



## A Note on Quality of Indian Higher Education and Research in Computer Science and Engineering

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Typically, engineering is a field where any student aspires to peak into, blossom and blend his/her life in a self-planned way. As in many other countries, India too has a rich talent of budding youngsters who are raring to step into the IT industry through UG courses. The front runners are those from IITs, NITs, state run Universities any many other private universities and institutes which have a rich background.

At present, India is producing around 1.5 million Engineering Graduates every academic year. Though this count seems to be impressive, it is alarming to note that count of students who pursue higher studies is declining steadily. Down the pipeline, the count of researchers is also diminishing year by year. At this juncture, it is better to stop and take a look back to understand why this is taking place and what all this means to us or to the IT Industry and society, at large.

National Educational Policy (NEP-2020) was proposed in 2020 and it targets to reform and rebuild the current education system in India by 2030. This throwback study on quality of Indian Engineering education and research in Computer Science considers what has happened previously and what is happening currently in the above said field. Any academician can notice that the quality of knowledge, eagerness and curiosity in the students has considerably decreased when compared to the same that existed 10 years before. Before any discussion on quality of research and possible solutions, it is better to unearth the reasons for its downfall, and advice the upcoming generations who will be the products of the NEP-2020, so as to halt this downfall.

In previous years, joining an Engineering Course was a dream, and that too in Computer Science, was not easy to accomplish. Stu-

dents had no Internet, no mobiles or whatever. Everyone depended on books to understand a concept, sharpened their levels through their own experiences, learnt from their faults and so on. So, at the end of a UG Engineering course, a typical student had a good knowledge of Mathematics, Statistics, and surely of the core subjects of the concerned branch.

Currently, no one gathers data – data is available in Internet; no one tries on his/her own – previous works are available; no one tries to find out something – ‘things’ are available and can be sugar-coated. Actually, a student’s intelligence level is not much utilized since ‘Artificial Intelligence’, ‘Machine Learning’, ‘Deep Learning’ are already in place. Though many positives can also be identified from the above said topics, the thinking and research capacities of a student in solving a unique problem has gone down considerably.

On the other hand, since most of the placement eligible students have many offers in their UG, none of them is thinking of higher studies, here in India. PG Seats in all branches and specialities are vacant in IITs, NITs and many other highly-rated institutes. Research, if it being carried out, is not through burning curiosity or a specific goal. Research is being just done to add a ‘Doctor’ in the prefix. Harsh it might be, but that is the reality. Among the ‘real’ patents, awards, laurels etc. that exist in the world, can anyone find an Indian in top 100?

Thus, through the NEP-2020, the first step that must be implemented is to propose open-book examination system at different levels of examinations or tests. The existing examination system only tests the remembrance power of a student – not the logical level. This change has to brought in immediately. The funding agencies and their processes that exist for higher studies and/or research

projects are heavily rusted and should be removed or modified so that any student or researcher with an specific interest should be encouraged with appropriate funding or sponsorship. Collaborations with other country educational institutions and Universities are to be encouraged and interactions should also be brought up.

Finally, the other side of the coin – level of instructors must also be dealt with. The faculty members should be brought on par with current and real requirements of the IT industry through different types of activities, consultancies should exist in all institutions and any required data should be a real-time data – not historical data. Recently, unexpected calamities have also come into picture and should be considered before any method or formula or algorithm is presented.

Much more exists to discuss on this topic which covers a vast range but for now, this is what should be done to start a change in our higher education system and research methodologies. The author would feel grateful if this article makes at least one of the researchers or students to think in a different way and change his/her approach.