipal	47.76	50.48	53.35	59.19	13.53	19.23	22	19.86
Savitribai Phule Pune University, Pune	60	60	60	60	24.55	26.04	25.36	26.96
Jamia Millia Islamia, New Delhi	55.86	60	60	60	26.40	28.53	28.52	26.67
University of Delhi, Delhi	45.14	47.18	47.48	48.47	40	40	37.73	34.19
Anna University, Chennai	59.68	58.40	60	60	19.47	19.67	17.49	13.11
Bharathiar University, Coimbatore	60	60	60	60	16.95	16.53	15.58	14.17
Homi Bhabha National Institute, Mumbai	45.16	44.16	43.31	41.78	24.97	27.02	26.51	24.20
Birla Institute of Technology & Science, Pilani	60	60	60	60	9.33	13.06	12.48	12.05
Vellore Institute of Technology, Vellore	53.09	48.88	48.33	55.36	15.34	17.67	18.93	16.58
Aligarh Muslim University, Aligarh	60	54.29	53.73	52.81	30.56	31.37	1.98	27.25
Institute of Chemical Technology, Mumbai	54.63	55.92	58.29	60	14.55	16.69	17.03	15.96
Andhra University, Visakhapatnam	60	60	60	60	23.14	26.61	26.10	25.84
Siksha `O` Anusandhan, Bhubaneswar	60	60	60	60	6.21	9.84	11.13	11.34
Jamia Hamdard, New Delhi	60	60	60	60	14.48	14.12	13.16	9.75
University of Madras, Tamil Nadu	43.92	42.74	46.27	52.03	24.69	25.51	21.94	14.40
Kerala University, Kerala	60	60	60	60	23.76	25.70	26	29.11
Kalinga Institute of Industrial Technology, Odisha	60	60	60	60	9.57	11.70	12.25	10
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	60	60	60	60	4.43	5.16	5.46	6.30

9. Metric for University Examinations-GUE

The above table shows that Jawaharlal Nehru University, Banaras Hindu University, Amrita Vishwa Vidyapeetham, Calcutta University, Savitribai Phule Pune University, Bharathiar University, Birla Institute of Technology & Science, Jamia Millia Islamia, Bharathiar University, Birla Institute of Technology & Science, Aligarh Muslim

University, Andhra University, Siksha `O` Anusandhan, Jamia Hamdard, Kerala University, Kalinga Institute of Industrial Technology and Shanmugha Arts Science Technology & Research Academy have secured highest score under the sub-parameter “Metric for University Examinations-GUE”. So, a large number of students are consistently getting a graduate degree from these universities.

10. Metric for Number of Ph.D. Students Graduated-GPHD

Under the sub-parameter of “Metric for Number of Ph.D. Students Graduated-GPHD”, JNU, JU, DU, and AMU consistently secured good scores in consecutively three years but IISc-B secured the first rank in this category.

Under the sub-parameter of “Metric for University Examinations-GUE” and “Metric for Number of Ph.D. Students Graduated-GPHD”, there are some top-ranked universities that secured comparatively less score but secured standard overall rank in three consecutive years.

TABLE VII PERFORMANCE OF PEER PERCEPTION (PR) PARAMETER OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2020 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Performance of Parameter and Sub Parameter of Peer Perception-PR (100)			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	100	100	100	100
Jawaharlal Nehru University, New Delhi	46.28	55.27	67.24	67.88
Banaras Hindu University, Varanasi	43.62	47.28	53.99	58.57
Amrita Vishwa Vidyapeetham, Coimbatore	31.44	31.01	44.33	71.35
Jadavpur University, Kolkata	35.50	51.83	71.44	87.77
University of Hyderabad, Hyderabad	21.66	36.71	58.32	77.44
Calcutta University, Kolkata	26.30	37.39	47.99	91.72
Manipal Academy of Higher Education, Manipal	26.30	30.21	43.95	86.67
Savitribai Phule Pune University, Pune	15.04	16.55	44.99	86.96
Jamia Millia Islamia, New Delhi	11.76	14.26	31.60	86.67
University of Delhi, Delhi	33.15	41.11	53.44	82.66
Anna University, Chennai	63.22	62.72	65.89	73.11
Bharathiar University, Coimbatore	22.63	31.20	37.18	74.17
Homi Bhabha National Institute, Mumbai	9.85	4.33	33.84	34.35
Birla Institute of Technology & Science, Pilani	35.32	34.41	41.37	72.05
Vellore Institute of Technology, Vellore	36.71	35.31	49	69.94
Aligarh Muslim University, Aligarh	26.30	18.46	38.99	80.06
Institute of Chemical Technology, Mumbai	15.90	20.28	44.07	75.96
Andhra University, Visakhapatnam	9.53	14.55	39.82	73.11
Siksha 'O' Anusandhan, Bhubaneswar	7.17	20.02	30.40	71.34
Jamia Hamdard, New Delhi	2	6.86	23.16	23.67
University of Madras, Tamil Nadu	26.52	30.01	38.30	38.17
Kerala University, Kerala	7.17	8.59	21.54	21.44
Kalinga Institute of Industrial Technology, Odisha	3.55	14.55	31.30	71.74
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	11.45	6.86	34.20	66.30

In the above table top-ranked IISc-B, JNU and BHU secured a really good score under the sub-parameter of “Peer Perception (PR)”, in consecutively four years. On the opposite hand, major changes are seen in KIIT, SOA, ICT-Mumbai, VIT, and Homi Bhabha National Institute scores are fluctuating between three years.

Table VIII shows that, the major changes are seen in the overall score of the top 20 universities under the university category. It is found that consecutively four years Indian

Institute of Science got the first position in the National Institutional Ranking Framework (NIRF) and the overall score are 91.81(2018), 82.28(2019), 84.18(2020), and 82.67(2021). The 2nd rank and 3rd rank consecutively four years in NIRF followed by Jawaharlal Nehru University, Banaras Hindu University. In the year 2018 Calcutta University got the 14th position in the National Institutional Ranking Framework (NIRF), in the year 2020 got the 7th position whereas in the year 2021 got 4th position.

TABLE VIII PERFORMANCE OF UNIVERSITY RANK AND SCORE OF TOP 25 UNIVERSITIES UNDER UNIVERSITY CATEGORY FROM 2018-2020 IN NIRF SYSTEM

Top 25 Universities under University category in NIRF 2020	Rank				Overall Score			
	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021	NIRF 2018	NIRF 2019	NIRF 2020	NIRF 2021
Indian Institute of Science, Bengaluru	1	1	1	1	91.81	82.28	84.18	82.67
Jawaharlal Nehru University, New Delhi	2	2	2	2	65.57	68.68	70.16	67.99
Banaras Hindu University, Varanasi	3	3	3	3	63.52	64.55	63.15	64.02
Amrita Vishwa Vidyapeetham, Coimbatore	8	8	4	5	58.46	59.22	62.27	61.23
Jadavpur University, Kolkata	6	6	5	8	59.68	60.53	61.99	60.33
University of Hyderabad, Hyderabad	5	4	6	9	60.54	61.85	61.70	59.71
Calcutta University, Kolkata	14	5	7	4	53.38	60.87	61.53	62.06
Manipal Academy of Higher Education, Manipal	11	9	8	7	57.37	58.50	61.51	60.58
Savitribai Phule Pune University, Pune	9	10	9	11	58.24	58.40	61.13	58.34
Jamia Millia Islamia, New Delhi	12	12	10	6	56.18	58.07	61.07	60.74
University of Delhi, Delhi	7	13	11	12	58.69	57.59	60.10	57.09
Anna University, Chennai	4	7	12	16	62.82	60.35	58.71	54.97
Bharathiar University, Coimbatore	13	14	13	14	55.08	57.23	58.30	56.44
Homi Bhabha National Institute, Mumbai	26	17	14	18	48.98	51.95	56.04	53.24
Birla Institute of Technology & Science, Pilani	17	23	15	17	52.15	50.53	55.79	54.74
Vellore Institute of Technology, Vellore	16	19	16	13	52.68	51.44	55.22	56.63
Aligarh Muslim University, Aligarh	10	11	17	10	57.78	58.36	54.30	58.97
Institute of Chemical Technology, Mumbai	19	15	18	15	51.39	52.62	54.10	56.10
Andhra University, Visakhapatnam	22	16	19	24	50.39	52.11	53.82	51.10
Siksha 'O' Anusandhan, Bhubaneswar	24	24	20	20	49.59	50.31	53.10	52.34
Jamia Hamdard, New Delhi	23	18	21	41	50.31	51.73	52.60	48.02
University of Madras, Tamil Nadu	18	20	22	28	51.52	51.34	52.55	50.46
Kerala University, Kerala	30	22	23	27	47.72	51.21	52.35	50.52
Kalinga Institute of Industrial Technology, Odisha	42	31	24	21	44.81	47.97	52.33	52.06
Shanmugha Arts Science Technology & Research Academy, Tamil Nadu	36	40	25	22	46.33	45.80	52.22	51.83

VIII. CONCLUSION

Tamil Nadu has the greatest number of universities among those top 25 Universities. Among top 25 Universities, 5 Universities (3 are Government funded public Universities and 2 are privately funded universities) in the year 2019, 6 Universities (3 are Government funded public Universities and 3 are privately funded universities) in the year 2020, and 5 Universities (2 are Government funded public Universities and 3 are privately funded universities), in the year 2021 are located in the state of Tamil Nadu. Among those top 25 Universities, 20 of them are run by the government and the rest of the 05 are run by private management in the year 2019, on the other hand, 18 of them are run by government and rest of the 07 are run by private management in the year 2020 and 2021. Indian Institute of Science (IISc) has secured a comparatively well score under the Teaching, Learning, and Resources (TLR). It means IISc has taken much more initiatives in teaching and learning

and resources than the other universities and ranked first in the university category. On the other hand, Jadavpur University and Calcutta University did not take much initiative in TLR, but secured quite an impressive rank (i.e., 5th and 7th) in IR 2020. To improve in ranking, it is required universities should take more initiatives in TLR. More initiatives also need to take by the other universities other than IISc, in terms of improving in outreach and inclusivity and Research and Professional Practice. This is to note that even JNU secured the highest score under Outreach and Inclusivity (OI) and Graduation Outcomes (GO) parameters but placed in the 2nd rank and Indian Institute of Science has secured lesser score, but placed in the first rank in consecutively. Banaras Hindu University has more students' strength than the any other universities in India. Indian Institute of Science, University of Hyderabad, Homi Bhabha National Institute, Siksha 'O' Anusandhan, Manipal Academy of Higher Education, Amrita Vishwa Vidyapeetham, Jawaharlal Nehru

University, Jamia Millia Islamia, Bharathiar University, Homi Bhabha National Institute, and Aligarh Muslim University are maintained very good Faculty Student Ratio (FSR).

However other universities are trying their best to improve Faculty Student Ratio. Faculty of the University of Hyderabad is more qualified and experienced than the other universities, however, placed 6th in the ranking. It is found that most of the universities have facing challenges as financial resources are not enough and even some universities have enough finance, but could use properly. Homi Bhabha National Institute is the richest university in India, however placed in 13th in the rank and IISc has also doing well in making available required fund and managing financial resources. Accordingly, expenditure per student is also very high in these two universities compared to other universities. It can also be said that Homi Bhabha National Institute and Indian Institute of Science has also used available funds properly. JU, BHU, DU, KIIT, and Manipal Academy of Higher Education have higher number of students, than the IISc, whereas IISc-B secured the first rank in four consecutive years. Besides under the sub-parameter of “Faculty-Student Ratio (FSR),” Faculty’s Qualification and Experience (FQE),” Financial Resources and their Utilisation (FRU),” IISc-B and JU have done better than other universities.

IISc and JU have a very impressive Faculty-Student ratio, Faculty Qualification and Experience, and Financial Resources and their Utilisation than the other Universities in India. Indian Institute of Science (IISc-B) is publishing a greater number of research papers in all the last four years, than the other universities and placed 1st rank among the Universities. It further reveals that Homi Bhabha National Institute which is the richest university has spent more money per students has been publishing lesser number of research papers than any other top 25 universities. However, Homi Bhabha National Institute secured 14th rank among the Universities.

Anna University, Jadavpur University and Vellore Institute of Technology have also been publishing a good number of papers. IISc has the highest number of quality publications which are cited more and published more in high impact factor journals. After IISc, other universities published high good quality papers are University of Delhi, Jadavpur University and then Vellore Institute of Technology. IISc has also published, registered and granted highest number of IPR and Patents, then the other universities. Under the Performance of “Footprint of Projects, Professional Practice, and Executive Development Programmes (FPPP), Amrita Vishwa Vidyapeetham and Manipal Academy of Higher Education are also doing well apart from IISc.

Jawaharlal Nehru University has got more diversify of students and researchers from the different regions than the other Indian Universities. Bharathiar University, Calcutta University, Kerala University and Jawaharlal Nehru

University have more diversified in respects women students and researchers from the different regions than the other Indian Universities. It also can say that many Universities have good number of women students and researchers and it indicates women are found equally studding in most of the universities. Savitribai Phule Pune University, Jawaharlal Nehru University, Calcutta University, Jadavpur University and Indian Institute of Science have more students and researchers from economically and socially challenged groups and more facilities have been provided to this group of students, than the other universities in India.

However, all the top 25 universities are good enough in providing facilities for economically and socially challenged students. So economically poor and socially backward is not barrier for studying good students. Jawaharlal Nehru University, Banaras Hindu University, Savitribai Phule Pune University, Amrita Vishwa Vidyapeetham, Manipal Academy of Higher Education, Jamia Millia Islamia, University of Delhi, Anna University, Vellore Institute of Technology, Andhra University and Siksha ‘O’ Anusandhan have enough facilities for Physically Challenged Students and good number of Physically Challenged Students then the other universities. This is also to note that most of the top 25 universities have strong facilities for Physically Challenged Students. Most of the top universities are producing good number quality students and doing well in examinations and graduating in degree courses and Ph.D. students.

The major changes are seen in the overall score of the top 25 universities under the university category. It is found that consecutively Indian Institute of Science, Nehru University, Banaras Hindu University got the first, second and third position in the National Institutional Ranking Framework (NIRF) respectively. In the year 2018 Calcutta University got the 14th position in the National Institutional Ranking Framework (NIRF), however in the year 2020 got the 7th position whereas in the year 2021 got 4th position. Some universities are consecutively are kept themselves in good rank, however many universities are facing challenges within themselves to keep their place or improve.

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