

The Experiences of Implementing the Essentials of NEP 2020 at RGUKT During 2010 - 2014

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Presently, there are several exploratory attempts being made across the country, towards implementing NEP2020 and there are several inquisitive questions being put. Here is a sharing of the experiences already gained through a very successful realization of the vision behind the NEP2020, at Rajiv Gandhi University of Knowledge Technologies (RGUKT) during 2010-2014, to help in these exercises.

The then government of the combined Andhra Pradesh started the RGUKT in the year 2008 with the very ambitious annual intake of 6000 students into a unique 6 year programme comprising of a 2 year pre-university course (PUC) followed by a 4 – year BTech. It had campuses at Basara in Telangana, Nuzvid and Idupulapaya in Andhra Pradesh. The university was bifurcated, later as per the division of the state. 85% of the seats have been reserved for students from rural schools. I joined the university as its first full-time Vice-Chancellor (VC) on invitation in the first week of Feb 2010 when the first batch of students were in the middle of their 2nd year PUC. At that time, there were no BTech curricula, academic regulations, faculty, laboratories and pedagogical practices created. The construction only of the first set of permanent buildings was underway. Being the only engineering professor at the university and as VC the responsibility of creating all of these including the education system towards educating and making the rural students employable after 4 years, fall on me. Backed by the experience of architecting the curricular design of the BTech programme that went into practice in 2007 at IIT Kharagpur as its Dean (academic), the challenge was taken up, the curricula, academic regulations and the pedagogical practices besides others were created personally.

The curricula and pedagogy were designed with the objective of imbibing the important and fundamental characteristics of the Indian education system, such as broad based education system which is multidisciplinary, student centric hybrid pedagogy ensuring self-study under the guidance of a faculty member, emphasis for mother tongue, culture and human values. These were created and put in to practice for BTech education, starting with the first batch of students from the year 2010-11. The first batch of students graduated in the same system very successfully with flying colours in June 2014. The traditional Indian education system is also the basis for NEP 2020. Thus the system created for RGUKT has the following features and foundation in common with NEP2020.

Multidisciplinary Education: Firstly, the BTech curriculum was designed to have high level of flexibility with a very significantly broad scope for elective subjects to include multidisciplinary courses such as Sciences including biology, humanities, social sciences, and management by the side of cutting edge engineering courses. Furthermore, despite the huge intake of 6000 students, the curricula and the academic regulations were designed to facilitate earning of a minor in these areas alongside a Major in engineering and the same was introduced starting with the first batch of students itself. Besides a minor in any other engineering branch, mathematics, physics and chemistry, scope for a minor in Biology, mother tongue (Telugu at RGUKT), media and music engineering, Kuchipudi dance, Karnatic vocal, Mrudangam, management etc., was created. Many of these Minors have been unique and first initiatives in the country, even by today after 11 years. Apart from creating the curricula and regulations, lecture demos from several exponents of performing arts who are Padmashree awardees and video courses from the best of professors in the

country were created and very successfully used for educating those students who wanted to run an extra mile and earn Minor in these courses.

A Participatory, Hybrid or Blended Pedagogy: Using this grand opportunity as VC, I have personally created a hybrid or blended pedagogy which emphasises self-study by students. A conventional class of 50 mins was mapped into a 2 hour contact exercise which was a blend of a short lecture, followed by a self-study and problem solving session under the close guidance of a faculty member. The very unique pedagogy was applied successfully that too for rural students to such a phenomenally large student strength of 6000 students per batch, for the first time in the country. When I completed my 5 year term as VC, 18,000 students were taking their engineering education in this pedagogy. The young faculty I have personally picked up from the campus recruitments at the IIT's through a yet another unique innovation, could quickly adopt to the pedagogy under my direct training and helped in implementing it very close to perfection. This pedagogical system was developed based on the basic philosophy of the ancient gurukul system of India, and by adopting it to suit the context of the modern curricular systems and significant assistance of today's technology.

Performance of the Initiative and Experiences Gained: It is a fact that an initiative such as this needs spirited functioning for successful realization. I provided a very close guidance and monitored as the person created the system. The system could be implemented, many expectations could be met, new revelations and insights could be found and the experiences gained have been phenomenally rewarding and extremely gratifying. Of the 6000 strong first batch, more than 5,600 students graduated on time in June 2014, facing the rigorous performance assessment practices that were put.

During the course of final year BTech itself, of the 1000 students that responded to our survey, as many as 700 reported that they have got qualified (in their first attempt as fresh candidates) in the GATE-2014 examination, without any scope for external coaching. The students bagged top ranks such as all India 8, 20, 25, 30, 35,, ahead of the several NIT students. In my opinion GATE rank and qualification for fresh candidates is an excellent and the most effective benchmark in the country for assessing the graduation outcomes of a BTech programme. The GATE performance itself is a strong testimony for the system that was created and implemented at RGUKT.

In the Telangana State Public Service Commission (TSPSC) openings announced in Aug 2015 for about 931 Assistant Executive Engineer (Civil AEE) positions, about 180 positions (20%) were bagged by 2014 and 2015 classes of the Civil Engineering Department of Basara campus of RGUKT. Furthermore, in the TSPSC openings announced for 563 Assistant Engineer positions in Sept 2015, 63 more from the same classes got selected. These are only responded and confirmed figures and the actual selections are more than those given here. More than 243 selections in a state public service commission from the first two classes of one department of a campus is a commendable benchmark performance.

These are only a few performance indicators from the university amidst many similar achievements. I haven't heard of any of the NIT's including those in existence for several decades showing this type of performance. This type of performance from the first one or two batches of the university itself a clear endorsement for the effectiveness of pedagogical system.

The experience reveals that the students have varied interests and given an opportunity, they would like to have multidisciplinary education. Given an opportunity, as many as 25% students like to run an extra mile to pursue their 2nd interest (may be missed first interest). As many as 70, 20 and 41 took minor in performing arts, Telugu language and Bio-Engineering, respectively. Due to the

prevailing demand for management and Computer Science in the society, more than 80% took a minor in these areas, besides others. However, the choice pattern of minor would need a few years for the trends to settle. There have been many other experiences gained and insights obtained through this life time opportunity.

In the first convocation in 2014, despite that it is the first batch, as many as 1362 students took a minor out of the 5,600 graduated against the intake of 6000, making it a phenomenal 25% taking a minor alongside a major. These phenomenal figures are against the backdrop where the minors in senior IIT's not crossing double digits in and around 2014 and almost all the universities including the central universities not even granting a minor.

As a VC who created and implemented the curricula, pedagogy and regulations for this early multidisciplinary education system in a technological university, it has been very gratifying to meet with this type of success and experiences. Presently, I have volunteered and engaged in the exercise of reviewing the curricula of IIT Bhubaneswar taking in to consideration the recommendations of NEP2020 and the process is underway.