

NEED OF INDUSTRY BASED CURRICULUM ON NEPALESE UNIVERSITIES IN ICT EDUCATION

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Abstract:

There are five universities in Nepal; Tribhuvan University, Kathmandu University, Purbanchal University, Pokhara University and Nepal Sanskrit University (formerly known as Mahendra Sanskrit University). All universities, except Nepal Sanskrit University, are providing ICT education. There are many colleges affiliated to these universities that have curriculum in IT education. These institutions are providing education from Intermediate Level to the Master's Level. This paper is basically deals with the Baccalaureate level of studies in this field. The number of students' enrollment is increasing rapidly. The numbers of faculties are also introducing alternative electives to select course as per their choice. ICT education covers faculties such as Bachelor of Engineering (BE) in Computer, Electronics (and Communication) and Information Technology, Bachelor in Information Technology (BIT), Bachelor of Science in Computer Studies (BScCS), Bachelor of Computer Applications (BCA), Bachelor of Information Management (BIM), Bachelor of Computer and Information System (BCIS), Bachelor of Business and Information System (BBIS). Every year, large amount of capital is being invested in this sector. The curriculums provided by the universities are not enough to meet the required demand of the market. As a result, Nepalese students are facing the problems of Skilled Unemployment and are increasing every year. Something is lacking in the curriculum. This paper deals with the problems associated with the curriculum that are to be addressed at earliest.

Designing a Curriculum in ICT

ICT can light up learning, empower communities, and unlock social development. It can reach to the remotest areas, the most challenged educational systems and make transformative advancements on a national scale. Policy makes the fundamental difference regarding how a country is able to take advantage of the technical opportunities available to them and exploit them for good [1].

While designing a curriculum in ICT, there must be a balance between national interest and those of employers and academics. The most effective ICT curriculum development plans are those which establish a clear educational vision for the future (at least for the next 10 years) and are based on a careful analysis of the present picture. **Industry-academia** program

must be launched. There must be a good mutual understanding between these two folds so that the educational institutions will try to understand industrial requirement better. The curriculum should be developed according to the requirement of the industry.

From our perspectives, we saw four primary stake holders: first one being the students, second – the educational institutions, third – the industries and the last but not the least – the Government. The target groups of the second stake holder are basically the teachers and the faculty members of the academic institution.

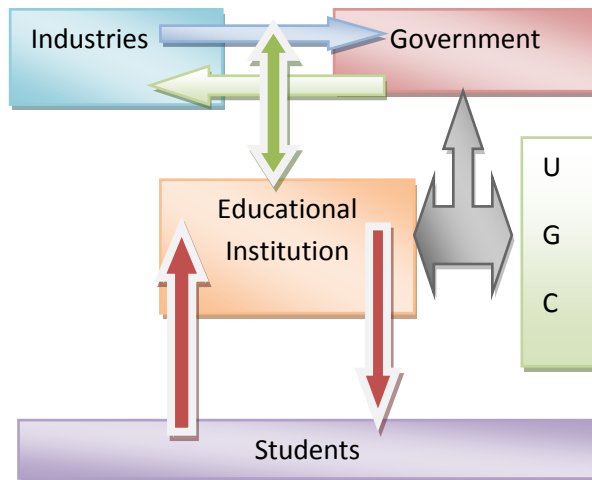


Fig 1. Stake holders and their relationship

Present Scenario: Full of Threat

Skilled Unemployment and Industries

At present, the curriculum is not designed to meet the industrial requirement. There is a distinct line drawn between the educational institutions and the industries resulting for Skilled Unemployment. Government is not able to deliver employment opportunities to the graduate pass-outs. Students after getting graduation degree are either under-paid or unemployed. The numbers of skilled-unemployed are increasing day by day which is resulting frustrations among the new graduates. There is no other alternative except accepting the under-paid appointments under compulsion.

Four Different Universities; Four Curriculums

The other problem is that, four different universities imparting ICT education has different curriculum for the same subject. The government should step forward to correct this issue. Strictly speaking, in Nepal, nowadays most employers compare the degree awarded by the universities, though the degree has equal footings. If the curriculum remains same and

the grading system is also made same, then the deserving candidate will get the job.

In the context of Nepal, let us have a simple example of Computer Engineering Course. The computer engineering curriculum in Tribhuwan University includes Communication system (which comprises of both analog and digital communication), but this is lacking in Pokhara University's curriculum. If Tribhuwan University feels this subject as one of the important course for their products in computer engineering then why did not Pokhara University include this course in the curriculum? There are many other such subjects that are present in one university's curriculum but not included in others. If both the universities have the target of producing the computer engineers of equal footings, why did not they match the curriculum?

Brain Drain – The most dangerous

The driving factors of brain drain are: unemployment or under-employment, better opportunity for career development and lack of adequate programs for higher education.

The educational policy regarding ICT program in Nepal is gloomy. There are few institutions which provide higher (Masters, PhD) level study in ICT sector. The numbers of students enrolling at bachelor's level are very high and only few of them get opportunity to continue their Master's level study in Nepal. There is a bottle-neck situation. This situation can be illustrated with the figure below.



Search, or need of higher study, makes students march their way to abroad. The Government of Nepal addressed this issue and stated that efforts will be made to check the students going abroad. This is a hypothetical view of some of the national leaders that they will discourage the students going abroad. But it is impossible in this age of globalization.

Even in brain drain situation, Nepalese students are facing trouble while competing in international arena. This is due to the fact that Nepalese ICT education is limited to the theoretical knowledge rather than practical approach.

With the advancement of ICT education in South Korea, they took a great leap but Nepal, even after producing avalanche of IT specialists, is not being able to exploit them. Is it the failure of the curriculum developed by the universities or the incompetency of the university products?

Research Initiated and Result Found in Preliminary Stage

Information Technology Society – Nepal (ITS-N), recently launched a research on *Revision of Curriculum – a Must Launch Aspect – in ICT Sector in Nepal*. ITS-N is an organization where students and professionals all share their views under the same umbrella. Our member groups are mostly students. On our regular interactions with them, we reached to the conclusion that something is lacking in the curriculum of the universities. For the development of good ICT

curriculum, ITS-N launched this campaign on 23rd December, 2008. We are in a preliminary stage and have initiated on Engineering Studies mainly Electronics and Computer faculty. At present, we have not been able to progress smoothly due to financial constraints. We have talked with some institutions and organizations for the support and we expect support from all the stake holders in our mission.

We developed a Questioner for the research and after analyzing the queries from all ICT faculties, a workshop will be organized regarding the same issues and create pressure to the concerned universities to update the curriculum according to the changing needs.

Results obtained so far

At present we interviewed students and teaching faculties of some institutions*. The result shows that neither the students nor the teaching faculties are satisfied with the present curriculum. We launched our first phase of program in one of the institution affiliated to Tribhuvan University and the other institution affiliated to Pokhara University.

1. The University should monitor affiliated colleges strictly and periodically.
2. College should not be given affiliation unless they attain standard requirement.
3. Lack of Practical knowledge and courses not being updated on periodical basis. Much emphasis should be given to practical subjects rather than theoretical ones.
4. Private colleges are recruiting the teachers ignoring the standards set by the universities. The Universities should formulate directives to the

appointment of the teaching staffs in private colleges.

5. There is no amicable environment for research in the colleges. The curriculum should be so formulated that promote the research activities.
6. There must be a provision of Internship for the students. The college that cannot facilitate internship program should not be given affiliation.
7. There should be a joint entrance examination in Pokhara University while admitting the student, just like TU's intake in engineering.
8. Many subjects are outdated. They need to be updated compatible to the globalization.
9. There must be sufficient number of elective subjects. The elective subjects so offered should be according to the need of the market.
10. There must be a semester and course barrier. In Pokhara University's case, there is a course barrier but student are very much positive towards the semester barrier as well.
11. There must be a healthy teaching – learning environment.
12. Project work should be included in every year. The project should be supervised throughout the year.
13. Education should be imparted on professional issues but should be responsible to the society as well.
14. The curriculum should be compatible with the international standard.

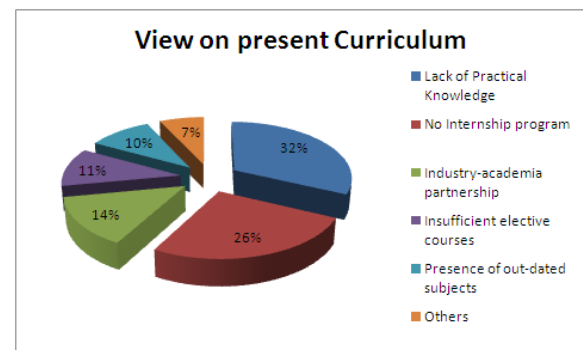
What Next Then...?

The results of the preliminary phase of our research lead to draw few conclusions and suggestions. The estimated period of our

research may be of seven months. After the completion of the research work we will reach to a conclusion.

While interviewing the students and the teachers we found that universities and colleges are also responsible for the incompetency of their products due to the lacuna in the curriculum. Although, this paper concentrates on curriculum, we have skipped other reasons of incompetency of the universities and the colleges.

A diagram of component of curriculum missing is shown below:

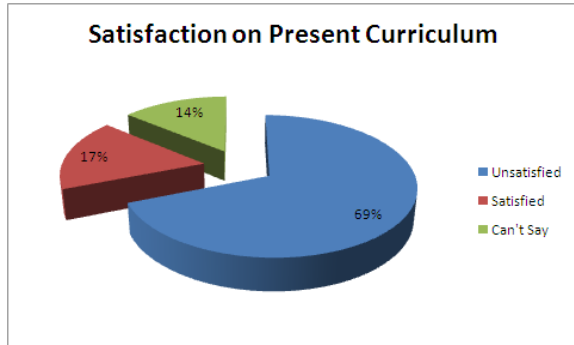


- Curriculum revision is the need of the hour. All university's curriculum and grading system should be on equal footings.
- There must be a provision of Internship of six months within the framework of the course. This will allow students to achieve a real time experience and will act as a bridge between the academic institution and the industries.
- The number of elective subjects should be increased. These elective subjects should be offered such that they fit to the demand of the market (National and International).
- The government should launch definite plans such as industry-academic partnership and should hold some good vision for at least 10 years. What government will be doing in ten years in this sector? What would be the

opportunity for students after getting their degree and so on ... This will ensure the students that there exists a scope of their studies.

Conclusion

Below is a survey of students about their educational satisfaction is depicted.



The survey was conducted with 374 samples on two engineering colleges, one affiliated with Tribhuvan University and other with Pokhara University. The chart above shows that the 69% of concerned students and teachers are not satisfied with the present curriculum. Curriculum development/revision is the need of the hour.

14th January, 2009

References

1. www.digitallearning.in , " ICT Policy for education: A Tale of two countries".
2. Manzar O., Bruk P.A., "e-content voices from the ground 1.0 Version", DEF WSA.

N.B.

** For some reason, we are unable to place the name of institution at this moment. All the name of the supporting institution will be placed in the final report. Sorry for inconvenience.*

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