

Role of Bridge Course in the Academic Success of the Engineering Graduates

K.YasaswiniChowdary ¹, R. Umamaheswara Singh ², G. Vanaja Reddy ³

^{1,2,3}Department of Humanities and Sciences,
Hyderabad Institute of Technology and Management, Hyderabad

¹yasaswinik.humanities@hitam.org

²umamaheshwars.humanities@hitam.org

³vanaja.humanities@hitam.org

Abstract: Our University, Jawaharlal Nehru Technological University of Hyderabad (JNTUH) gives admission into engineering through a common entrance test with a focus on Mathematics, Physics and chemistry. So intermediate colleges are teaching by giving importance to these subjects and the related concepts. Even in these concepts they are teaching but not training them. In the knowledge gained by the students only the output is seen but not the outcome. The noble profession of teaching and learning has deteriorated to the level of consumerisation, where the learners are treated as mere buyers of services. This scenario gave green signal for big corporate giants to enter in to the market of education; they brought its side effects too along with them. Languages are not given their allocated instructional hours and the logic of reasoning is compromised in science subjects by encouraging only rote learning. The result of this compromise is seen in professional courses. As a result students are unable to meet curricular needs of the profession they have chosen. In order to address these gaps, we at our college have designed bridge course for English and Mathematics. The present paper focuses on the success of the course adopted at the entry level for the graduates of engineering and how it improved the academic performance of the learners.

Key words: Bridge course, Engineering graduates, English, Mathematics, learning to learn.

Introduction:

At schools, education is imparted to students by holding hands, and at plus 2 level (or in intermediate college) education is forced, where the students do not remain as students but are treated as consumers by the corporate colleges. The primary motto of parents is to get good ranks and high grades, but not the quality education. The important formative years of education are ruined and are only tailored to the whims and fancies of parents or society but the inherent talent of the students is never encouraged or recognized.

The moment they step out from this cocoon and enter into professional courses they are neither spoon-fed nor I.V. injected, as university education is taught in none of the above manners. The student is left to his fate. The bemused students are perplexed the moment they enter in to the portals of the engineering education as they are bogged down by theory and practical subjects' curriculum. At this moment, they need positive intervention from institution side to put them on right track otherwise they become rudderless and are unable to reach the milestones they set for themselves.

K.Yasaswini Chowdary

Department of Humanities and Sciences,
Hyderabad Institute of Technology and Management, Hyderabad
yasaswinik.humanities@hitam.org

After much mulling in the staff room and board room, our institution coined bridge course which addressed the shortcomings or the paucity faced by them. Finally, we narrowed down the course for two important subjects they are English and mathematics, where it was observed that the serious glitches were faced by students and needed help in those areas.

Problems faced in the class environs:

Once they enter into Engineering College, self-learning is demanded. Students could not get out of intermediate leanings which are conspicuously visible in the classroom. Transition from intermediate to engineering style of education is the need of the hour. On their way to transition time management is another serious hurdle. Slow learners need to walk an extra mile to match the pace of the advanced learners. This time lag should be addressed which is becoming a challenge to the faculty

As lesson plans are also time bound, faculty could not focus on the slow learners during their regular teaching hours. It resulted in loosing the interest and enthusiasm in the subject. Sustaining the student motivation can't be compromised due to the above limitations. At times student perception and institution perception towards education style may not match. In this scenario progressive minded people will follow the policies of the institution but where as predetermined students are rigid, and it is a time taking process for them. In the meanwhile they will get stressed to cope with others as well as in comprehending the curriculum. Few do not show interest towards assignments given and others do not recognize the value of assignments and tasks given during the classes. Slowly the habit of studying will be dwindled. In such a case to sustain the interest of the students, facilitator comes into picture and puts his/her efforts to behold the interest of the students through a bridge course bastion.

Need to study:

Vernacular background students need to be taught English because all professional courses' medium of instruction is English. A budding engineer should be armored with two essential skills of communication they are speaking and writing, to be able to understand and understood by others. As they work in global environment, these days we often see engineers from various nations are deployed to do a single project. Hence there should not be any barriers in

communication. So a technical graduate should master the skill of communication by avoiding mother tongue interference in their language. This in turn helps them in securing placements also.

Our college is affiliated to Jawaharlal Nehru Technological University, Hyderabad. University prescribed four series of engineering mathematics subject numbered as 1,2,3,4 which are spread into three semesters in the first two years of their engineering studies. If they do not succeed in the first year mathematics they miserably fail in all related academics like Network Theory, Power Electronics, Thermodynamics, Mathematical functions of Computer Science and Operation Research.

Engineers are hired for their logical brains. Engineering Mathematics is also called as Techno Mathematics. As the name implies that its application is found in engineering and industry. Learning by heart the concepts does not work in sciences like mathematics which needs logical and analytical skills to solve engineering related problems which they encounter everyday. Then only, marvels like Eiffel Tower, Burj Khalifa, Android and Artificial Intelligence can be created by engineers by mastering these two subjects.

Objective of the Bridge Course:

Bridge course was commenced at the beginning of the semester to the students who were identified by a preliminary test in the subjects like Mathematics and English and also through their participation in the regular classes.

Initially students were not comfortable in the new environs. They created insecurity and that led to psychological barrier to learning. To address this we created a secured haven for learning. As human beings have innate zeal to learn throughout their life, more so at young age, which should not be stemmed. Educational institutions should feel this obligation to provide congenial learning ambience where learning happens naturally. We, at our college wished to adhere to this lofty ideal by providing an ambivalent scaffold through bridge course, which helped students, mingle with others happily and they could carve a niche for themselves in the campus by developing their own unique identity. This created an active learning environment that made the students tap their innate energies and channelized them towards the destiny. Bridge course made them comfortable with the

learning style adopted by them, which eventually be developed into a skill of their forte. Through this course, an ecstatic learning background paved way to a positive learning environment in the class where active participation was seen from every end.

As the faculty became facilitators with whom they could share their strengths and weaknesses without any inhibitions, a friendly environment was created with their emotional support. So they were able to mingle with everyone in the campus freely. They approached faculty without any fear. In such a way belongingness was created which had a positive psychological effect on the students.

In this supportive learning environment even the under presented student developed a sense of comfort and enthusiasm which led subsequently to self efficacy. With this bridge course they were able to prove themselves in the end examinations. Hence academic success was all pervading in the campus.

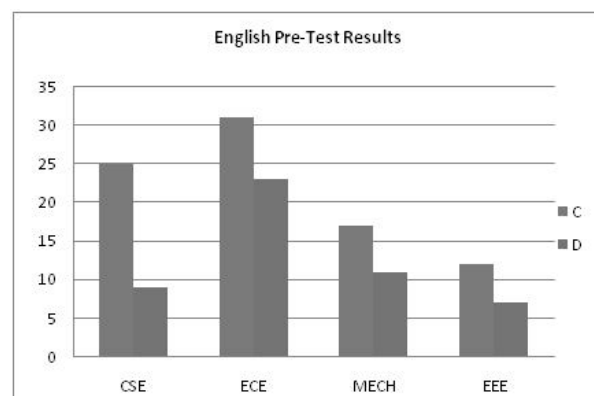
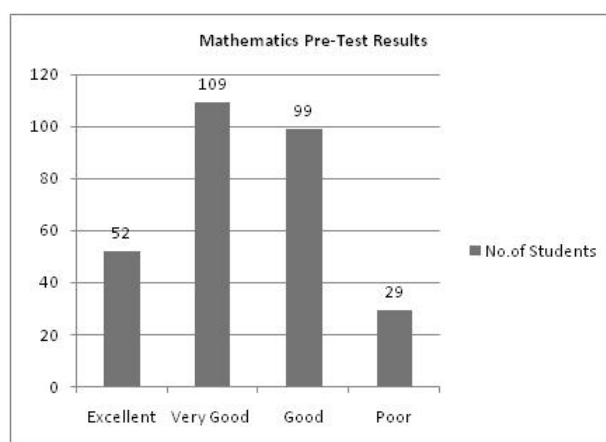
Strategies implemented to overcome the problems:

Faculty took the onus of interacting with the students personally to navigate them for the academic transition by becoming the guides by their side.

Enhanced their learning by focusing on their strengths and weaknesses and also transformed their weakness into strength by inculcating the sense of self worth. Initially psyche of the Students was affected as they were offended by the categories they were put into, which became unpalatable to them. This was resolved within 48 hours under the steward ship of the department head along with faculty through a concerted effort without which, this course would not have seen the light of the day.

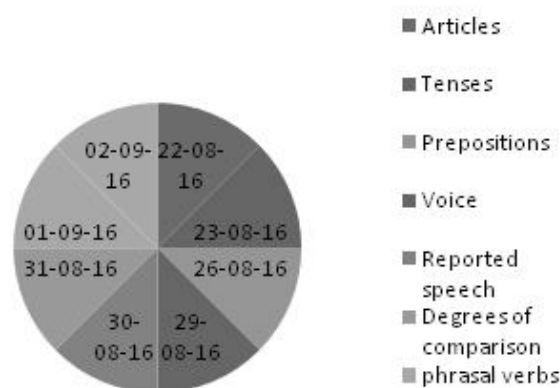
To turn a new leaf in their life with an imperial aim the bridge course was designed in the subjects like mathematics and English, where many failures were observed in the end examinations and also at the end of the course to crack interviews. So, course emphasized on those two subjects by giving a due focus to them.

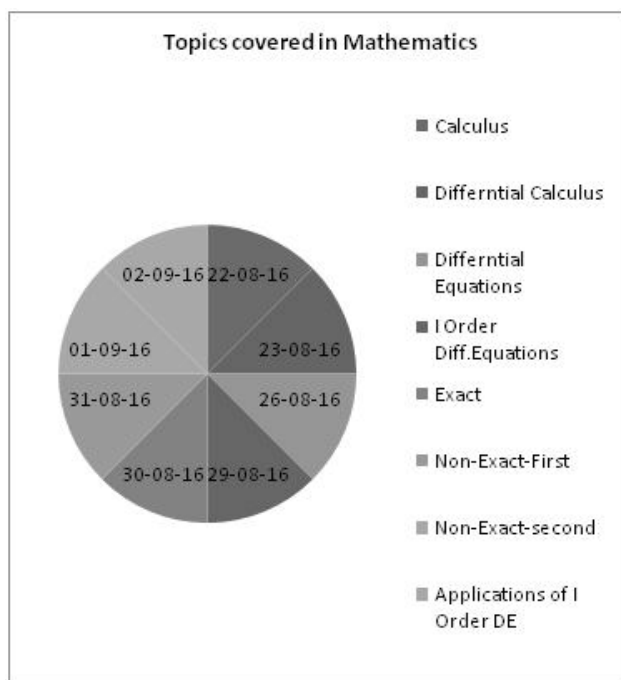
A pre test was conducted to all the freshman engineers before the commencement of the course. Based on the test result 130 students were identified with the prerequisites in the area of English and 128 in the area of mathematics.



After observing the results, areas of improvement were identified. Based on that Bridge course was designed. This course was conducted for eight days on the vital topics like Articles, Tenses, Prepositions, Voice, Reported speech, Degrees of comparison, phrasal verbs and idioms in English and the topics like calculus, differential calculus, differential equations, first order differential equations, exact, non exact first, non exact second, and applications of first order DE in mathematics.

Topics covered in English



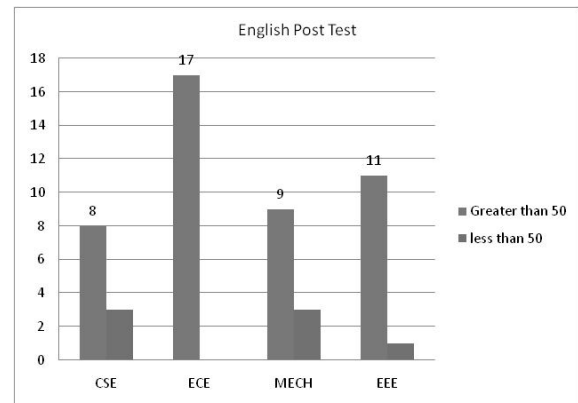


Eight days of duration is very short period to give complete knowledge on two prime subjects like English and Mathematics. But it is sufficient to create the required zeal to learn independently. We strongly felt that without required zest to learn the whole learning process becomes a futile exercise. So thrust was given in the initial days of their engineering course.

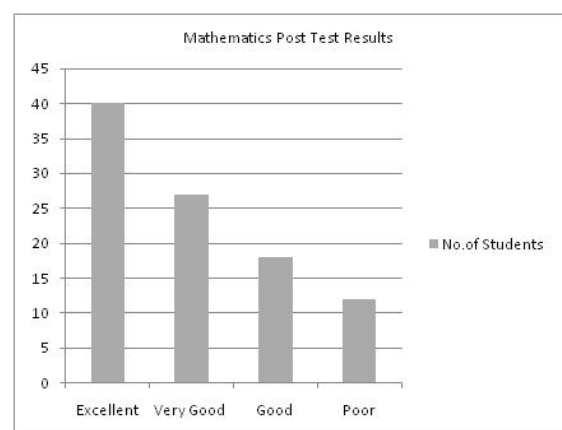
During the course, opportunities were provided to participate in the discussions. Freedom was given to voice their doubts without any inhibitions. So students came out of their enwrap and freely expressed their feelings.

Students were not punished for incorrect answers instead they were penalized amicably for not participating in the discussion during their presence in the class. They were able to analyze what they knew and what were the areas to be learned and which were the stumbling blocks to them to take the next step. Once the problems were identified students worked on how to overcome their limitations. Analytical skills were encouraged instead of mimicking a teacher. Throughout the bridge course, students worked on it. Finally, they were able to cope up with the other students and they took active participation in the class activities. After the completion of this course a systematic review was conducted through a post test to assess their learning. Post test results showed a drastic improvement.

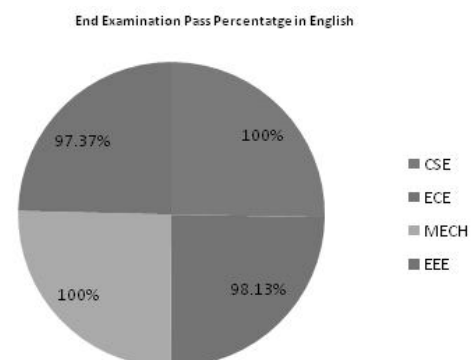
The post test results in English stated that only 7 members fall into the category of below 50% .from the branch of ECE all the students secured above 50% marks.



Post test results in mathematics showed that 17 students were good whereas 12 members showcased poor performance. To these 12 members a special focus was given and remedial classes were conducted for those students.



Even the end results surprised everyone .In comparison with the previous year results, this year end examination results were also good. The effect of bridge course is clearly seen in the end exam result.



Conclusion

A sea change was observed in the transformed mind sets extending equally with the peer group. They were able to surpass the goals decided. Meaningful relationships were established among the students of the class. Students showed enthusiasm to participate in seminars, symposiums, MUNs and all the other intra and inter college events. Their communication skills were nurtured. A positive change was observed in their demeanor.

The optimistic learning environment prompted motivation in the learning of the students. They felt bonhomie after the course they took. A sense of satisfaction was also seen in their personality. Faculty members were also equally benefited with the course. They felt more expedient while delivering the lectures as the margin was erased between these students and others. A structured environment was created. This helped in the smooth flow of academic lesson plan by adhering to the timelines set by the university. The successful in time completion of the syllabus helped students to secure good results even in the end exams. The metamorphic shift was visible as they were something at the beginning of the course than they were at the end of the course. The same was applauded by the parents who shared it with the faculty in their personal interaction on the platform of parent teacher meeting.

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