

## Payback for M Techs

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We show using National Institutional Ranking Framework (NIRF) 2019 data that one loses financially even in the immediate term, if one chooses to pursue higher academic degrees instead of joining the job market immediately after graduating. A postgraduate (PG) engineer who takes two additional years to earn a higher degree is punished with a lower placement salary at the end, and in the long term may never be able to recoup the losses in the early part of her career. The bottom line is, 'it does not pay to do an M Tech!'

We return to two themes discussed earlier in these pages<sup>1,2</sup>. Prathap and Sinha<sup>1</sup> applied Andre Weil's 'law of aca-

ademic decay' – 'A first rate man will hire a first rate man; a second rate mate will hire a fourth rate man, etc.' – to the context of designing and managing a framework for PG education and research. The cream of the undergraduate (UG) students then (circa 1996) took up employment in IT or blue-chip companies, or pursued MBA programmes or PG programmes abroad. Only those who were left behind joined the various M E/ M Tech programmes in the country and even here, there was considerable loss and wastage (AICTE figures then indicated that only half of the available places were filled). A proximate and maybe the ultimate cause for this state of affairs

was that compensation packages and prospects were better for an UG student than for a PG student.

In 2008, Prathap<sup>2</sup> used statistical data from the Cochin University of Science and Technology, Kerala and simple regression models to show that one loses financially (net-worth returns over the long term) if one chooses to pursue higher academic degrees before joining teaching or scientific careers. A teacher who takes 4–6 years to earn a Ph D degree will never be able to recoup the losses in the early part of her career. Hence the bottom line is, 'it does not pay to do a Ph D!'

Very recently, the Indian Institutes of Technology (IITs) decided to increase

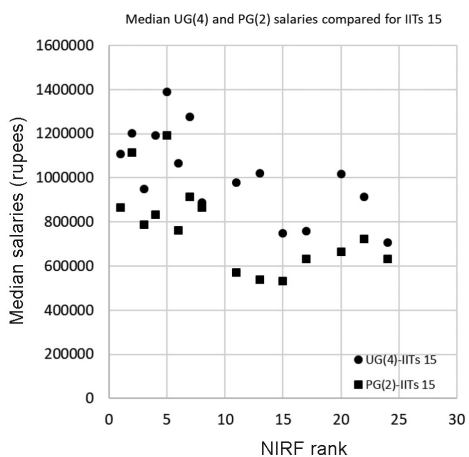
**Table 1.** The 15 top IITs (IITs 15) and another 15 non-IIT institutions (Rest 15) in the order of their NIT ranks and their average median salary of placement for the four-year undergraduate (UG) programmes and the two-year postgraduate (PG) programmes

NIRF rank	Institution	City	State	UG(4) median salaries	PG(2) median salaries
1	Indian Institute of Technology Madras	Chennai	Tamil Nadu	1,108,667	866,667
2	Indian Institute of Technology Delhi	New Delhi	Delhi	1,202,000	1,113,079
3	Indian Institute of Technology Bombay	Mumbai	Maharashtra	949,252	786,299
4	Indian Institute of Technology Kharagpur	Kharagpur	West Bengal	1,192,333	833,333
5	Indian Institute of Technology Kanpur	Kanpur	Uttar Pradesh	1,390,000	1,191,667
6	Indian Institute of Technology Roorkee	Roorkee	Uttarakhand	1,066,667	761,333
7	Indian Institute of Technology Guwahati	Guwahati	Assam	1,276,667	913,333
8	Indian Institute of Technology Hyderabad	Hyderabad	Telangana	886,667	866,667
11	Indian Institute of Technology (Banaras Hindu University)	Varanasi	Uttar Pradesh	977,667	571,667
13	Indian Institute of Technology Indore	Indore	Madhya Pradesh	1,021,333	540,000
15	Indian Institute of Technology (Indian School of Mines) Dhanbad	Dhanbad	Jharkhand	750,167	533,333
17	Indian Institute of Technology Bhubaneswar	Bhubaneswar	Odisha	760,000	633,333
20	Indian Institute of Technology Mandi	Mandi	Himachal Pradesh	1,016,667	665,000
22	Indian Institute of Technology Patna	Patna	Bihar	913,167	721,667
24	Indian Institute of Technology Gandhinagar	Gandhinagar	Gujarat	706,833	633,333
9	Anna University	Chennai	Tamil Nadu	483,333	391,667
10	National Institute of Technology Tiruchirappalli	Tiruchirappalli	Tamil Nadu	684,333	570,500
12	Institute of Chemical Technology	Mumbai	Maharashtra	549,333	494,167
14	Jadavpur University	Kolkata	West Bengal	553,333	451,667
16	National Institute of Technology Rourkela	Rourkela	Odisha	549,333	410,000
18	Vellore Institute of Technology	Vellore	Tamil Nadu	416,667	473,333
19	Indian Institute of Engineering Science and Technology	Shibpur	West Bengal	606,667	611,667
21	National Institute of Technology Karnataka	Surathkal	Karnataka	713,333	678,333
23	Thapar Institute of Engineering and Technology (Deemed-to-be-university)	Patiala	Punjab	606,667	463,333
25	Birla Institute of Technology & Science	Pilani	Rajasthan	967,667	975,354
26	National Institute of Technology Warangal	Warangal	Telangana	769,833	678,620
27	Jamia Millia Islamia	New Delhi	Delhi	750,417	493,667
28	National Institute of Technology Calicut	Kozhikode	Kerala	651,667	658,333
30	Indian Institute of Space Science and Technology	Thiruvananthapuram	Kerala	848,504	804,667
31	Visvesvaraya National Institute of Technology	Nagpur	Maharashtra	548,667	557,667

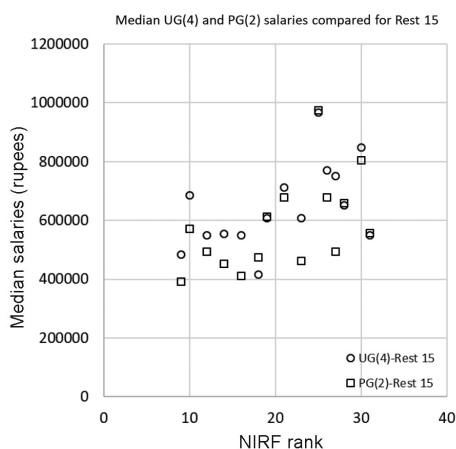
the fee for M Tech courses by up to ten times to Rs 2 lakhs per year, escalating this in a staggered manner over a three-year period, starting from the 2020 academic session. It is not at all clear that the IIT Council has applied its mind critically taking into account grounded data of the implications of this decision. There is anecdotal evidence already that a large percentage of seats in M E and M Tech programmes remain unfilled – this is said to be as large as 80% in engineering colleges affiliated to Anna University, Tamil Nadu. There is also documented evidence from NIRF for 2019 (<https://www.nirfindia.org/2019/EngineeringRanking.html>), detailing the median salary of placed graduates for students graduating in the minimum stipulated time over three consecutive aca-

demical years (2015–16 to 2017–18) for various UG and PG programmes of the top 200 engineering institutions (IITs, NITs, universities and colleges). We carried out an exercise to compare the median salaries of the top 15 IITs and the top 15 non-IIT institutions in the NIRF database.

Table 1 lists the 15 top IITs (IITs 15) and another 15 non-IIT institutions (Rest 15) in the order of their NIRF ranks. The average median salaries of placement for the four-year UG programmes and the two-year PG programmes were computed for these 30 institutions. There is a huge differential between the IITs 15 and the Rest 15, and within each category a significant differential between the UG and PG programmes. This can be visualized graphically using chart displays.



**Figure 1.** The median salaries for the four-year undergraduate (UG) programme are typically around Rs 2.4 lakhs higher than those for the two-year postgraduate (PG) programme (averaged for the 15 IITs).



**Figure 2.** The median salaries for the four-year UG programme are typically around Rs 0.66 lakhs higher than those for the two-year PG programme (averaged for the 15 non-IITs).

Figure 1 shows a plot of the median salaries for the four-year UG programme and the two-year PG programme for each of the 15 top IITs ordered according to NIRF rank. We see a general lowering of median salaries with descending rank, as is to be expected. The average median salaries for these IITs are Rs 1,014,539 and Rs 775,381 for the UG and PG programmes respectively. That is, the wage differential is typically around Rs 2.4 lakhs higher for the four-year B Tech programme than for the two-year M Tech programme (averaged for the 15 IITs).

Figure 2 shows a plot of the median salaries for the four-year UG programme and the two-year PG programme for each of the 15 top non-IITs ordered according to their NIRF ranks. We see now a surprising counter-intuitive trend – median salaries do not decrease with descending NIRF rank. The average median salaries for these institutions are Rs 646,650 and Rs 580,865 for the UG and PG programmes respectively. That is, the wage differential is typically around Rs 0.66 lakhs higher for the B Tech programme than for the M Tech programme (averaged for the 15 institutions).

It is clear from the above that one loses financially even in the immediate term, if one chooses to pursue higher academic degrees instead of joining the job market immediately after graduating. A PG engineer who takes two additional years to earn a higher degree is punished with a lower placement salary at the end, and in the long term may never be able to recoup the losses in the early part of her career. The bottom line is, ‘it does not pay to do an M Tech!’

There is one more takeaway from the present exercise. There is a significant differential between the median salaries of an IIT or non-IIT alumnus – for the UG programme it is Rs 367,889 and for the PG programme it is Rs 194,516, even at this level where we are comparing the top 15 institutions in each category.

1. Prathap, G. and Sinha, U. N., *Curr. Sci.*, 1996, **70**(9), 770–771.
2. Prathap, G., *Curr. Sci.*, 2008, **95**(5), 576–577.

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