

**DEMAND AND SUPPLY GAP OF COMPETENT  
FACULTY IN TECHNICAL EDUCATION INSTITUTION  
IN NORTH INDIA**

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**Abstract:**

The faculty in any educational institute is the swivel around which the whole teaching learning process revolve. In technical education institutions the faculty performs multiple activities. In this paper along with the importance of competent faculty, the problem and causes of demand-supply gap of competent faculty in Technical Education Institute of North India has been discussed. The trends are noticed in the institutions since session of 2010.

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## **1. INTRODUCTION:**

There are three fundamental constituents of any technical education – Teaching, Curriculum, and Learning. The faculty is most important factor in combination of above three elements in an ideal system. It is the faculty that teaches a certain type of curriculum fixed by the university and standardized by the faculty itself to the students in a way that not only prepares them for the examination but for inculcating the quality of excogitation and social responsibility. The infrastructure required for the above mentioned teaching – learning process is also unified in the most efficient way by the faculty itself.

Secondly, a competent and efficient teaching community i.e. the faculty does not limit its functions up to curriculum. In order to does justice with its role the faculty have to consider the requirements of a society in context with unequal and uneven development and other global consideration? The advance countries have the capacity of teaching their wards according to the scientific and technological needs of their societies. A faculty belonging to under developing nations will not be able to do according to the standards of education in the developed countries. It will have to take into consideration its own standards of scientific and technological development when it is decides to offer a particular engineering course. This is possible only if the faculty has appropriate connections with the natural and industrial environment of their country. Due to the varied and essential functions of the faculty, almost all the scholars and policy makers have stressed the crucial role of faculty in engineering education.

## **2. REVIEW OF RELATED LITERATURE:**

Indian Education Commission-1964-66, report shows the deficiency of teachers in the technical education institutions at national level. Rao Committee-2002, report reveals that there are not enough engineers with higher qualifications.

The report of the board on faculty development of the AICTE-2004, has estimated a total faculty requirement of 95924 comprising of 13703 professors, 27407 assistant professors, 54814 lecturers on March 2003. This would ideally require 41110 PhDs and 54814M.Techs but only 7536 PhDs and 11983 M.Tech. are available. Nyudamanna Committee's-2005, report also depicts the shortage of faculty members in the engineering institutions.

Ghose-2006's study reveals that in most of the places of excellence that currently exist in India, salaries have been the most critical factor in determining the quality of or success of the faculty. Though UGC recommended 6<sup>th</sup> pay commission. He also emphasizes the importance academic and other freedoms, social dignity and physical facilities, etc.

Idichandy-2007 is of the view that it is hard to maintain 1:14 ratio due to poor salary structure, stringent selection procedure of the teachers.

A report-2007 published in The Times of India that teacher student ratio in technical education institutions even institutions of excellence like IITs, is not satisfactory as compared to US and UK. The crunch in different IITs has been given in the table-1, below.

**Table - 1 TEACHERS STUDENTS RATIO IN IITs**

S.No	Place	Ideal	Reality	Crunch
1	IIT Delhi	01:06	01:12	100
2	IIT Mumbai	01:09	01:12	146
3	IIT Chennai	01:09	01:14	NA
4	IIT Kanpur	01:07	01:14	115
5	IIT Kharagpur	01:09	01:13	NA
6	IIT Guwahati	01:03	01:03	40
7	IIT Roorkee	01:09	01:12	226

### **3. OBJECTIVE OF THE STUDY:**

1. To study the situation of availability of faculty in Technical education institutes.
2. To study the reason behind the shortage of faculty in technical education institutes.
3. To give recommendations for the solution of problem of shortage of faculty.
4. To diagnose the disciplines in which the problem of faculty crunch is most crucial.



#### **4. QUESTION FROM HYPOTHESES:**

1. Is there any shortage of faculty in the Technical Education Institutions in North India?
2. What are the reasons behind this shortage of faculty in the Technical Education Institutions in North India?
3. In which discipline of Technical Education, this faculty crunch is most crucial?

#### **5. METHODOLOGY:**

The research approach consisted of combination of both analytical and exploratory types. In order to study the situation of availability of faculty in Technical education institutions of 'North India' the secondary data gathered from various sources was analyzed with the help of tables, line graphs bar charts etc. Whereas to deal with the question of shortage of faculty in Technical education institutes in detail, a self constructed questionnaire was used for collection of primary data. The data was collected by the investigator himself from seven institutions of technical education from North India – Agra, Aligarh, Greater Noida, and Mathura covering 90 teachers of these institutions. The trends are noticed in the institutions since session of 2010.

The method of percentage analysis was used to treat the data to find:

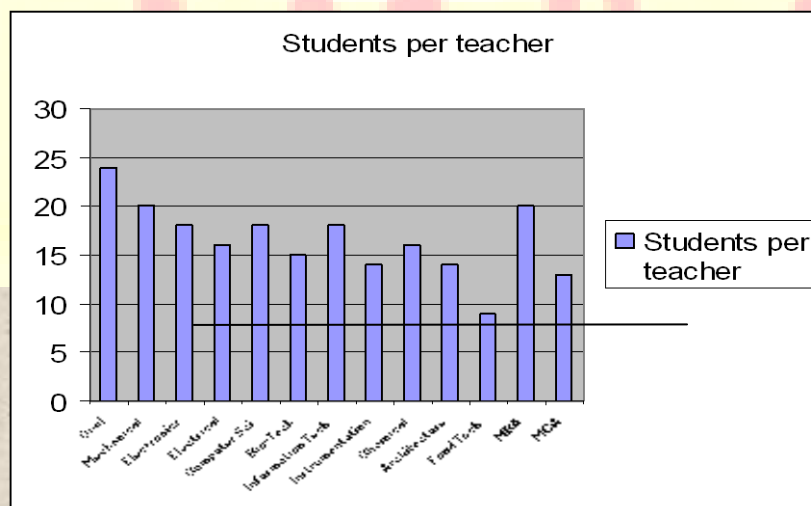
1. Whether there was really a crunch of faculty in the Technical Education institutions?
2. What were the reasons behind the shortage of faculty?
3. In which disciplines the problem of faculty crunch was most crucial?

#### **6. ANALYSIS AND INTERPRETATION:**

For the present study two types data i.e. primary and secondary data was used. It was analyzed with the help of various tables, bar graphs, and pie charts. The technique of percentage analysis was also employed.

Table – 2: Teacher – Student Ratio in Ten (10) Technical education institutes by Discipline

S. No.	Discipline	Total Students enrolled	Teacher	Students per teacher
1	Civil	3062	127	24
2	Mechanical	3102	155	20
3	Electronics	1870	103	18
4	Electrical	1797	112	16
5	Computer Sci.	2900	161	18
6	Bio-Tech	1372	91	15
7	Information Tech.	2762	153	18
8	Instrumentation	1678	119	14
9	Chemical	1320	82	16
10	Architecture	1405	100	14
11	Food Tech.	780	66	9
12	MBA	1863	93	20
13	MCA	1105	84	13
<b>Total</b>		25016	1446	215



Bar Graph – 1 of Table No. 2

### 6.1 Is there any shortage of faculty in engineering institutions in North India?

The figures of this table have been plotted in the bar graph –1 to show that in cases of only twelve streams the students – teacher ratio is less than that of recommended by AICTE (i.e. 11) its also clear from the bar-graph that in cases of Civil, Mechanical, CS, IT, Electronics Engineering and Master in Business Administration the problem of shortage of faculty is more acute as compared to other disciplines. Therefore the bar graph shows that in general the problem of shortage of faculty is found in most of the branches of engineering.

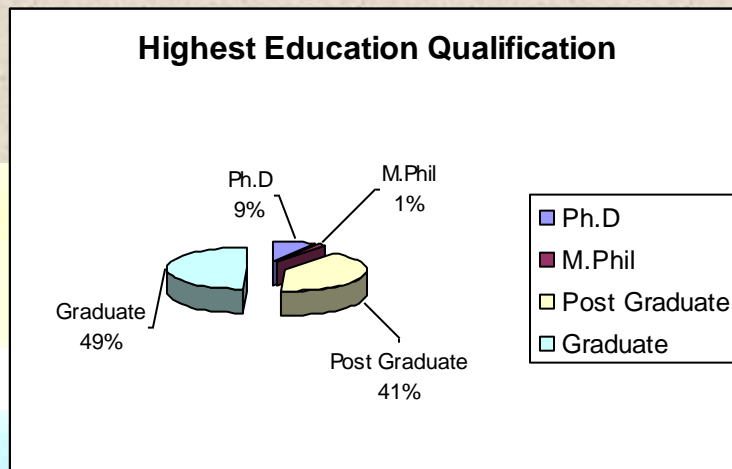
Another problem regarding competent faculty is shortage of qualified staff in the institutions. Following Table-3 shows the crucial picture.

**Table – 3: Distribution of Teachers with Highest Education Qualification at Degree Level of Education**

S. No.	Discipline	unit	Highest Education Qualification				Total
			PhD	M. Phil	Post Graduate	Graduate	
1	Civil	No - %	12 - 9.44	0 - 00	43 - 33.85	72 - 56.69	127
2	Mechanical	No - %	15 - 9.67	0 - 00	59 - 38.06	81 - 52.25	155
3	Electronics	No - %	9 - 8.73	0 - 00	36 - 34.95	58 - 56.31	103
4	Electrical	No - %	9 - 8.03	0 - 00	45 - 40.17	58 - 51.78	112
5	Computer Sci.	No - %	4 - 2.48	0 - 00	59 - 36.64	98 - 60.86	161
6	Bio-Tech	No - %	10 - 10.98	5 - 5.49	34 - 37.36	42 - 46.15	91
7	Information Tech.	No - %	2 - 1.30	0 - 00	27 - 17.64	124 - 81.04	153
8	Instrumentation	No - %	11 - 9.24	0 - 00	39 - 32.77	69 - 57.98	119
9	Chemical	No - %	15 - 18.29	0 - 00	30 - 36.58	37 - 45.12	82
10	Architecture	No - %	00 - 00	0 - 00	36 - 36	64 - 64	100
11	Food Tech.	No - %	24 - 36.36	0 - 00	34 - 51.51	8 - 12.12	66
12	MBA	No - %	10 - 10.75	16 - 17.20	67 - 72.04	0 - 00	93
13	MCA	No - %	2 - 2.38	0 - 00	82	0 - 00	84
14	<b>Total</b>	No - %	123	21	591	711	1446



The above table throws light on qualification wise condition of teachers in various branches of Technical education institutions in North India.



(Note: .5 +/- rounded off)

**Chart – 1: Teachers in Technical Education Institutes by Highest Educational Qualification**

The above pie-chart reflects the status of qualifications of teachers of all the technical education institutes of North India and it displays a very disaster picture of the situation in which only 8.50% was Ph.D. Holders, merely 1.45% was having M.Phil. degree, 40.87 were only post graduate and rest of 49.17% were just graduates.

Thus the faculty which associated in technical education institutions of North India can not be termed as a competent.

## 6.2 What are the causes behind shortage of faculty?

To answer this question the data collected by the investigator from 90 teachers of technical education institutions in the North India has been summed below.

Table – No. 4 shows the views of teachers regarding causes behind shortage of faculty according to the teachers the most significance cause is low salary and perks however the teachers also feel

that preference for going abroad, mushrooming of institutions, lack of institution of higher study in India and North India, and changed typical working environment are among the major causes behind the shortage of faculty. These results give us the answer to question for hypothesis no. 2.

**Table – 4: Causes**

Sr. No.	Causes	Response %
1	Low salary and perks	73
2	Preference going to abroad	19
3	Lack of Institutions for high studies	58
4	Mushrooming of Institutions	37
5	Typical working environment	71

Note: Some of the teachers viewed that there are more than one causes for the above Problem

### 6.3 In which discipline the problem of faculty crunch is most crucial?

From the table 2 graph 1 it is very clear that the problem of faculty crunch is most crucial in Civil, Mechanical, CS, IT, Electronics Engineering and Master in Business Administration.

Thus after analyzing the secondary and primary data we can conclude that the problem is most crucial in Civil, Mechanical, CS, IT, Electronics Engineering and MBA. Moreover, Electrical, Bio-Tech, Instrumentation, Chemical and Architecture engineering trade were also among the faculty shortage trades. In this way we answer the 3<sup>rd</sup> question from hypothesis no. 3.



## **7. CONCLUSION:**

In the end it may be conclude that some of the discipline like Civil, Mechanical, CS, IT, Electronics Engineering and Master in Business Administration etc. facing the problem of efficient faculty as has been pointed out by Dutta (1995), Nyudamma (2005), Rao committee (2002). The main causes behind this problem are low salary and perks offered to the faculty in most of the intuitions as compared with those of private companies similar to the study made by Idichandy (2007). Following are the suggestions to eliminate the crucial problem.

## **SUGGESTIONS:**

1. The accreditation bodies like NBA must take punitive action against those institutions which do not follow the rules prescribed by AICTE like salary criterion, qualification, working environment etc. of faculty, time to time.
2. As the number of students in institutions goes on increasing more faculty members are needed to teach them but higher qualification like M. Tech. / M.E./ Ph. D. are mostly produced by the institution of excellence like IITs, IIMs, IISc, NITs and premier institutions comprising less than 2% of total technical institutions in the country. Therefore more number of such potential institutes should be constituted.
3. Participation of industrial experts with higher qualification is also essential and increases to teach the classes so that practical training may be provided. It may also be helpful to handle the problem of shortage of faculty.
4. Collaboration with some foreign institutions and universities must be increase for faculty exchange may also help.
5. As recommended by the parliamentary standing committee on human resources development (2003) that wide publicity should be given to scholarship through the “Early Faculty Induction Program” so as to attract student community towards teaching. To implement this program successfully, separate budget should be sanctioned by the government.
6. Jobs should be offered to retired teachers to deal with the shortage of faculty.

7. Motivation to gender participation is also essential in engineering profession specially to teach girl students.
8. Social and teaching environment in the institutions should be improved

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