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HT

Engineering Indian Institute of Technology, Mumbai

Developing entrepreneurs

IIT Bombay – housing one of India's best computer facilities – has incubated more than 15 fresh, innovative ventures

HT Horizons Correspondent

The idea of this top-notch institute germinated just before India's independence. In 1946, a high-power government of India committee recommended the creation of four higher institutes of technology of the level of those in Europe and the United States to set the direction for the development of technical education in the country. These institutes were designed to provide the "necessary dynamism and flexibility of organisation in the light of expanding knowledge and changing socio-economic requirements of modern society," says the IIT Bombay website.

In 1957, planning for the institute in Bombay started. A year later, the first batch of 100 students walked into the 200-hectare campus at Powai, with Vihar and Pooval lakes on either side and green hills around.

IIT Bombay was established with "the cooperation and participation of the UNESCO, and contribution of the then USSR government." The institute received substantial assistance in the form of equipment and expert services from the USSR through the UNESCO from 1966 to 1973. The institute received 59 experts and 14 technicians from several reputable Russian institutions. The UNESCO also offered 27 fellowships for training of Indian faculty members in Russia. Under the bilateral agreement of 1965, the USSR government provided further assistance to supplement the aid programme the institute already received through UNESCO.

In 1981, by an act of Parliament, IIT Bombay was declared an institution of national importance, and accorded the status of a university with powers to award degrees and diplomas.

Today, while the institute offers various programmes, it is known for

its computer facilities, considered one of India's best.

The following departments in the institute offer Technical degrees:

- Aerospace engineering
- Chemical engineering
- Civil engineering
- Computer science & engineering
- Electrical engineering
- Mechanical engineering
- Metallurgical engineering & materials science

Physics: The institute conducts a five-year dual degree programme in all engineering departments. On completion of the combined Bachelor's and Master's programme, a student is awarded two degrees:

1. B.Tech degree of the parent department, for example, mechanical engineering
2. MTech degree of the specialisation within the parent department, such as thermal and fluids engineering

The MTech programmes are available through the following divisions:

- Aerospace engineering
- Chemical engineering
- Civil engineering
- Computer science and engineering
- Earth sciences
- Electrical engineering
- Materials, manufacturing and modelling (Industry sponsored)
- Mechanical engineering
- Metallurgical engineering and materials science
- Centre of Studies in Resources Engineering
- Department of Biosciences and Bioengineering
- Energy science and engineering (under metallurgical engineering and materials science department)
- Energy science and engineering
- Industrial engineering and operations research
- Systems and control engineering
- Environmental science and engineering
- Centre for Technology Alternatives for Rural Areas (CTARA) (Technology and



Ready for takeoff: Arandeep Singh, Akshay Bhat and Rahul Singh with their Micro Air Vehicle at IIT Powai

Development) It also has MPhil, MDes, MSc, Master of management, MSc and PhD dual degree, postgraduate diploma of Indian Institute of Technology (PGDIIIT at KIRI-SIT) and PhD programmes. The institute nurtures entrepreneurship, too. The Society for Innovation and Entrepreneurship was started to promote entrepreneurship at IIT Bombay. It administers a business incubator which provides support for technology-based entrepreneurship. In 1999, an IT business incubator was established at the institute's Kamal Rahshi School of Information and Technology. Spread over 10000 sq ft, it can accommodate about 15-17 companies. Some of its incubates are AI Remote Monitoring Technologies Pvt. Ltd, Agricom Software Technologies Pvt. Ltd, Bhagal GIS Pvt. Ltd, Call Craft Technology Pvt. Ltd, etc. In addition, there is an Entrepreneurship Cell as well. IIT Bombay also has a Cell for Human Values and a Cell for Indian Science and Technology in Sanskrit.

Placement 2010: How did they fare?

Institute Name	City	Avg. Salary	Median Salary	Max Salary	Min Salary
IIT Bombay	Mumbai	N/A	N/A	30.00	3.00
Birla Institute of Technology	Patna	5.20	4.50	12.00	3.30
Thapar University	Patiala	4.08	3.97	12.00	2.40
Anna University, College of Engineering Guindy	Guindy	3.90	3.50	12.00	2.75
IIT Altabad	Altabad	4.00	3.75	12.00	3.25
MIT, Pune	Pune	3.00	N/A	12.00	2.40
Delhi Technological University	Delhi	5.20	3.50	10.50	2.75
College of Engineering, Pune	Pune	4.00	4.00	9.00	3.50
Institute of Technology, Nirma University	Ahmedabad	3.42	3.83	8.05	1.50
Govt. Model Engineering College	Kochi	3.80	5.00	7.80	2.75
PEC University of Technology	Chandigarh	3.80	3.80	7.50	2.78
Mangal Institute of Technology	Mangal	3.84	4.00	7.12	2.50
The National Institute of Engineering	Mysore	3.10	3.00	6.50	1.60
M S Ramaiah Institute of Technology	Bangalore	3.00	3.50	6.33	2.40
Bangalore Institute of Technology	Bangalore	3.50	3.50	6.30	2.75
SSN College of Engineering	Chennai	3.27	3.51	5.00	2.50
The Technological Institute of Textile & Science	Bilwari	2.50	2.85	4.20	1.50
Bannu Narsik Dev Engineering College	Ludhiana	2.18	2.15	3.80	1.80
BVB College of Engineering & Technology	Hull	2.50	2.20	3.75	1.98
Kannya University	Coimbatore	2.51	2.40	3.50	1.20
ITM Gurgaon	Gurgaon	3.50	1.68	3.38	2.70
Chaitanya Institute of Engineering & Technology	Patiala	3.00	2.75	3.28	2.08
Galgotias College of Engineering & Technology	Greater Noida	2.79	2.40	3.25	2.00

(Figures in Rs. Lakh per annum)

Top 50 Government Engineering Colleges

Composite Rank	Engineering Colleges	City	Intellectual Capital (700)	Pedagogic Systems & Process (500)	Industry Interface (450)	Placement (450)	Infrastructure & Support Systems (700)	TOTAL = 2800
1	IIT Bombay	Mumbai	610	433	386	403	595	2427
2	IIT Delhi	Delhi	606	425	385	400	596	2412
3	IIT Madras	Chennai	601	430	357	390	593	2411
4	IIT Kanpur	Kanpur	613	409	377	392	607	2398
5	IIT Kharagpur	Kharagpur	617	403	381	394	600	2394
6	IIT Guwahati	Guwahati	560	405	344	375	592	2276
7	IIT Roorkee	Roorkee	551	394	341	372	574	2232
8	IT BHU	Varanasi	547	398	336	370	555	2206
9	College of Engineering, Anna University	Guindy	543	403	331	348	536	2181
10	Indian School of Mines	Dhanbad	539	388	330	356	540	2153
11	NIT Trichy	Trichy	540	392	343	353	532	2152
12	Jadavpur University, Faculty of Engineering & Technology	Kolkata	542	380	326	338	528	2114
13	Delhi Technological University	New Delhi	523	362	337	376	515	2113
14	NIT Suraskal	Suraskal	537	375	314	367	518	2111
15	Mumbai University Institute of Chemical Technology	Mumbai	533	382	351	356	487	2109
16	NIT Warangal	Warangal	535	370	319	360	516	2100
17	PEC University of Technology	Chandigarh	530	366	320	355	510	2081
18	IIT Altabad	Altabad	527	369	328	362	493	2079
19	Netaji Subhas Institute of Technology	New Delhi	518	368	345	360	487	2078
20	Bengal Engineering and Science, University Shibpur	Howrah	530	365	330	348	500	2073
21	Maharaja National Institute of Technology	Jaipur	529	359	320	353	507	2068
22	Medical Netru National Institute of Technology	Alahabad	523	361	325	347	499	2065
23	NIT Calicut	Kozhikode	528	360	305	343	508	2044
24	NIT Kurukshetra	Kurukshetra	518	355	318	339	502	2032
25	College of Engineering	Trivandrum	520	342	314	327	511	2014
26	VNIT Nagpur	Nagpur	527	348	316	315	508	2012
27	NIT Rourkela	Rourkela	514	339	309	338	510	2010
28	College of Engineering	Kochi	517	340	329	324	490	2000
29	Model Engineering College, Thrikkakara	Kochi	517	340	329	324	490	2000
30	MIT Anna University	Chennai	505	333	315	320	512	1985
31	MANIT Bhopal	Bhopal	512	335	305	321	508	1981
32	Laxmi Narayan Institute of Technology Nagpur	Nagpur	497	327	299	317	492	1932
33	SVNIT Surat	Surat	494	323	305	300	504	1926
34	College of Engineering, Andhra University, Waltair	Visakhapatnam	499	324	303	303	499	1925
35	Alapaca Institute of Technology	Karalkudi	503	318	305	301	494	1921
36	Harcourt Butler Technological Institute	Kanpur	503	331	303	290	486	1913
37	JNTU Hyderabad	Hyderabad	487	320	293	298	493	1891
38	Govt. College of Engineering, Coimbatore	Coimbatore	486	322	296	297	489	1890
39	NIT Durgapur	Durgapur	485	317	290	295	496	1883
40	NIT Jalandhar	Jalandhar	476	313	290	295	503	1879
41	NIT Hamirpur	Hamirpur	470	309	291	290	490	1850
42	Shri G S Institute of Technology & Science	Indore	467	311	286	294	487	1845
43	NIT Jamshedpur	Jamshedpur	465	307	287	284	496	1839
44	Osmania University College of Engineering	Hyderabad	462	305	285	282	485	1819
45	JNTU Kakinada	Kakinada	456	302	280	286	490	1804
46	S V University Engineering College	Engalgi	448	311	278	280	478	1795
47	University Institute of Engg. Technology	Chandigarh	445	295	279	278	474	1771
48	Institute of Engineering and Technology	Lucknow	444	301	275	276	470	1766
49	University College of Engineering	Burla,Orissa	442	287	275	263	485	1752
50	NIT Raipur	Raipur	437	297	271	266	477	1748

Top 50 Private Engineering Colleges

Composite Rank	Engineering Colleges	City	Intellectual Capital (700)	Pedagogic Systems & Process (500)	Industry Interface (450)	Placement (450)	Infrastructure & Support Systems (700)	TOTAL = 2800
1	BITS Pilani	Pilani	558	443	403	381	517	2302
2	PSG College of Technology	Coimbatore	528	422	401	352	465	2168
3	IIIT Hyderabad	Hyderabad	512	433	400	371	423	2139
4	BIT Mesra	Ranchi	506	419	387	348	458	2118
5	Dhirubhai Ambani Inst. of Infocom. Tech	Gandhinagar	510	417	369	353	437	2086
6	Thapar Inst. of Engineering & Technology	Patiala	501	415	385	345	411	2057
7	RV College of Engineering	Bangalore	492	405	375	347	393	2012
8	Vellore Institute of Technology	Vellore	490	407	365	325	419	2006
9	VJTI	Mumbai	486	390	389	343	392	2000
10	Coimbatore Institute of Technology	Coimbatore	480	395	382	324	415	1996
11	Thiagarajar College of Engineering	Madurai	484	393	378	317	416	1988
12	Manipal Institute of Technology	Manipal	476	383	365	340	405	1969
13	PES Institute of Technology	Bangalore	456	381	388	326	404	1955
14	SSN College of Engineering	Chennai	458	384	391	322	385	1940
15	BMS College of Engineering	Bangalore	459	379	378	317	401	1934
16	Pune Institute of Computer Technology	Pune	450	389	366	316	387	1908
17	Chaitanya Bharathi Institute of Technology	Hyderabad	448	367	365	319	408	1907
18	SJ College of Engineering	Mysore	442	370	348	302	396	1858
19	Sardar Patel College of Engineering	Mumbai	396	371	337	325	397	1826
20	MS Ramaiah Institute of Technology	Bangalore	402	373	306	303	395	1779
21	SRM University	Chennai	399	378	283	294	416	1770
22	Mepco Schlenk Engineering College	Sivakasi	390	377	288	285	429	1769
23	LNMIIT, Jaipur	Jaipur	389	395	294	290	399	1767
24	Nirma University	Ahmedabad	391	330	323	301	410	1755
25	GITAM	Vishakhapatnam	385	364	299	305	396	1749
26	K L University	Vaddeswaram	397	371	296	294	390	1748
27	Amrita Institute of Technology & Science	Coimbatore	394	376	277	297	393	1737
28	SASTRA University	Thanjavur	392	375	265	286	412	1730
29	Shri Ramdeo Baba KN Engineering College	Nagpur	386	357	288	290	406	1727
30	VIT	Pune	394	321	296	319	396	1726
31	Maharashtra Institute of Technology	Pune	389	344	283	309	398	1723
32	Bangalore Institute of Technology	Bangalore	396	348	316	277	385	1722
33	NIE	Mysore	389	342	312	287	386	1716
34	DJ Sanghvi College of Engineering	Mumbai	381	369	283	296	383	1712
35	VESIT	Mumbai	394	359	310	300	346	1709
36	Hindustan Institute of Engineering Technology	Chennai	384	352	268	301	403	1708
37	J S S Academy of Technical Education	Noida	385	369	274	310	369	1707
38	Sathyabama University	Chennai	384	349	278	291	404	1706
39	Karunya Institute of Technology	Coimbatore	382	351	276	287	406	1702
40	Jaypee Institute of Information Technology University	Noida	378	364	276	304	378	1700
41	Cummins, Pune	Pune	394	345	282	288	389	1698
42	Vasavi College of Engineering	Hyderabad	396	339	279	293	385	1692
43	SDM College of Engineering	Dharwad	381	335	262	295	384	1657
44	BVBCET	Hubli	387	320	263	285	398	1653
45	Rajagiri School of Engineering and Technology	Kochi	391	353	238	294	371	1647
46	The Technological Institute of Textile & Science	Bhiwani	378	355	281	299	325	1638
47	Krishna Institute of Engineering & Technology	Ghaziabad	352	341	264	293	387	1637
48	ITM University	Gurgaon	365	324	260	304	365	1618
49	Galgotia College of Engineering	Greater Noida	345	328	276	294	370	1613
50	Chitkara University	Chandigarh	340	326	254	309	381	1610

* Institute based on public private partnership model like IIIT Hyderabad, Thyagaraja College of Engineering, SJ College of Engineering, Coimbatore Institute of Technology, Bangalore Institute of Technology, NIE Mysore and VJTI are also included in the list.

IIT-B campus houses rare fauna, flora: study

NITYA KAUSHIK
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THE 566-acre Indian Institute of Technology-Bombay (IIT-B) campus in Powai is not only a green lung for space-starved Mumbai, but also home to several rare and disappearing species of animals, insects, birds and plants, reveals a study.

A six-month study on the biodiversity of the IIT campus — commissioned by the Environment Advisory Committee of IIT-B and conducted by the World Wildlife Fund for Nature from September 2008 to February 2009 — was released recently, and showed that the IIT campus houses nearly 843 species of flora and fauna of native and foreign origin. Of them,

as many as 100 species figure as 'protected species' under different levels of vulnerability, in the Wildlife Protection Act (WPA) of 1972, the Convention for International Trade in Endangered Species (CITES) list or in the International Union for Conservation of Nature (IUCN) red list.

Among animals, the prominent species include the marsh crocodile placed in schedule I of WPA and CITES and termed 'vulnerable' by the IUCN. Different species of butterflies, like the Common Hedge Blue and the Common Pierrot butterfly, listed as Schedule I on WPA, have also been spotted in the campus as per the report.

The precinct also houses vulnerable trees including Gulmohar—the

foreign species though common in India is placed in the IUCN list in its native range of Madagascar—and Sita Ashoka. Varieties of rare orchids were also spotted, the study says.

According to Jaya Joshi, spokesperson for IIT-B, the campus which is situated on the lowest of slopes of the Western Ghats was a barren land around 50 years ago. "The campus was a marsh land when IIT faculty and students began settling here in 1958. Then some of the campus residents took initiative to plant trees in the campus. Pictures taken in 1970s show that the campus was still quite barren. In comparisons, the campus was thriving with lush greenery by 2005," she said.



Lush green vegetation at IIT-B

Joshi pointed out that IIT's Green Campus Initiative Committee is still active in maintaining the green patch.

The study was conducted across the IIT-B campus covering an area

of 566 acre, said WWF representatives said. "Powai Lake was not considered in the scope of study as it is not within the purview of IIT-Bombay. The campus was divided into two main sectors —urbanized and vegetated sectors—for the study," said Goldin Quardros, director of WWF, Mumbai.

Sub-sectors based on the degree of construction work were further demarcated as academic area, IIT Hospital, institute guest house, residential area for the study etc. The study took a close look at a variety of flora and fauna including trees, seed bearing and non-seed bearing plants, shrubs, grass, creepers and insects, birds, mammals, vertebrates, amphibians and so on.