

## Functioning of Affiliated Engineering Colleges in India – A Comprehensive Survey

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**Abstract:** The education of engineers of any country is very crucial for ensuring the prosperity of their citizens. This comprehensive survey reviewed the engineering education system with ground realities. This research work presents the facilities in affiliated engineering colleges, reasons for poor functioning of Technological Universities in India, suggestions for improvement of present situation. An exhaustive survey has been conducted on 1658 teaching faculty across 14 states in India and observations are presented in this paper on various issues like facilities at the work place, scale of pay, leave rules, job security, support by Private Managements for research activities, examination system, corrupt practices of University staff, record creation by affiliated colleges, vested interests of University Administration. The suggestions to improve the Accreditation mechanism in India have been presented.

**Index Terms:** Affiliated Engineering Colleges, Accreditation, Technological Universities.

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### I. INTRODUCTION

Engineering education in India is facing significant challenges in meeting the demands of emerging job market. After being the signatory of Washington Accord, India needs to reinvent technical education system. India needs to update its infrastructure, domain knowledge educators and HR trainers. Thus, technical faculty needs to learn innovative approaches to teaching and learning. It is high time now to redesign engineering curricula, pedagogy and make the pre-service teacher preparation programme mandatory part of technical higher education.[1]. In this paper engineering faculty refers to the faculty of affiliated engineering colleges and engineering institution refers to affiliated engineering college.

In India there are 46 Central Universities, 350 State Universities, 123 Deemed Universities, 241 Private Universities as on 1<sup>st</sup> August, 2016. There are 16 Professional Councils established by UGC for controlling different aspects of accreditation and coordination for Indian Universities. There were 20 Engineering Colleges in the year 1947 before independence and as on date there are 6,430 Engineering Colleges in India which includes premier institutions, university engineering colleges, and affiliated engineering colleges. There are 3,345 private engineering colleges in India by 2014-15 according to dazeinfo.com. India produces 15 lakh engineering graduates every year. Out of this 33% never get an engineering job to do. Official statistics say only 6% are employable [2].

**Table -1** The List Of Engineering Institutes State Wise In India.

S. No.	Name of the State	Number of Technical Institutions
1	Himachal Pradesh	56
2	Chattisgarh	75
3	Uttarakhand	99
4	Gujarat	120
5	Orissa	125
6	West Bengal	192
7	Kerala	198
8	Manipur	200
9	Karnataka	210
10	Punjab	243
11	Madya Pradesh	299
12	Rajasthan	325
13	Haryana	342
14	Andhra Pradesh	498
15	Maharastra	799
16	Tamilnadu	1027

## **II. FACILITIES INAFFILIATED ENGINEERING COLLEGES**

In this digital world, information and knowledge are acquired from internet connectivity. Majority of the engineering faculty do not have proper access to internet connectivity at their workplace [3]. On average, 12-13 faculty share one computer with internet connection. The managements think that the faculty and students would misuse if they are given this facility. The education pattern, nature of jobs and services are fast changing across the world in all sectors [4]. But, the mind set of managements of affiliated engineering colleges has not changed in the last 10 years. Less than 5% of affiliated engineering institutions follow the AICTE pay scales in the country for Teaching Staff. Only 2% of the affiliated engineering colleges are paying revised DA to the employees. As far as non-teaching staff are concerned, majority are still following 5<sup>th</sup> Pay Commission pay scales. 65% of the colleges show more salaries on paper for the faculty and pay less salaries. They deposit 30-35% more salary in the bank and collect it back through checks on the day of depositing salaries.

Private Engineering Colleges resort to corrupt practices, influence the accreditation committees and get approvals and accreditations by wrong means. They go to the extent of bribing the inspection committees appointed by AICTE, UGC or concerned University/ State Government. Students as well as parents have lost confidence on advertisements / statements like “NBA Accredited Institution and NAAC accredited Institution”. As far as encouraging teaching faculty for attending skill up-gradation programs, workshops or seminars, less than 10% institutions are sponsoring the total expenditure. 18% Institutions are paying 50% of the total expenditure incurred by faculty for attending faculty development programs. There is no financial support by 72% of the engineering institutions in India for such academic activities. Many web-based engineering course materials and open-source learning materials can be better utilized for enhancing engineering teaching-learning process [5]. But 1000 students share 15 computers with internet connection on average in India. Students’ learning and pedagogy can be made more effective through proper use of ICT. 78% of the colleges do not have sufficient number of LCD projectors. 74% of the private engineering colleges have no rule book to follow for leaves for the employees. Majority of the colleges follow 12 casual leaves per year and 15 days of summer vacation. There will be no medical leaves for the teaching staff and it is completely left to the discretion of the management and Principal. Unfortunately most private managements believe in making Loss of Pay for the employees. As there are no opportunities elsewhere, teaching staff continue in the poor working conditions in private engineering colleges [7]. Teaching staff are not encouraged to attend the duties assigned by the Controller of Examination of Affiliating University. 68% of the colleges allow faculty to attend half day to University duties. Though they come under organized sector, as far as functioning is concerned, the faculty are treated almost like daily labour in the un-organized sector. The treatment given to the faculty of affiliated engineering colleges at the parent university is very unpleasant. Majority of the departments including University Examination section are run by contract employees who never knew to deal with faculty who are Post graduates in Engineering. Faculty of affiliated colleges are treated like slaves during spot valuation period. 85% of Faculty of affiliated colleges are annoyed with the treatment during spot valuation in the University Campus.

There are no unions for Teaching Faculty. They work under the fear of losing jobs. 94% of the faculty of affiliated engineering colleges suffer from job insecurity. Odisha Government, offers college fee to Economically Back ward Class (EBC) students, Telangana and Andhra are offering fees reimbursement to BC, SC and EBC students. The Government pays fee to the private engineering colleges almost at the end of the academic year. Hence, due to shortage of funds, Managements of private engineering colleges are not able to pay the salaries on time to the employees. 74% of the engineering colleges in India are not paying salaries regularly. 65% of the colleges have salary dues to the employees for more than 3 months due to delay in releasing of fees reimbursement fund by the state governments.

## **III. ACCREDITATION FOR AFFILIATED COLLEGES**

More than 64% of the Institutions which are accredited by NAAC produced fake records to the inspection committees. Records including list of faculty, student achievements, research facilities, faculty support for research and developmental programs are manipulated in most of the cases. Several consultancies have come up to help the institutes to create fake records to meet the requirements of the accreditation committees across India. In 12% of the NAAC accredited institutions, 30% of the seats are not filled speaks about the quality of accreditation process in the country. 88% of the Colleges recruit faculty and give promotions before the visit of the accreditation committees.

Higher Education in general and engineering education in particular requires a total transformation in order to meet the challenges faced by professional communities. Employers are not happy with the capabilities of engineering graduates and post-graduates because, their teachers never had such exposure to industry or state

of the art technologies. Engineering education seems to be boring to many students as their teachers are not given freedom to teach / act on their own. Majority of the affiliated engineering colleges are owned by liquor contractors, politicians, business men who never had exposure to Engineering education. 32% of the colleges have no qualified Principals in India. Technical Universities are not insisting on appointing qualified Professors as Principals and the managements are not particular to do so as they are able to manage without it. Engineering requires multidisciplinary knowledge, work experience where as 70% of the students of affiliated colleges run short of fundamentals in their domain.

Many desirable attributes of engineering graduates have been described in Washington Accord [9]. These are hardly addressed by engineering educational institutions. 80% of the affiliated colleges are not aware of the Washington Accord. Several Technological Universities in India are not accredited by NBA till now. Hence, the question does not arise that they insist the affiliated college to go for NBA accreditation. Interesting fact in India is that there is no coordination between University Committees and AICTE inspection committee, NBA and NAAC committees. Their rules also not in line with each other. Private Engineering Colleges exploit this fact to the most possible extent. Project Based Learning (PBL) or Project Centered Learning (PCL) is a proven approach, which can be incorporated in any semester in engineering degrees. 65% of the private colleges encourage external consultancies to offer project work for their final year students on payment basis. Rather they can work on enhancing the faculty skill to offer project works in house.

#### **IV. POST GRADUATE EDUCATION IN ENGINEERING**

Post Graduate Education in Engineering is experiencing worst of its days in the history of India. PG projects are sold by private people to the students at the cost of 15-20 thousand rupees. UGC is paying stipend to GATE qualified students. 68% of the private engineering colleges are not conducting classes for the PG students. All these colleges don't have qualified faculty to conduct PG classes and offer final projects. University Faculty in 95% of cases act as examiners for the PG project Viva-voce examination. Still the poor quality PG projects which are not even of UG standard are produced. The research in University colleges is not up to the mark. In the last 2 decades University Professors have lost the charm. It is almost like an administrative post rather than a teaching post [8]. They spend more than 60 days in Spot Valuation, attend Examiner duties and act as Inspection committee members to the private engineering colleges. 93% of the University Faculty received additional amount as honorarium from private engineering college managements in the range of Rs. 10,000/- to Rs. 1,00,000/- per visit. The main reason for this is too much of political interference in University Administration. Everybody does it as a common practice. They neither have guilty feeling nor respect for the academic system. There are less than 17% honest Inspection committee members appointed by State Governments.

#### **V. CONCLUSIONS**

Engineering accrediting authorities must play the key role in mobilizing the engineering educational institutions to modify their programmes, their relationships with students, role of academic staff/educators, infrastructure facilities, networking with employers, as well as assessment and evaluation methods, to improve the effectiveness of these programmes. The Government should appoint Faculty from IITs and Institutes of National Importance as Vice Chancellors of Technological Universities. There should not be any political interference in Educational System. Ethics and Value based system should be established in University Education. The authorities should be more responsible and open minded to accept the malpractices of their own academic community. Above all education system should not be corrupted like police department or revenue department in India. 'Make in India' will become a dream that can never be realized with the existing education system.

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