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**CURRICULUM IN AN AUTONOMOUS ENGINEERING COLLEGE: IS IT AN
EMPLOYABLE CURRICULUM?**

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Abstract

Educational institutions world over are probing various methods to evolve and cater to the traditional obligations of teaching, research, and placements; and are also looking to influence higher education to realize career and economic accomplishment. Taking into consideration these and other factors, the purpose of this research paper is to develop the foundation of an employable curriculum intended to position engineering colleges designed for success in the global workforce and contribute to a strong Indian economy. This paper highlights the critical factors that influence students' decisions to attend college, their academic choices and their relationship to work after graduation. As research demonstrates, an Employability Curriculum is one of the best options available for helping students to make decisions before graduation that will enhance their abilities as professionals in a global workforce. In this paper, the researcher highlights and establishes a particular form of quality education, which ought to be at the center of autonomous educational planning. The paper defines what an autonomous employable curriculum is and also analyses the parameters, the cobwebs; the major misconceptions and seeks to establish 'The Way Out', since this analysis is based on the dichotomy between "learning to do", and "learning to be"; and concludes with the words of Theodore M. Hesburgh.

This article institutes 3 sections:-

1. Establishes a definition of employability and explicates its relevance today.
2. Demarcates an Employability Curriculum's dimension and practice.
3. Deliberates potential outcomes for students, academic departments, and engineering institutions

Key Findings:

- i) Employability conglomerates both academics and vocation.

- ii) Employability is dependent upon a strong academic program. The skills and competency gained in one's academic program are critical to exploiting employability.
- iii) The employable curriculum seeks to connect the classroom to the workplace /community in a meaningful way that is mutually beneficial, rather than reinforce a division between the two.
- iv) Employability is a process rather than a discrete program; employability matters at all levels of an institution and is relevant to all stages of student development.

Eventually, this paper is a roadmap for generating a successful program that will help engineering graduates to be more effective in creating lifelong careers.

Introduction

India has achieved an extraordinary and progressively rising fiscal growth since the early 1990s. And yet, the challenge of prolific, industrious employment in the recognized segments of the economy remains a terrifying one. The 11th Five-Year Plan (2007-12) of the country has emphasized a comprehensive growth in which self-motivated employment plays a significant role. Within the structure of the global goal of achieving respectable work for all.

Section 1 establishes a definition of 'employability' and explicates its relevance today.

Employability, it is argued, can be embedded in any academic subject in higher education without compromising core academic freedoms. A strategy for curriculum change is described, which is sensitive to both governmental expectations and traditional academic values –and is relatively easy to use. The strategy provides a way of preserving legitimate diversity in response to the homogenizing tendencies of the human capital policies that are influential in many advanced economies. In the 'Employability Strategy', employability is defined as: "The establishment of clear mechanisms by which students can develop their abilities to use and deploy a wide range of skills and opportunities to enhance their own academic learning and enable them to become more employable (pp.473-475)

Employability conglomerates both academics and profession and is dependent upon a strong academic programme. The skills and competency gained in one's academic program are critical to exploit employability. An employable curriculum seeks to connect the classroom to the workplace in a meaningful way that is mutually beneficial, rather than reinforce a separation between the two. Employability is a process rather than a disconnected programme; it matters at all levels of an institution and is relevant to all stages of student development. Through an

introspective, developmental process, students learn to become adaptive, sought-after professionals who are well-matched for a global economy.

Primarily, employability means the aptness of an individual to find appropriate work by possessing both expert proficiency in discipline and simultaneously possess the intelligence to relate that expertise to a wide range of contexts, communicate well, and adapt to new information. In the broadest sense, employability is an organized whole that is perceived as more than the sum of its parts, rather than a checklist of desirable skills and abilities. In other words, it is complex to objectively measure something like skills and abilities because it is an intuitive quality that cannot be tested in the same way that, for example, Math abilities are calculated.

Employability is a connection between college and the world of work. To be sure, all institutions actively foster multiple means of engagement for students who are looking to make the transition to the workplace. However, the traditional divide between the ivory tower and the real world is a distinction that both teachers and students still explicitly enforce. For most higher education teachers, employability is an intrusion on the proper concerns of academics, one apart from the world of business. Such attitudes point to a symbolic divide that may be reinforced by both faculty and students who do not see a clear connection between academics and vocation. And yet, employability is very much a concern of the classroom, and consistently “aligns with a concern for academic values and the promotion of good learning” (Knight & Yorke, 2004, p.1). It is critical that the divide between the workplace and employability be addressed effectively because it is evident that efforts in higher education are falling short of student needs. Currently, research points to a discrepancy between campus administrators’ and students’ expectations on employability.

"As the planet gets smarter," they observed, "multiple strands of empirical evidence support the need for T-shaped people with deep problem-solving skills in one area...and complex communications skills across many areas" The demand for “T-shaped” professionals stands to grow, as an article from Brooks (2012) stated, “the most sought-after candidates for management, consulting, research, and other leadership positions are T-shaped.”

Section 11: Demarcates an Employability Curriculum’s dimension and practice.

An employable curriculum seems to be the only tangible aspect of autonomy given to autonomous colleges. Even here, because of society’s unwillingness to appreciate the fundamental worth of an educational programme, there are certain compulsions to adhere to general patterns regarding the year of study, obligatory and optional courses for the sake of ensuring correspondence between the degree offered by autonomous engineering colleges and that offered by non-autonomous engineering colleges. But this need not deter us from offering a

curriculum that is innovative, robust, vibrant and realistic. That autonomous college can provide this was the basis for granting autonomy to engineering colleges.

Some colleges put the stamp of their educational goals on their learners and therefore prove their potential and confidence in organizing a system of education independently. It is this determination to establish and spread a particular form of quality education, which should be at the center of our autonomous educational planning.

The Parameters:

1. It is impossible to emulate or follow a blueprint of a curriculum for all autonomous engineering colleges-because there are ever so many distinctions between one set of goals and another. But we must keep in mind the parameters that should govern the structuring of our curriculum, and this should be differentiated from the methodologies and the strategies adopted in the classroom. Even though it's the methodology which ultimately helps us to realize the objective of our educational system, we must not equate the educational process with the methodology, but see it as a means to an end- that of realizing a curriculum that is employable.
 2. When we set an autonomous curriculum it is good to keep in mind the following:-
 - a) Whether the focus is on the individual or is it catering to the utilitarian needs of the society?
 - b) Whether to provide education to learners who come through a process of selection,(thereby encouraging meritocracy and elitism) or to promote democratization and bring to the highest level possible, all learners where guidance takes the place of selection, and the content becomes open-ended and diversified to allow each individual to fulfill his/her wishes and aspirations?
 - c) Whether education should be 'teacher-centered' or 'learner-centered'?
 - d) Whether it should be formal or non-formal; full-time or part-time; general or specific; certificate or non-certificate, three-tier or lifelong; years or hours?
 - e) Do we choose from a memory-based syllabus, a formalistic syllabus, a utilitarian syllabus or a functional syllabus?
 - f) Do we favor a model of thought-forms such as logical thought, empirical rationalism; intuitive thought, dialectic thought, symbolism, and dogmatic thought?
 - g) Whether education should be 'to do' or 'to be'? and
 - i) Whether it is on the whole an employable curriculum?
 3. Let take a look at what constitutes an employable curriculum?
 - Every paper we introduce should teach the learner the various core ideas of employability.
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- Where can you apply this knowledge ware and is there any possibility of encashing the same, job-wise?
- Supply role models or case studies of the same.
- Has the paper any cross-cultural /scientific/artistic awareness?
- Any aspects organized around the business sector?
- What is the material planned for it? Is it learner-centered, activity-based material? Is it relevant and current?
- Does it offer various learning styles? Do learners have lots of options?
- Does it invite them to bring their own lives experiences and needs into the classroom? (There are however other curricula with these attributes that are not employable)
- How is the present employable curriculum different from those of the past?

Consequently, we teachers, as planners of curriculum, observe that there are two specific choices available

i) Those focused on the teacher, system, utilitarian, selective meritocracy, memorization which is easily systematized, effectively controlled, and empirically evaluated and thus prepares the learner “to do”.

ii) Those promoting a system of education focused on individual-guidance, open-mindedness, diversity, formalism and functional materialism, and where one has to be patient, innovative, sympathetic and adaptive so that the learner comes to terms with his own life on his own terms and learns "to be". Therefore the tendency has been to opt for the former-"to do."

This is called “presentism”, the ‘cult of immediacy’ - natural to any institution in a nation. Every institution is faced with such problems as:-

- Acute shortage of manpower resources to manage its institutional growth.
- Unprecedented demand for education and the right to be educated.
- Providing a system of education commensurate with the increase in the volume of knowledge.
- Giving priority to specialization.
- Co-existence with the developed nations that have programmes suited to ensure the development of the full potential of their people and self-fulfillment of the individual.

The Cobwebs:

Any educational programme is restricted by manpower needs, mass education, a wider range of information, highly specialized courses and the introduction of courses and patterns

followed in developed nations. Though these features of a curriculum are useful in themselves, they become counterproductive when introduced for their sake and not as a means of achieving the objectives of the institution. To ward off the temperature of quick solutions and conformity to the general trends of the times, it is necessary to study the real implications of some of these issues, to see whether there is any fallacy underlying them.

This is based on the argument that as the economy evolves, it will need certain inventories of trained manpower at successive future dates and that these needs can be predicted; and education at all levels should be geared to meet these needs. The requirements of the economy are not fixed, but highly flexible and hence can adapt to different combinations of skills. If it lacks certain skills it can train people for those skills - it can do without some skills.

The Misconception:

1. Education planning in colleges has to be done on the basis of the future needs of the nation. The manpower principle depends on what the country wants to do. And what the country wants to do or can do will be affected by the kind of manpower available, by the way, people have been educated.

2. The manpower theory of educational planning is based on the misconception that the world is regarded as being divided into inputs, in the form of effort or work; and outputs in the form of economic goods and services. What is often overlooked is that the 'inputs' are as much part of life as the 'outputs'. Some people may choose vocations and work styles that are personally pleasing, even if they are not productive in the sense of adding to the economy.

3. Another misconception is that it is wrong or wasteful to provide an education that will not be used directly in a vocation. This opinion is based on a rigid one-to-one relationship between education and jobs. But this also overlooks several facts. Even education with a specific vocational and professional bias produces learning, personal traits of wide applicability. For e.g. A Ph.D. in English or History may find his or her destiny in Journalism, in Government Service, in Publishing or in College Education. That education has wider applicability and produces flexible and versatile people should be seen as a success rather than as a failure of education. In this context the philosophy of one of the leading educationalists, Harold Bowen, brings relief:

"Education is not designed to prepare people to do whatever workflows from the blind and predestined imperative of technology; rather it is intended to educate people of vision and sensitivity, who will be motivated to direct technology into humanly constructive channels."

The Way Out:

It is imperative to understand that institutional excellence is achieved not by miles but by inches and in favor of micro time units versus macro time units.

Institutional excellence also requires two important inputs:-

i) Principled centered man management.

ii) Flexitime unit management.

A joint pressure of both these inputs is essential for attaining institutional excellence.

In our eagerness for providing equal opportunities through spot admissions and consequent mass productions of unemployable graduates, we should not sacrifice quality. There is a difference between equality and egalitarianism. And there is a bottomless gulf between quality and mediocrity. The popular view is that these do not go together and that one has to be sacrificed if the other is to be promoted, especially with the open admission policy prevalent these days. If the open funnel model of admission is adopted, we can expect some kind of filtering at the exit level, but as things are there is a great demand for the cylindrical model which ensures free flow at the terminal level also.

Since selective admissions have been done away with, to achieve education for all, there is a great need to bolster the self-image of those who belong to the disadvantaged sections of our society. College is geared to the development of a narrow range of talent –one out of twelve of known human abilities, so naturally, these are students whose chief talents lie among the unexploited. Eleven out of twelve has trouble demonstrating that they can make a contribution to society. If a statistical fact that on any single dimension of human ability, half the students in the nation will be below average by definition; naïve constitutionalist have the notion that working with the bottom half will somehow raise them to equal status with the top half. Unfortunately status in the society is relative and on any single measure, there will always be a lower half. There is however a way to reduce the number in the lower half, and that is to expand the number of dimensions along which talent is measured.

We have to realize that most jobs consist of the three functions of an individual in society are - work with data; work with people; work with things. and require various levels of skills in each area. Thus the students who have the interest and ability in the management of ideas would pursue academic excellence, and at the same time develop minimum levels of competence in working with things and people. So, no skill will be considered better or higher than any other, all are important in our society.

This 'employable curriculum' recognizes individual differences and allows us to establish realistic standards of performance rather than be just tolerant of those who cannot meet our standards and thereby create a new class of the disadvantaged among the educated. It will also solve the major confusion in the concept of democratization of education which is realized as equal opportunities for whom and in which area of knowledge. Most often it has been an equal opportunity to develop mediocre competence in the area of someone else strength. Now in this

employable curriculum programme, we can provide the means to develop one's own talents to the point of excellence and still be a useful citizen.

It is true that in formulating a meaningful curriculum for higher education, there are eternal points of extension:-

- Scholarship versus training,
- Attention to the past or present or the future;
- Integration versus fragmentation;
- Student choices versus institutional requirements,
- Breadth versus depth, Theory versus Practice,
- Ethical commitment versus ethical neutrality.

These tensions cannot be resolved and perhaps turn out to be necessary to maintain the high sensitivity of the differences in the various formulations of what it is to be educated.

Section 111: Deliberates employability's relevance to engineering colleges — academic, economic, and social realities

This section explores why employability matters to engineering colleges given certain academic, economic, and social conditions evident today. Most prominently, the political debate over an engineering education serves as the primary drive to a discussion of employability. In short, engineering education is under review—given the high debt, the low graduation rates, and the seemingly gloomy employment prospects, why should a student register in an engineering college at all? Developing students to be flexible, intelligent, and accomplished professionals have perhaps never been more relevant to engineering graduates. Academic critiques, economic trends, and social developments all indicate that there is a strategic shift happening—more and more engineering colleges are called upon to defend & define its value in higher education.

Primarily, two official responses attempt to answer this question.

- i) The Government's Higher Education Record Act and
- ii) The Student Right to Know Act

Both the Acts call for engineering institutions to collect additional data, which makes it evident that there is a serious demand for accountability. Students deserve to know this information before they invest huge sums of money and years of their lives into engineering institutions. The number one priority of these two responses is that students and their families should know “post-engineering graduation average annual earnings” (Wyden, n.d.). Both acts represent an important shift away from acceptance and graduation rates to post-graduate outcomes. A degree in and of itself no longer

has the same signaling power it had in previous years. Instead, the outcome of the degree is now the primary concern for both engineering officials and students.

These bold political initiatives are chiefly a response to a massive, if not nearly catastrophic change in the economic landscape of the early 21st century. The 2008 recession still looms large for recent college graduates; all but a secure few seem well aware of the challenges in getting a good job. Now in the midst of a slow, but steady recovery, graduates and students are faced with a seeming paradox: employment prospects are simultaneously scarce and abundant. To be sure, there is an excess of evidence pointing to poor employment prospects for recent engineering graduates. Even when a student finds a job, it is not necessarily a fit for the student financially or educationally, as the Department of Labour tells us nearly half of working engineering graduates are underemployed, usually indicative of jobs that are only part-time and low-wage. Today there are fewer jobs in India than there were four years ago. Some 23 million Indians would like to work full-time and cannot get a job” (para.1).

Yet, in spite of all the bad news, it seems that there is just as much cause for optimism. As incredible as it seems, additional evidence seems to support that bright forecast. Each month, stated Carnevale, Jayasundera, and Repnikov (2014), there are 3.7 million job openings, 80% of which are jobs targeting those with a Bachelor's degree or more (p.1). The article Shortages are pressing not just in areas such as engineering but also in areas such as office administration” (para. 2). In short, even though recent graduates may struggle to find a job, “millions of jobs are going unfilled because companies say they cannot find candidates with the right skills” (Blumenstyk, 2014, para. 11).

These two seemingly contradictory findings indicate a much bigger trend in the labor market that is impacting engineering employment. While the recession and its aftershock seem to be the primary reason why recent engineering graduates have trouble starting suitable careers, in fact, the simultaneous underemployment and labor shortage indicates a seismic shift in labor needs, one that has been happening for the last few decades. In short, the traditional 40-hour workweek is being replaced with more contract-based, temporary, or part-time work arrangements, which are reflective of major shifts in the global economy and technological advances.

These findings would seem to present a paradox—are students satisfied or dissatisfied by their engineering education? While the discrepancy between these findings may be accounted for in different survey populations or more satisfied individual’s reporting in greater numbers, the underlying implication is clear—one’s career after graduation is the standard by which one’s education will be judged. In other words, students think about the future in terms of their career, and their perception of their future career colors their assessment of their education. While many

students equate education with a career, it's important to note that for some of those same students, their time at the institute may be a transitioning experience, wherein a student will mature. Anecdotally, this kind of student seems to be prevalent at various institutions —students come for the sports, out of family tradition, An engineering institution is a place where students feel they will move on to the professional world, but they are not quite sure how that will happen. This kind of "transitioning" student also seems to be consistent with what another study labeled as “struggling” students—according to one paper, “26% of students felt that they were struggling—wanting to know more, but not feeling well informed” (Mourshed, Farrell, & Barton, 2013, p. 19). These two groups are certainly not mutually exclusive: students come to Engineering institutes with expectations of getting a good job after graduation and may also regard their time here as a kind of transitioning experience. But the challenges that come with that mindset are compounded by the difficult work of developing as a professional suited for today's workplace. Students' current attitudes and expectations are an acute response to economic trends and a rapidly changing workplace. With increased political demands for universities and engineering and liberal to account for employment outcomes, all higher education institutions - be it engineering/management's approach must bridge the gap between accountability and responsiveness to student needs. Given these conditions, the best solution in this situation is to integrate vocation with academics through a strong employability curriculum. For this, it is not a bad idea to distinguish between traditional autonomous engineering institutes and evolving autonomous engineering institutes

Conclusion:

This brings us to the correlation between our objectives and our curriculum, which cannot be sacrificed at any cost. Depending on the objective a curriculum is neither better nor useless but only relevant or irrelevant. Objectives are needed in every year where performance and results directly and vitally affect the survival and prosperity of the institution. The objective of an institution reflects the judgment exercised in balancing the variety of needs and goals of the institution'. Objectives should enable us to organize, and explain the whole range of phenomena in a small number of statements, test the statements in actual practice, predict behavior, and appraise the soundness of decisions when they are still being made and analyze one's performance and improve upon it. We should be determined to steer clear through the welter of provocations posed by presentations, consumerisms, and rationalism and provide the courses and learning experiences which will make us realize what we want an educated person to be.

If the objective of education is to give the wholeness of the intellectual experience or foster creativity and experience beauty or encourage mutual growth through openness to others

or seek to change society or enhance adaptability, then the courses (Core & Supporting) and the learning experiences offered to the learners would help us realize our objectives, while at the same time providing a scheme for recognizing the varied talents among our learners.

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