Quantitative analysis of gender inclusivity in Indian Institutes of Technology post supernumerary seats policy

ABSTRACT:

In this research, we explore the trajectory of gender inclusivity at India's most prestigious and highly selective engineering institutions, the Indian Institutes of Technology (IITs), which have been ranked in the top 20 by the Government of India's National Institutional Ranking Framework (NIRF) from 2017–2023, following the implementation of the supernumerary seats policy. This policy was implemented in 2018 to increase female enrollment at India's most prestigious and highly selective engineering institutions. We analyzed data from 20 IITs across India spanning several academic years.

Our study tested two hypotheses: Gender diversity has experienced consistent increases, and substantial differences exist in the growth rates of female student enrollment across IITs. We evaluated the percentage of enrolled female students and analyzed growth trajectories. Our results affirmed a general upward trend in female representation, yet unveiled pronounced disparities across different IITs. Also, there was no significant relationship between the age of the IIT and female enrollment percentage, as indicated by the near-zero Pearson correlation and flat trend line. Female enrollment percentages across seven IIT zones showed slight regional differences, but ANOVA analysis indicated these differences were not significant.

There are multifaceted factors that influenced these outcomes, underscoring the necessity for tailored strategies to the distinct circumstances of each IIT. Despite commendable progress, inequities endure, underscoring the critical need for sustained interventions and policies to foster gender equity in Science, Technology, Engineering, and Mathematics (STEM) education.

Keywords : Gender inclusivity
Indian Institutes of Technology (IITs)
Supernumerary seats policy
Female enrollment
Growth rates
Gender diversity
Science, Technology, Engineering, and Mathematics (STEM)
Disparities
Geographic zones
IIT age
Joint Entrance Examination – Advanced (JEE-Advanced)

INTRODUCTION

Gender diversity in educational institutions, particularly in Science, Technology, Engineering, and Mathematics (STEM) fields, has been a focal point for policymakers and educators in India, aiming to promote equity and enhance the academic environment (1). Gender diversity in educational institutions refers to the equitable representation and inclusion of individuals across all genders, aiming to address the representation of females compared to males. This diversity seeks to create an inclusive environment that values contributions from all genders, ultimately fostering a richer academic experience and promoting equity in access to opportunities. Despite progress, the representation of women in STEM institutes in India remains limited; the 20 Indian Institutes of Technology (IITs)—India's premier engineering institutions—are no exception (2). Historically, IIT student bodies have been characterized by a gender imbalance, and understanding the trends in gender diversity is crucial to assess the effectiveness of current initiatives and identify areas for further improvement.

In 2018, the Indian government introduced the Supernumerary Seats policy in IITs to increase female enrollment. These extra seats, reserved specifically for female students, aim to enhance gender balance and provide equal opportunities. The policy ensures that more girls can access IITs, making it a form of mobility quota, designed to enable all qualifying female students to enroll through the highly competitive Joint Entrance Examination – Advanced (JEE-Advanced) (3). The JEE-Advanced is the second phase of the Joint Entrance Examination, with only top scorers from JEE-Main (the first level of the two-level exam) qualifying to attempt it. Women enrollment in IITs through JEE-Advanced has always been lower compared to the total female enrollment of 48% in higher education institutes in non-IIT higher education institutes in India (4). Additionally, India has increased female enrollment in STEM to 40%, the highest in the country's history (5).Various other policies and programs have been introduced to address gender disparities, including scholarships, mentorship programs, and affirmative action initiatives by the Ministry of Human

Resource Development (now the Ministry of Education) and the All India Council for Technical Education (AICTE) (7). While these measures aim to bridge the gender gap, there is still a need for more comprehensive gender-sensitive policies that address deeper issues, such as intersectional reservation for women, legal protections, and increased female representation in leadership positions and academic committees (8). Additionally, educational institutions themselves, particularly the IITs, have established women's cells, support networks, and outreach programs to provide guidance and encourage female participation in STEM from an early age (6).

To complement the supernumerary seats policy, the Gender Advancement for Transforming Institutions (GATI) program was launched by the Department of Science and Technology (DST) in collaboration with the British Council. This program aims to promote gender equality in STEM, and has recognized institutions like IIT Delhi for their outstanding contributions to advancing women's participation and career progression in STEM fields (9). However, persistent challenges continue to hamper progress in achieving gender parity. Traditional gender roles, especially in rural areas, limit educational opportunities for women, and the absence of female role models and mentors in STEM further discourages young women from pursuing careers in these disciplines (10, 11).

Disparities are also evident in other fields like the arts and humanities, where women face different challenges, such as fewer career opportunities and lower societal recognition compared to STEM fields, despite the focus on gender diversity in STEM . This highlights the broader gender inequalities that persist across the Indian educational system.

We aimed to analyze the impact of supernumerary seats and other initiatives on gender diversity in IITs. We hypothesized that gender diversity in IITs has steadily improved, and there is variability in the growth rates of female student enrollment across different IITs between 2017–2024. By analyzing gender diversity data across multiple academic years, we sought to highlight the progress made and the disparities that persist, contributing to a more inclusive environment in these prestigious institutions.

Our findings emphasize that, while there has been an overall increase in female enrollment at IITs, variability exists between institutions. Some IITs have shown commendable progress, while others lag behind, suggesting the need for tailored policies that address institution-specific challenges and promote gender inclusivity across all IITs. These results can guide policymakers in developing strategies to ensure more balanced gender representation in STEM education, further contributing to India's workforce diversity and innovation goals.

RESULTS

Data collection and methodology

To investigate the impact of supernumerary seats on gender diversity within the IITs, we analyzed enrollment data from 20 IITs over multiple academic years from 2017–2024(18). The dataset, sourced from the Council of Indian Institute of Technology's Student Statistics page, included gender-segregated enrollment records.

Trends in Female Enrollment

Our analysis revealed notable increases in female enrollment in several IITs, demonstrating the effectiveness of targeted gender inclusion initiatives. IIT Gandhinagar saw a rise from 22.68% in 2017–2018 to 29.75% in 2021–2022, marking growth. Similarly, IIT Hyderabad increased from 20.42% in 2017–2018 to 26.24% in 2022–2023, while IIT Indore exhibited overall growth despite fluctuations, reaching 23.33% in 2021–2022 compared to 19.59% in 2017–2018. These trends indicate the positive impact of policy interventions on gender diversity in technical education (**Figure 1**).

Growth rate variation across IITs

Female enrollment growth rates varied dramatically across institutions, revealing significant disparities in the pace and consistency of gender inclusion efforts. IIT Indore emerged as the standout performer, recording the highest single-year growth spike of 16.12% in 2020–2021, followed by sustained steady increases that positioned it among the top-performing institutions for female enrollment expansion. IIT Gandhinagar and IIT Hyderabad also demonstrated exceptional commitment, with both institutions maintaining double-digit growth rates across multiple years—Gandhinagar achieving 13.57% in 2020–2021 and Hyderabad sustaining strong performance with 12.01% and 9.09% in consecutive years.

Notably, 2020–2021 appears to have been a pivotal year for female enrollment across the IIT system, with nearly all institutions recording their peak or near-peak growth rates during this period. In contrast, 2022 marked a concerning reversal for many institutions, with several showing declining or stagnant growth rates, indicating that the momentum gained in 2020–2021 was not universally sustained. While IIT Kharagpur demonstrated more modest but consistent growth (peaking at 8.91% in 2020–2021), other institutions like IIT Madras showed more volatile patterns, underscoring the need for sustained, institution-specific strategies to maintain female enrollment gains over time (**Figure 2**).

Institutional Disparities in Gender Diversity

A comparison of seven-year average female enrollment percentages across IITs revealed disparities in gender diversity. IIT Gandhinagar led with an average of 26.1%, followed by IIT Palakkad (23.66%) and IIT Hyderabad (23.38%). In contrast, IIT Bhubaneswar had the lowest average (14.47%), with IIT Patna and IIT BHU also lagging,

each below 16%. Other prominent IITs, such as Delhi, Madras, and Guwahati, exhibited moderate female representation, ranging from 20–22%. This variation, suggests varied institutional efforts in fostering gender diversity (**Figure 3**).

The geometric mean of growth rates further illustrated institutional disparities in gender diversity progress. While IIT Patna recorded the highest growth rate at approximately 14.2%, IIT Jammu exhibited the lowest at just 0.5. IIT Tirupati (9.6) and IIT Goa (9.3) ranked among the top performers in growth rates, while IIT Madras (1.1) and IIT Hyderabad (1.5) demonstrated relatively lower rates. IITs such as Roorkee and Guwahati (both around 4.0) showed medium growth, while close to top growth rates were observed in IIT Jodhpur (8.3), IIT BHU (7.2), and IIT Mandi (8.2), indicating steady but less pronounced improvements in female representation compared to the highest performers (**Figure 4**).

Impact of IIT Age on Female Enrollment

Finally, we conducted a correlation analysis to examine the relationship between IIT age and female enrollment in 2019–2020. A scatter plot with a linear fit was used to visualize the trend, and Pearson's correlation coefficient was calculated as -0.0044, with a p-value of 0.986. There was no significant correlation between an IIT's establishment age and its female enrollment percentage, as demonstrated by the nearly horizontal line of best fit (Pearson's correlation coefficient, r = -0.0044; p = 0.986) (**Figure 5**). This suggests that factors other than institutional age, such as specific policies and regional dynamics, play a more crucial role in influencing gender diversity trends.

Zone-Wise Analysis of Female Enrollment

IITs spread across different regions do not have notable differences in percent of females enrolled. A statistical ANOVA test was conducted to assess zone-wise variations in female enrollment for the academic year 2019–2020. This year was selected as all 20 IITs had complete data for that period. Differences in female enrollment across zones were not significant (p = 0.105). Nonetheless, potential regional variations like east and north-central zones exhibited higher mean growth rate compared to west zone which warrant further investigation.

Regional Trends in Enrollment

Regional trends in female enrollment percentages highlighted distinct variations across zones. The South Zone exhibited the highest female enrollment percentage (22.4%), followed by the West Zone (21.1%) and the Central Zone (20.1%). Conversely, the North-East Zone (19.7%) and North-Central Zone (19.2%) displayed moderate enrollment rates, while the North Zone had the lowest female enrollment (18.5%), reflecting slower progress in gender diversity initiatives (**Figure 6**).

In total of 7 zones the West Zone, comprising IIT Bombay, Gandhinagar, and Goa, demonstrated the highest mean growth rate and an average enrollment of 21.5%. Similarly, the South Zone performed well, with an average enrollment of 19.7%. The North-East Zone, despite having only two institutions (IIT Guwahati and IIT Patna), showed promising development with an 18.9% enrollment rate and the second-highest growth rate. In contrast, the East and North-Central Zones exhibited moderate or lower growth trends, with newer institutions like IIT Jammu contributing to lower female enrollment in some cases (**Figures 7,8**).

DISCUSSION

While 18 out of 20 IITs showed an increase in female enrollment in the academic years we evaluated, disparities among institutions indicate the need for targeted strategies. IIT Gandhinagar and IIT Hyderabad demonstrated substantial progress, likely due to well-implemented gender diversity initiatives. Conversely, IIT Indore and IIT Kharagpur, despite lower initial percentages, showed gradual improvement. However, the overall enrollment growth rate was inconsistent, with persistent gender gaps in engineering and technology disciplines across India. This variation highlights the need for institute-specific policies, awareness campaigns, and inclusive environments to foster sustainable progress (12).

We found a clear upward trend in female enrollment across IITs, which reflects the effectiveness of the Supernumerary Seats policy and initiatives like the GATI program. However, fluctuations indicate that gender diversity efforts require continuous reinforcement. Some IITs have experienced periods of accelerated growth, followed by stagnation, suggesting that policies must evolve to sustain progress. Additionally, women continue to lag in securing permanent academic positions, such as professorships, pointing to broader structural issues in STEM careers (13).

We categorized IITs into three groups based on female enrollment growth: high growth (e.g., IIT Gandhinagar, IIT Mandi), moderate growth (e.g., IIT Bombay, IIT Hyderabad), and low growth (e.g., IIT Kanpur, IIT Kharagpur). Institutions like IIT Patna, with a growth rate of 14.65%, have made significant progress despite a lower overall percentage of female students (15.37%). In contrast, IIT Jammu, with a negative growth rate (-0.09%), highlights a concerning decline. The disparities in growth rates suggest that successful IITs can serve as models, while underperforming institutions must reassess their strategies to enhance gender inclusivity.

Certain IITs have successfully increased female enrollment, likely attributed to through awareness campaigns, scholarships, and outreach programs. For instance, IIT Madras launched the “She Can” online campaign, aimed at inspiring female students by promoting educational opportunities, skill development, and financial literacy (14). The success of such initiatives in some IITs suggests that similar programs could be expanded across other institutions to address gender disparities and improve representation.

Although some IIT zones, such as the South and North-Central zones, showed higher female enrollment rates, there were no significant regional differences (ANOVA test, $p = 0.105$). For example, the West Zone (22.6%) had slightly higher female enrollment than the East Zone (17.5%), but the differences lack statistical significance. This indicates that factors beyond geography, such as institutional culture and policy effectiveness, may play a more substantial role in gender diversity.

Our analysis found no significant correlation between the age of an IIT and female enrollment percentages (correlation coefficient ≈ 0, $p > 0.05$). This suggests that newer IITs do not necessarily have better gender representation than older ones. Instead, gender diversity is influenced more by the specific policies and initiatives implemented within each IIT rather than institutional age.

India's gender diversity efforts align with international trends, with countries like the United States, the United Kingdom, and Germany implementing similar policies to increase female participation in STEM (16). The Nordic nations, known for their high gender parity, provide potential models for IITs through their comprehensive gender equity frameworks (17). Future research should explore case studies of IITs with high female enrollment and conduct longitudinal studies on female graduates' career trajectories to assess the long-term impact of gender diversity policies in STEM education.

By addressing institutional disparities, sustaining policy-driven progress, and learning from global best practices, IITs can build a more inclusive academic environment that fosters gender diversity in engineering and technology (15). Overall, our findings demonstrate the effectiveness of supernumerary seats in improving gender diversity in IITs while also highlighting regional and institutional disparities that merit further exploration. Future studies could investigate underlying factors driving these variations and assess long-term impacts on gender inclusion in STEM education.

MATERIALS AND METHODS

Data source

The data for this study was derived from the Council of Indian Institute of Technology website's Student Statistics page, which has official records of student enrollment in various IITs over multiple academic years (18). This webpage includes the most updated data of all 23 IITs in India at present; however, we considered only 20 IITs because the other 3 IITs were recently established and thus have less data available. For each IIT, the database has information about gender (Male, Female or Other), Caste General, Schedule-Caste (SC), Schedule-Tribe (ST), Other Backward classes (OBC), OTHER and Economically weaker section (EWS), Physically Handicapped, Foreign Nationals and total students for various academic years. In India, the population is divided based on Socio-Economic status, which is divided into General, SC, ST, OBC and EWS. These designations provide reservation in admissions to the underprivileged and under-represented sections like SC, ST, OBC, EWS.

Database Restructuring and Customization

The above database was put into Excel and categoriesthat were not relevant to our Male and Female comparisons were removed, including Category-Wise, Physically Handicapped, Foreign Nationals and Uploaded On. Furthermore, for the data from each Academic Year, we used data from August 15th. This date was chosen because the majority of all admissions in takes place in Bachelors programme admissions take place during August. For the instances where data was not available for the 15th of August, we used data from January 15th, which was the case for IIT Indore (2020–2021), IIT Hyderabad (2020–2021), IIT Roorkee (2021–2022, 2023–2024), and IIT Kanpur (2021–2022). Also, Data of IIT BHU is of 15th Jan during year (2018–2019) as data of 15th Aug was unusual (not in continuation previous and next year) so used 15th Jan.

Since, our study focused on data from 2017–2024, we removed data from the academic years prior to 2017–2018. In concordance with this we did not include IIT Dharwad. Additionally, IIT Ropar only had data for 2019–2020, and IIT Bhilai showed an inconsistent trend from the academic year 2018–2019 to 2019–2020, in which the total number of students almost halved from 1445 to 746, suggesting an error in data reporting.

Analytical Methods

Excel was used for data calculations and graphical representation to identify key trends and patterns in our data. We calculated the percentage of female students relative to the total students for each academic year for each IIT. Similarly, growth rates were also calculated to understand the changes in female percentage from year to year by this formula: . Additionally, the average number of female students was calculated for each IIT by dividing the sum of the percentage of females over the academic year 2017–2018 to 2023–2024 by the number of academic years available for the corresponding IIT. Similarly, the geometric mean of the growth rate was calculated using the formula where is the rate of growth of percent of females in each academic year of a given IIT. This was done to facilitate comparative analysis among IITs regarding female percentage and growth rate.

We used Python to conduct ANOVA tests for female. The data were taken from the academic year 2019–2020 for each of the IITs, which were divided into respective demographic **(18, Table 1)**. We performed Correlation Analysis using Python with data of female enrollment percentage from the academic year 2019–2020 (**18, Table 1)**.

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Figures and Figure Captions

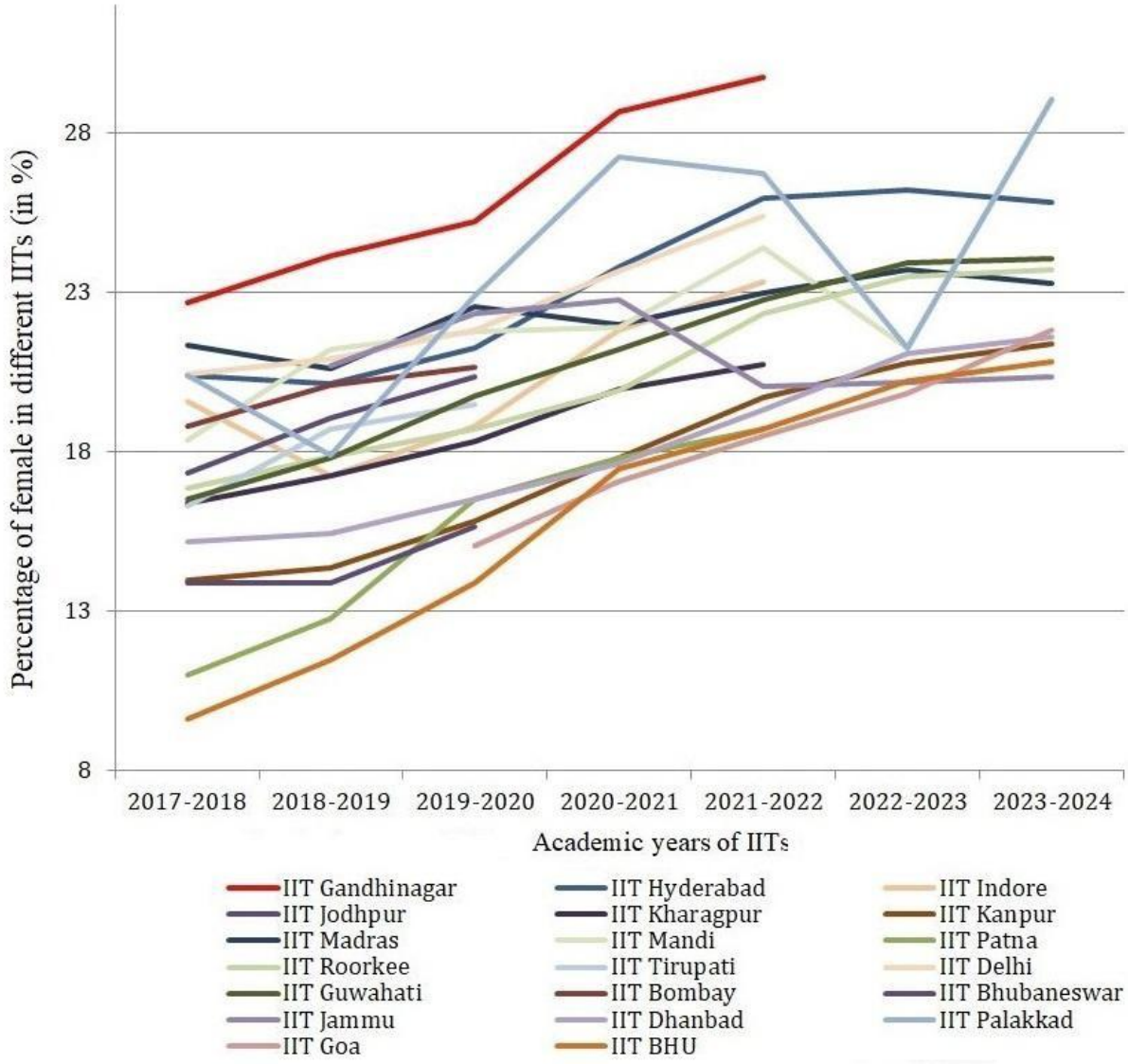

Figure 1. Changes in the percentage of female students enrollment over a 7 year period in 20 Indian Institutes of Technology. This line graph shows the percentage of female students enrolled in 20 IITs over the past 7 academic years from 2017-2024. IITs in North Zone are represented through Green shades, West zone IITs in Red Shades, East Zones in Magenta and Central Zone are represented by orange.

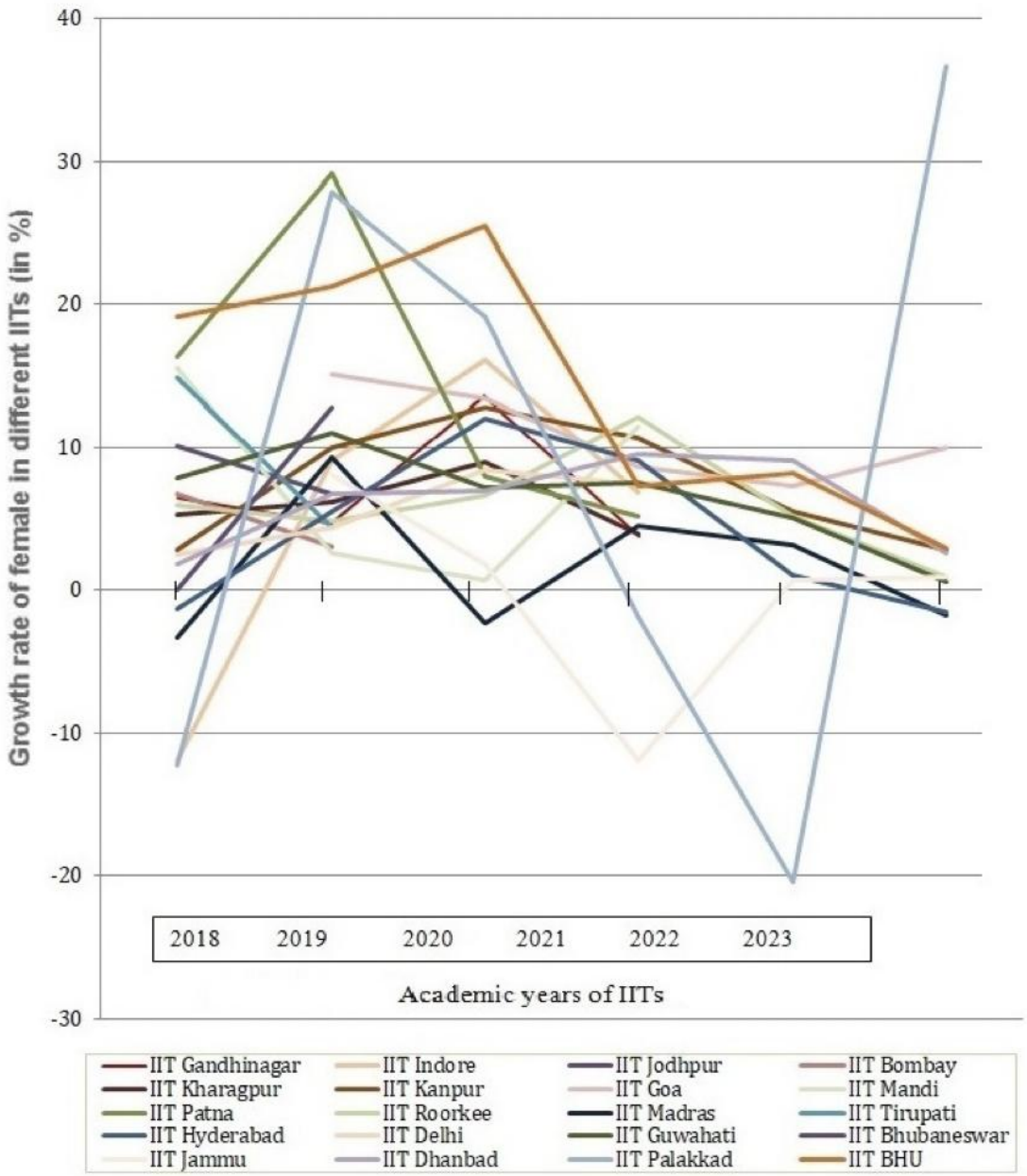

Figure 2. Variations in the growth rates of female student enrollments across IITs This line graph compares the growth rate of female students across different IITs, highlighting the variations in progress. IITs in North Zone are represented through Green shades, West zone IITs in Red Shades, East Zones in Magenta and Central Zone are represented by shades of orange.

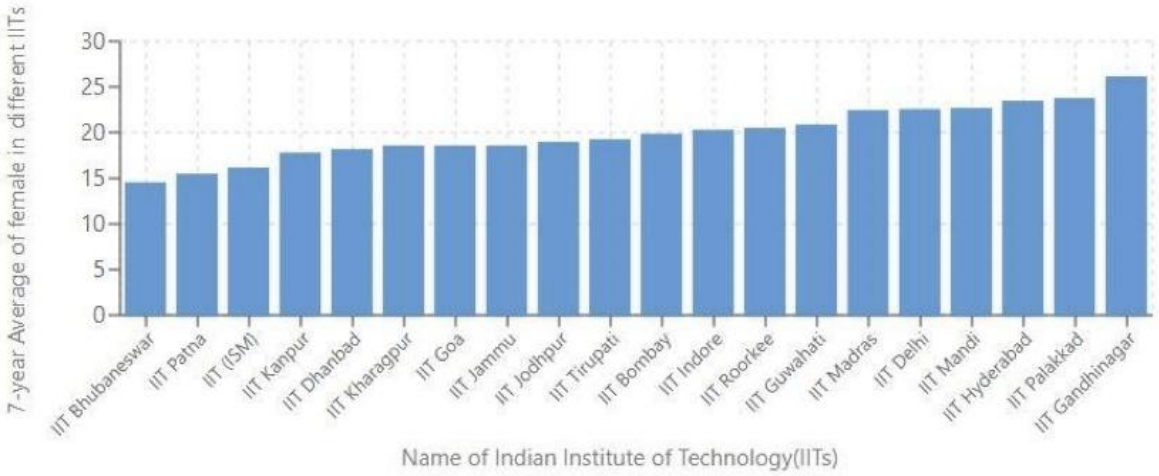

Figure 3. **The 7 year Average percentage of female students varies across different IITs over seven Academic years.** This bar graph displays the academic year average of percentage in each of the 20 Indian Institute of Technology over the period of past 7 years after the implementation of Supernumerary seats in 2018.

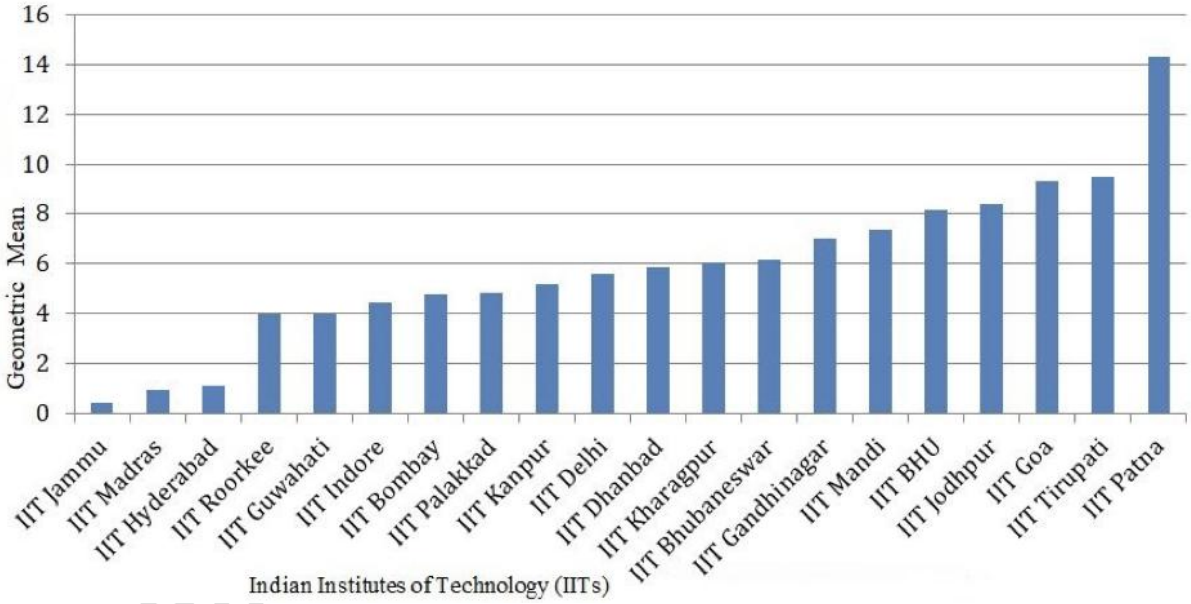

Figure 4. **Variability in the geometric mean over seven academic years of growth rates in female student percentages across different IITs.** The geometric mean was calculated as the nth root of the product of n annual growth rates for each IIT from 2017 to 2024. Growth rates were determined by comparing year-over-year changes in female student enrollment percentages. The bar graph displays the geometric mean growth rates across 17 Indian Institutes of Technology, with IIT Patna showing the highest geometric mean growth rate (14.5%) and IIT Jammu showing the lowest (0.5%).

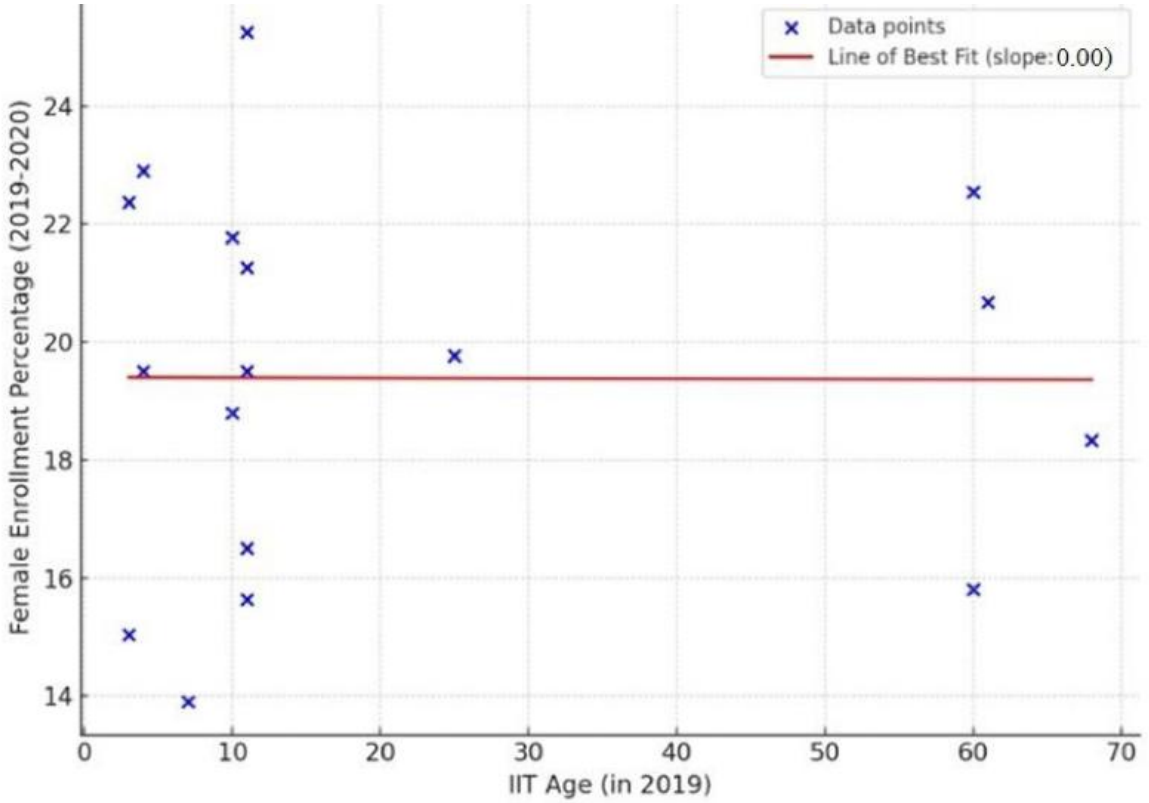

Figure 5. Relationship between Age of IITs from its establishment year and female enrollment percentage in 2019-20. From Correlation Analysis the Pearson correlation coefficient = −0.0 044 and p –value = 0.986. The graph above shows the scatter plot of IIT age versus female enrollment percentage (2019-2020) with the line of best fit (red line) included. As seen, the slope of the line is very close to zero, confirming that there is no strong linear relationship between IIT age and female enrollment percentage. This visually reinforces the near-zero Pearson correlation coefficient we calculated earlier.

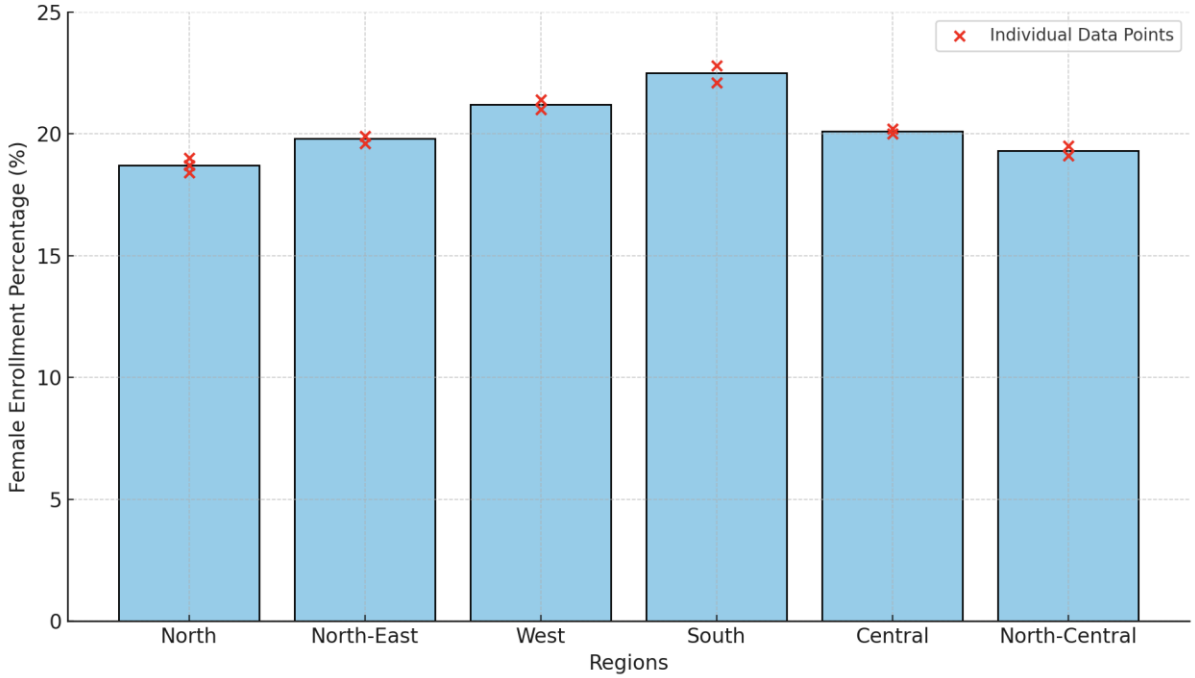

Figure 6. Female enrollment percentages Across IIT Regions (2019-20). This bar graph displays the Region/zone-wise female enrollment percentages in each 20 Indian Institutes of Technology.

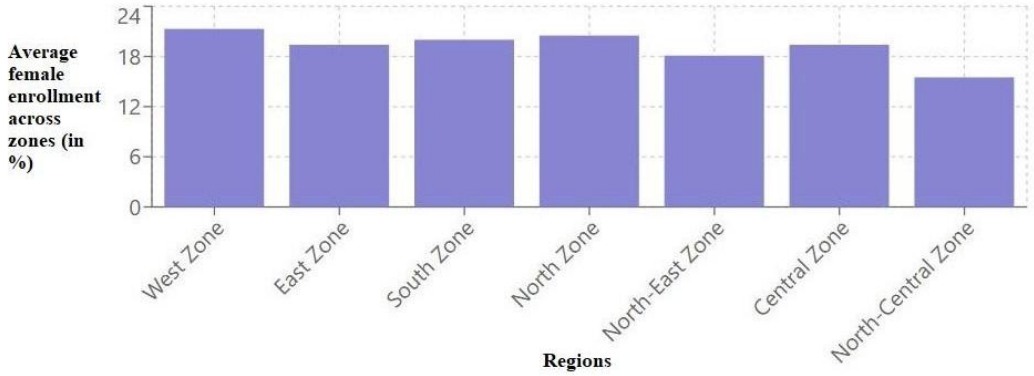

Figure 7. Average female enrollment (%) by zones across Indian Institutes of Technology (IITs). Seven-year average percentage of female enrollment after the implementation of supernumerary seats in 2018, showing variations from 14.5% (IIT Bhubaneswar) to 26.1% (IIT Gandhinagar).

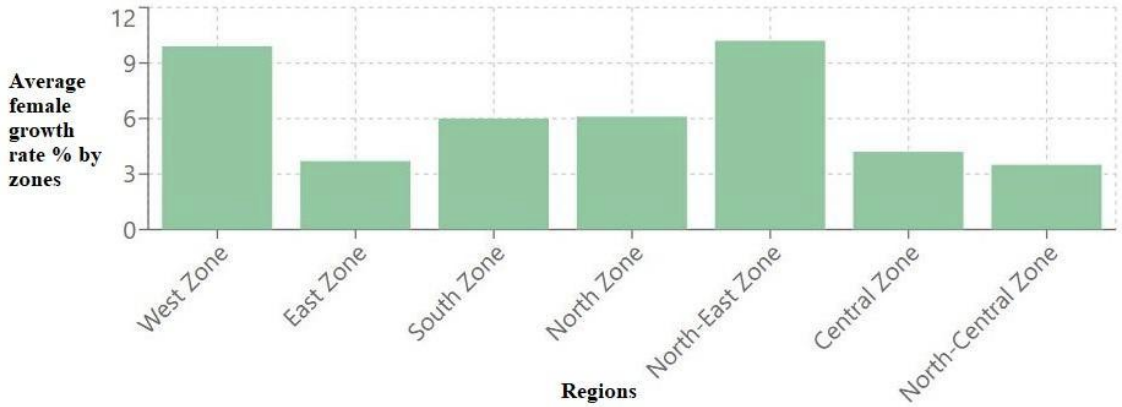

Figure 8. Average female growth rate (%) by zones across Indian Institutes of Technology (IITs). Geometric mean of female enrollment growth rates across IITs, indicating diverse growth patterns with values ranging from 0.5 (IIT Jammu) to 14.2 (IIT Patna).

TABLES

Zone	*IIT*	*Establishment Year*
West Zone	*IIT Bombay*	*1958*
	IIT Gandhinagar	*2008*
	IIT Goa	*2016*
East Zone	*IIT Kharagpur*	*1951*
	IIT Bhubaneswar	*2008*
	IIT Dhanbad	*2016*

South Zone	*IIT Madras*	*1959*
	IIT Hyderabad	*2008*
	IIT Tirupati	*2015*
	IIT Palakkad	*2015*
North Zone	*IIT Roorkee*	*1847 (as Thomason, IIT in 2001)*
	IIT Mandi	*2009*
North-East Zone	*IIT Guwahati*	*1994*
	IIT Patna	*2008*
Central Zone	*IIT Kanpur*	*1959*
	IIT BHU	*2012*
	IIT Indore	*2009*
North-Central Zone	*IIT Delhi*	*1961*
	IIT Jammu	*2016*
	IIT Jodhpur	*2008*

346 **Table 1-** Zonewise IITs and their establishment year.

Name of the Institute	Academic Year	Male	Female	Total	Percentage of Female (in%)	Rate of Growth in Female (in%)	Name of the Institute	Academic Year	Male	Female	Total	Percentage of Female (in%)	Rate of Growth in Female (in%)
IIT Gandhinagar	2017-2018	1115	327	1442	22.68	0.00	IIT Delhi	2017-2018	6953	1785	8738	20.43	
IIT Gandhinagar	2018-2019	1223	389	1612	24.13	6.41	IIT Delhi	2018-2019	6890	1823	8713	20.92	2.42
IIT Gandhinagar	2019-2020	1332	450	1782	25.25	4.65	IIT Delhi	2019-2020	7543	2107	9650	21.83	4.36
IIT Gandhinagar	2020-2021	1139	458	1597	28.68	13.57	IIT Delhi	2020-2021	7573	2349	9922	23.67	8.43
IIT Gandhinagar	2021-2022	1084	459	1543	29.75	3.73	IIT Delhi	2021-2022	8213	2798	11011	25.41	7.33

IIT Hyderabad	2017-2018	1886	484	2370	20.42		IIT Guwahati	2017-2018	4768	944	5712	16.53	
IIT Hyderabad	2018-2019	2045	516	2561	20.15	-1.34	IIT Guwahati	2018-2019	4902	1063	5965	17.82	7.83
IIT Hyderabad	2019-2020	2259	610	2869	21.26	5.53	IIT Guwahati	2019-2020	5051	1245	6296	19.77	10.96
IIT Hyderabad	2020-2021	2588	809	3397	23.82	12.01	IIT Guwahati	2020-2021	4568	1229	5797	21.20	7.21
IIT Hyderabad	2021-2022	2584	907	3491	25.98	9.09	IIT Guwahati	2021-2022	5223	1542	6765	22.79	7.51
IIT Hyderabad	2022-2023	2800	996	3796	26.24	0.99	IIT Guwahati	2022-2023	6526	2054	8580	23.94	5.03
IIT Hyderabad	2023-2024	3565	1241	4806	25.82	-1.59	IIT Guwahati	2023-2024	6404	2030	8434	24.07	0.54
IIT Indore	2017-2018	907	221	1128	19.59		IIT Bombay	2017-2018	8174	1895	10069	18.82	
IIT Indore	2018-2019	1276	266	1542	17.25	-11.95	IIT Bombay	2018-2019	8268	2077	10345	20.08	6.68
IIT Indore	2019-2020	1481	343	1824	18.80	9.01	IIT Bombay	2019-2020	8502	2216	10718	20.68	2.98
IIT Indore	2020-2021	1618	452	2070	21.84	16.12	IIT Jammu	2017-2018	96	3	99	3.03	
IIT Indore	2021-2022	1479	450	1929	23.33	6.83	IIT Jammu	2018-2019	138	36	174	20.69	582.76
IIT Jodhpur	2017-2018	229	48	277	17.33		IIT Jammu	2019-2020	191	55	246	22.36	8.06
IIT Jodhpur	2018-2019	280	66	346	19.08	10.08	IIT Jammu	2020-2021	241	71	312	22.76	1.78
IIT Jodhpur	2019-2020	1150	294	1444	20.36	6.74	IIT Jammu	2021-2022	646	162	808	20.05	-11.90
IIT Kharagpur	2017-2018	9964	1955	11919	16.40		IIT Jammu	2022-2023	925	234	1159	20.19	0.70
IIT Kharagpur	2018-2019	10085	2105	12190	17.27	5.28	IIT Jammu	2023-2024	1368	350	1718	20.37	0.90
IIT Kharagpur	2019-2020	10428	2341	12769	18.33	6.17	IIT Dhanbad	2017-2018	6125	1097	7222	15.19	
IIT Kharagpur	2020-2021	11123	2775	13898	19.97	8.91	IIT Dhanbad	2018-2019	5939	1086	7025	15.46	1.77
IIT Kharagpur	2021-2022	11196	2932	14128	20.75	3.94	IIT Dhanbad	2019-2020	5491	1085	6576	16.50	6.73
IIT Kanpur	2017-2018	5662	920	6582	13.98		IIT Dhanbad	2020-2021	4375	937	5312	17.64	6.91
IIT Kanpur	2018-2019	5938	997	6935	14.38	2.85	IIT Dhanbad	2021-2022	4878	1168	6046	19.32	9.52
IIT Kanpur	2019-2020	6259	1175	7434	15.81	9.94	IIT Dhanbad	2022-2023	5298	1415	6713	21.08	9.11
IIT Kanpur	2020-2021	6863	1488	8351	17.82	12.73	IIT Dhanbad	2023-2024	5612	1548	7160	21.62	2.57
IIT Kanpur	2021-2022	6889	1692	8581	19.72	10.66	IIT Palakkad	2017-2018	113	29	142	20.42	

IIT Kanpur	2022-2023	7103	1866	8969	20.80	5.51	IIT Palakkad	2018-2019	142	31	173	17.92	-12.26
IIT Kanpur	2023-2024	7262	1976	9238	21.39	2.81	IIT Palakkad	2019-2020	202	60	262	22.90	27.80
IIT Madras	2017-2018	7822	2122	9944	21.34		IIT Palakkad	2020-2021	256	96	352	27.27	19.09
IIT Madras	2018-2019	7896	2051	9947	20.62	-3.38	IIT Palakkad	2021-2022	712	260	972	26.75	-1.92
IIT Madras	2019-2020	6790	1976	8766	22.54	9.32	IIT Palakkad	2022-2023	603	163	766	21.28	-20.45
IIT Madras	2020-2021	8284	2338	10622	22.01	-2.35	IIT Palakkad	2023-2024	910	373	1283	29.07	36.62
IIT Madras	2021-2022	8754	2613	11367	22.99	4.44	IIT Goa	2019-2020	418	74	492	15.04	
IIT Madras	2022-2023	8534	2653	11187	23.72	3.16	IIT Goa	2020-2021	496	102	598	17.06	13.41
IIT Madras	2023-2024	8750	2658	11408	23.30	-1.75	IIT Goa	2021-2022	550	125	675	18.52	8.57
IIT Mandi	2017-2018	835	188	1023	18.38		IIT Goa	2022-2023	581	144	725	19.86	7.26
IIT Mandi	2018-2019	1005	271	1276	21.24	15.57	IIT Goa	2023-2024	562	157	719	21.84	9.94
IIT Mandi	2019-2020	1243	346	1589	21.77	2.53	IIT BHU	2017-2018	5209	555	5764	9.63	
IIT Mandi	2020-2021	1446	406	1852	21.92	0.68	IIT BHU	2018-2019	5340	692	6032	11.47	19.14
IIT Mandi	2021-2022	1387	448	1835	24.41	11.37	IIT BHU	2019-2020	5663	915	6578	13.91	21.25
IIT Patna	2017-2018	1256	155	1411	10.99		IIT BHU	2020-2021	6080	1285	7365	17.45	25.43
IIT Patna	2018-2019	1372	201	1573	12.78	16.32	IIT BHU	2021-2022	6005	1382	7387	18.71	7.23
IIT Patna	2019-2020	1523	301	1824	16.50	29.14	IIT BHU	2022-2023	6138	1557	7695	20.23	8.15
IIT Patna	2020-2021	1476	320	1796	17.82	7.97	IIT BHU	2023-2024	6817	1792	8609	20.82	2.87
IIT Patna	2021-2022	1722	397	2119	18.74	5.15	IIT Roorkee	2017-2018	6287	1274	7561	16.85	
IIT Tirupati	2017-2018	293	57	350	16.29		IIT Roorkee	2018-2019	6617	1437	8054	17.84	5.89
IIT Tirupati	2018-2019	500	115	615	18.70	14.82	IIT Roorkee	2019-2020	6470	1489	7959	18.71	4.86
IIT Tirupati	2019-2020	660	160	820	19.51	4.35	IIT Roorkee	2020-2021	6956	1732	8688	19.94	6.56
Bhubaneswar	2017-2018	1266	204	1470	13.88		IIT Roorkee	2021-2022	7293	2098	9391	22.34	12.06
Bhubaneswar	2018-2019	1520	245	1765	13.88	0.02	IIT Roorkee	2022-2023	7474	2295	9769	23.49	5.16
Bhubaneswar	2019-2020	1785	331	2116	15.64	12.69	IIT Roorkee	2023-2024	8019	2493	10512	23.72	0.95

Table 2- IIT Student Statistics taken from Students Statistics page, Council of Indian Institute of Technology website (18). This is a modified table from referenced link (18), including only male and female data in our analysis. This modified table does not include data which are not relevant.