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INDUSTRY EXPECTATIONS FOR CURRICULUM DESIGN: AN ANALYSIS OF INPUT GAP

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Abstract
Every year large number of graduates and post graduates are coming out of various educational institutions in different streams like Engineering, Management, Computer Science and other professional courses. Though the Industry is in huge need of quality man power, the current education system is not able to meet the requirement, thus forcing industry to invest considerable time and money in job-ready training. This is also resulting into unemployment of educated youth. This paper examines the current curriculum design against industry expectations and identifies the industry perspective on skill set necessary from the students. This paper conducts a gap analysis and identifies key areas to be focused by the educational institutions. In order to bridge the gap, it is suggested that every educational institution should establish Industry-Institute Partnership Cell/Interaction Cell (IIPC), and conduct Industry Expectation Survey by the respective educational institutions and establishment of Soft Skill Department (DSS) for imparting required soft skills to develop job-ready skills.

Key Words: Educational Institutions, Professional Courses, Curriculum, IIPC, DSS and Industry Expectation Survey.

Introduction

In the present scenario, management education and technical education are playing a key role for the development of the economy. But, the present curriculum not imparting required soft skills and job-ready training which is leaving the students to run around coaching institutes of soft skills and core job skills. In case of educational institutions especially professional courses like M.B.A, the fact is that learning about the subjects (Human Resource, Finance and Marketing) which are not required in current competitive market to face the interviews in industries except scoring marks. Industry requires practical knowledge, aptitude, attitude, reasoning, quantitative ability and knowledge on the concerned industries but, the educational institutions are enhancing theoretical knowledge and even they are not imparting the required skills like HRD Skills, Information Management Skills, Decision-Making Skills, Innovation/ Creativity, Service Sector Management Skills, Stress Management Skills, Entrepreneurship Skills, Customer Service Management Skills to students. This theoretical knowledge will not helpful to face the real work environment challenges and majority of these educational institutions do not know how to train the students as per the expectations of the industry, thus leaving a wide gap between the supply quality and the industry demand. Ensuring a common platform for industry and educational institutions to work out value-based curriculum taking into consideration the needs of industry (Patel and Popker, 1998).

Every year large number of Graduates and Post Graduates are coming out of various educational institutions with lack of skills, which leads to heavy burden for the recruiters and students as well. The recruiters from the various industries vexed with the performance of the students in the recruitment and selection process. In order to overcome the recruitment and selection process, the students are rushing towards soft skills training institutions. In order to reduce the burden of the student, to fulfill the demand of the industry and to make the Educational Institutions more suitable for the quality requirements of the Industry, there is an urgent need to modify the present curriculum because it will not be helpful to face the competition. The aim of the paper is to give a brief note on the required skills from the students and academia of all educational institutions and build good relationship with industrial experts to impart required practical knowledge to the students and to modify the curriculum of educational institutions as per the industrial requirement. This paper also gives some suggestions to meet the industry expectations by modification of the curriculum as per the industrial requirement and to reduce the burden of the student.

Objectives

1. To study the current curriculum design of educational institutions offering professional courses.
2. To examine industry expectations from the curriculum design of selected professional courses.
3. To assess the gap between industry expectations of the students knowledge, skill and attitude.
4. To suggest suitable measures to fill the gap between industry expectations and current curriculum design for professional courses.

Review of Literature

Montgomery and Porter (1991) found that academia traditionally has trailed business in its grasp of trends. It must be and remain aware of trends-not fads-in business so that it continues to be relevant in its "production" of graduates who will be seeking employment after finishing their degrees and leaving the institution.

Hamatteh and Jufout (2003) described that a national level committee, comprising members from educational and industrial sectors be formed to match the demands and needs required by the labour market with the educational portfolio. This must be implemented by regular analysis, skill level determination, revision of the curriculums and finally to follow up and control, on the basis of individual specialization. This model may reduce the expenses of pre-employment training, which financially overburden the industrial sector and increases the proficiency level of graduates, leading to trust in the educational sector and enhance the economic growth.

Mc Croskey (2008) developed Leadership Practices Inventory (LPI) that resulted in a framework of five leadership practices: Modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart.

Zahid (2008) found that, higher education and industry linkages should remain alive for constant updating of courses. By creating the partnership between universities and industry, both can benefit from resources of each other.

Rajsekaran and Rajasingh (2009) have concluded that the perception gap between industry and faculty must be bridged to improve the employability of students and enhance the quality of higher education. Industry leaders presume that only 15 percent of people coming out of Indian colleges are employable. Green defined the quality of higher education as "producing graduates to meet the human resources needs of an organization in the business, industrial and service sectors."

Pramod Bhasin (2016) found that, India had not focused on skill development until the Eleventh Five Year Plan, which has resulted in a huge skill gap. While the accelerated growth in India has increased the demand for skilled manpower tenfold, at same time, it has openly highlighted the dearth of skilled manpower in the country across all sectors. The real issue is not with lack of jobs, but the huge dearth of employable, skilled talent. Out of 30 lack graduates entering the Indian job market every year, only about 5 lakh are considered employable. Sectors like IT, BFSI, Healthcare, Infrastructure, Retail, Auto and Consumer Durables, among others, are facing a huge manpower shortage.

Present Situation of Higher Education System and Curriculum

Over 2 million graduates and post graduates pass every year in our country while only 25 percent of them are found to be employable. This percentage further reduces in case of engineers, only 8 percent of them are employable. This clearly indicates that there is a gap between what education institutions are manufacturing and what industry requires. The problem lies in only theoretical knowledge with very little practical knowledge. If this gap is not covered timely, it will lead to lot of socio-economic problems in times to come. On one hand it will have a shortfall of 5 million qualified employees by 2020 with 65 percent of country population below the age of 35 years and on the other hand the key concerns facing organizations in realizing their business strategy and cutting above competition is in finding, managing, nurturing and retaining talent. It is therefore important to dwell upon the possible reasons which cause low employability of Indian graduates in general and engineering graduates in particular.

Today the country has more than 700 universities and 35,000 colleges which offer a large number of programmes in Arts, Science, Engineering, Technology, Law and Medicine. The country has grown in terms of number of colleges, universities and programmes, but it seems that there is a large gap between the quantity and quality of higher education offered in this country. There is a great deal of conflict between what is being taught to the students and what they are going to do when they move outside (SIEMEMSMA, 1998). It seems there is lack of proper planning, appropriate guidelines and corrective measures. In most of the engineering institutions the course curriculum is, by and large, theoretical in nature and students are not made aware of the applications of the theories in industry. The programmes and their course content reflect lack of interaction among academic institutions and industries. In the process the curriculum quite often fails to meet the needs of the industries and not many structural changes have taken place in the curriculum even though rapid developments have been taking place continuously in the fields of science and technology. New branches of engineering have been introduced with the structure remaining in the traditional mode. The faculty-student ratio should be close to 1:10, frequent revision of syllabus in consultation with the industry and institutions should create the professionals with global mind set so that they can adjust in different cultural and social settings (Mannan, 2003).

In addition to the above, the educational institutions mostly follow the traditional method of teaching giving little thought to students' to the fact, that information nowadays is readily available on the net and thus students would not get interested unless they get something extra by attending classes. It is more of content delivery than knowledge delivery. The assignments given quite often are routine and do not involve any research or innovation. It is a great challenge to motivate and attract students to serious learning.

Moreover, the evaluation system has not been made robust enough to find out the knowledge level of the students. The philosophy of the semester system and the continuous evaluation process are not being understood by the students and faculty members. Thus they are applied in a routine manner and the students concentrate only on grades and not on learning. The colleges ranked higher for three factors, such as teaching environment, research environment and educational material (Kaur and Bhalla, 2009). Research based education not only helps in broadening knowledge base, it also abreast oneself on the latest technologies and practices in vogue. They should be followed by industry specific curriculum.

Students should be given global view on any issue and sharpens their skills to emerge as winner through International speakers and building a comprehensive industry interface. The establishments should be industry led academic institution supported by leading companies. The aim should be to bridge the skills gap by delivering employable ready professionals from the day graduates enter the industry. The teaching methodology should also be led by case studies- oriented on live cases delivered by industry professionals. This will make the experience enriching and practical for students. Industry contribution of such case studies will help students develop skills in analytical thinking and reflective judgment by reading and discussing complex, real life scenario, problem solving techniques, self-directed and learning strategies. This approach will ensure students are not only technically proficient but also exhibit sound awareness of real-world issues. Close interaction with senior industry professionals will also provide students with first-hand experience for the rigors of the real work environment. The teaching approach should focus not only on the technical skills but also presentation skills and soft skills.

Thus an all-out effort is needed to produce readily- employable technical quality man power in the country. The improvement of infrastructure, redesign of curricula, improvement of teaching-learning methods and attracting well qualified teachers are only a few steps that could be initiated by individual educational institutions.

Professional Courses

Professional courses are special courses, offered at many colleges and universities that put emphasis on professional development. Unlike academic courses, these courses usually do not require prerequisites, sometimes do not offer credits and are specifically oriented toward professionals wanting to enhance skills useful for their specific work environment. For example, West Liberty University offers professional courses in computer use, portfolio development, grant writing and administration. These courses are usually categorized under "Continuing Education" or "Professional Studies" at universities. You are awarded a professional certificate upon completion of a professional course.

Professional certification, trade certification, or professional designation, often called simply certification or qualification, is a designation earned by a person to assure qualification to perform a job or task. Many certifications are used as post-nominal letters indicating an earned privilege from an oversight professional body acting to safeguard the public interest.

Some of the Professional courses are Accountancy, Auditing and Finance, Aviation, Business, Chiropractic, Computer Technology, Disaster Management, Elections and Voter Registration, Environment, Economic development, Language education, Legal affairs, Logistics & Transport, Medicine, Physical Asset Management, Plumbing, Project Management and Security.

Industry Expectation

The Industry has various expectations from educational institutions, faculty and students. Industry has the highest expectations from the students in the areas of proper attitude, skills, knowledge, must be committed, dedicated, self-disciplined, self-motivated, showing an aptitude and willingness to learn, strong analytic, listening and communication skills, basic knowledge of the organization and processes within the organization and must be able to work in a team and collaborative, but the result is different. The Industry also feels that students keep high and unrealistic expectations about salary and position which sometimes leads to attrition. There is an ample gap between the academic output and industrial requirement in the areas of Soft skills, leadership qualities, suitability, analytical power, ethical component, dressing sense, language, appearance, and manageability, training needs, industry's view and professional commitment. Out of the all factors, soft skill was found as the most important contributing factor for Industries from the academia. The gap between academic output and industrial requirement must be bridged to improve the employability of the students and enhance the quality of higher education. Fresh graduates, who join the industries, require six months to 2 years as gestation period to show their contribution and, many a time, they leave the organization before they start showing results. This is due to the gap between theory and practice. The industry and R&D labs should become partners with the centers of higher learning (Modi, 2009).

The Industry feels that Knowledge and Skills taught outside Tier I educational institutions are neither adequate nor fully relevant. The curriculum of the educational institutions fails to add industry specific content. The constant learning and updating knowledge for changing environment is very limited. The educational institutions are dominantly imparting theoretical knowledge and the evaluation system in the institutions must also be changed in order to make them more practical than bookish. The Skills Gap Survey was conducted by Higher Education Forum (HEF) found that gaps do exist, particularly in Knowledge such as understanding organisation and process; product, solutions, and services; and consumer behaviour; Skills such as listening, team work and collaboration; Attitudes such as self-motivation, self-discipline, commitment and dedication. So in order to achieve industry expectations all the educational institutions and students should concentrate on the above mentioned key areas.

Gap Analysis

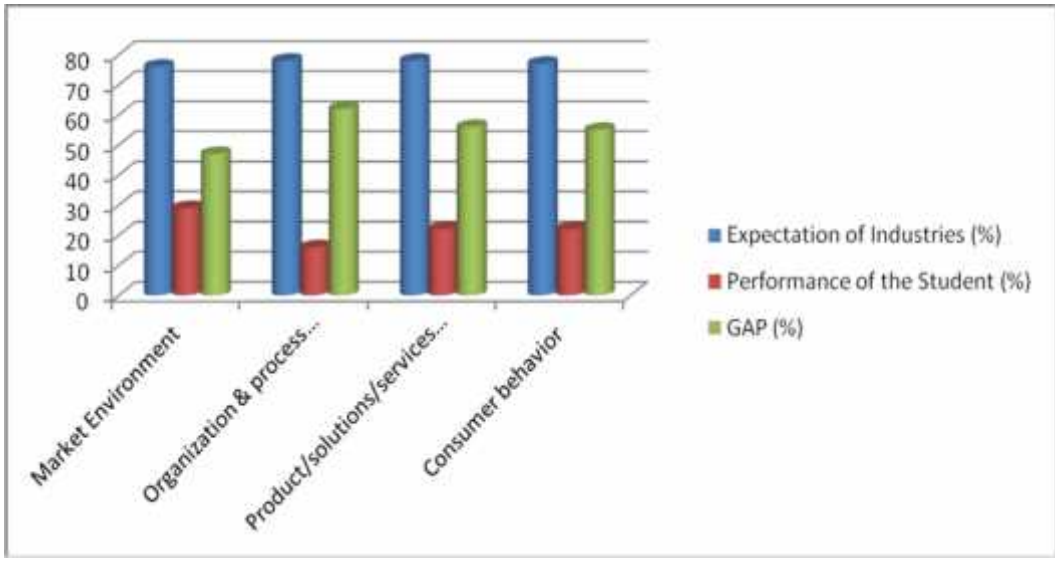
This gap analysis is useful to identify the required Knowledge, Skills and Attitudes (KSA) which are essential for any industry, through this one can understand about the industry expectations from students and performance of the student with expectations of the industry and also to examine the major key areas to fill the gap by the respective educational institutions. The Gap analysis is based on three major aspects, viz., (i) Knowledge; (ii) Skills; and (iii) Attitude of general working conditions. The Study was conducted in 2/3 tier institutions by Higher Education Forum (HEF).

Table No. 1: Analysis of Knowledge

Attitudes	**Expectation of Industries (In Percent)**	**Performance of The Student (In Percent)**	**Gap (In Percent)**
Market Environment	76	29	47
#Organization&process within organization	78	16	62
#Product/solutions/services including competitors	78	22	56
Consumer behavior	77	22	55

Source: Skill Gap Survey conducted by The Higher Education Forum (HEF)
 # - Areas to work upon

Figure No. 1: Analysis of Knowledge



Interpretation

From the above table it is observed that, the student's performance in Market Environment, Organization and process within the organisation, product/solutions/services including competitors and consumer behavior was 29 percent, 16 percent, 22 percent and 22 percent respectively. The gap between industry expectations and students performance was 47 percent, 62 percent, 56 percent and 55 percent in market environment, organization and process within the organization, product/solutions/services including competitors and consumer behaviour respectively. It is evident that students should improve in the areas of organization and process within the organization and product/solutions/services including competitors' knowledge which is showing the gap of 62 percent and 56 percent respectively in the Knowledge area. So this gap should be filled by educational institutions through application-oriented teaching methods in their curriculum and by establishing Industry-Institute Partnership Cell/Interaction Cell (IIPC).

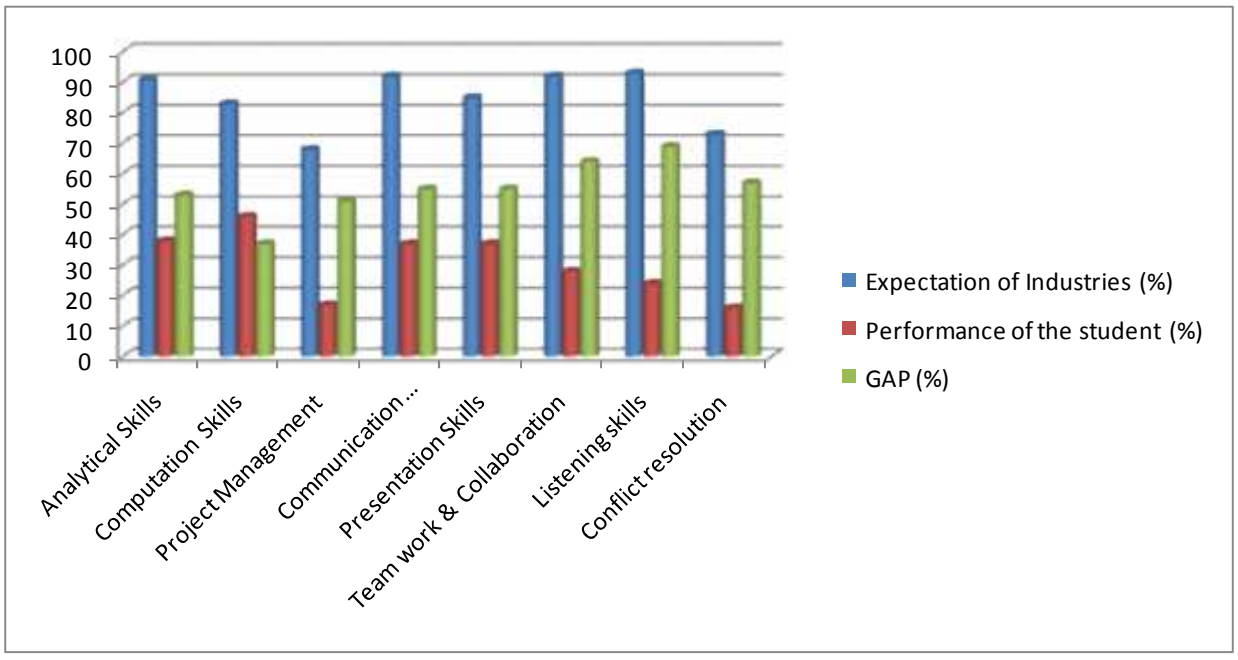
From the above table, it is evident that the students are not at all doing well in terms of knowledge of the market environment, organization and its process, products and services provided by the company and its competitors, and consumer behavior. The company needs to train the students in all these aspects using considerable time and money. If the student is aware of the above aspects, it would be easier for the student to adapt to the industrial environment quickly with less training. It is not possible until and unless an establishment of IIPC in every educational institution.

Table No. 2: Analysis of Skills

Attitudes	**Expectation of Industries (In percent)**	**Performance of the Student (In percent)**	**GAP (In percent)**
Analytical skills	91	38	53
Computation skills	83	46	37
Project management	68	17	51
Communication (verbal, written, email)	92	37	55
Presentation skills	85	37	55
#Team work and collaboration	92	28	64
#Listening skills	93	24	69
#Conflict resolution	73	16	57

Source: Skill Gap Survey conducted by The Higher Education Forum (HEF)
 # - Areas to work upon

Figure No. 2: Analysis of Skills



Interpretation

From the above table it is observed that, the skills which are required for the organization are analytical skills, computational skills, project management, communication skills, presentation skills, team work and collaboration, listening skills and conflict resolution and the performance of the student was 38 percent, 46 percent, 17 percent, 37 percent, 37 percent, 28 percent, 24 percent and 16 percent respectively. Out of all these areas, the performance gap of the student was very high in listening skills, team work and collaboration and conflict resolution as the above table shows the gap of 69 percent, 64 percent and 57 percent respectively. So this gap should be filled by establishing a permanent department called SOFT SKILLS DEPARTMENT (DSS) in every educational institution.

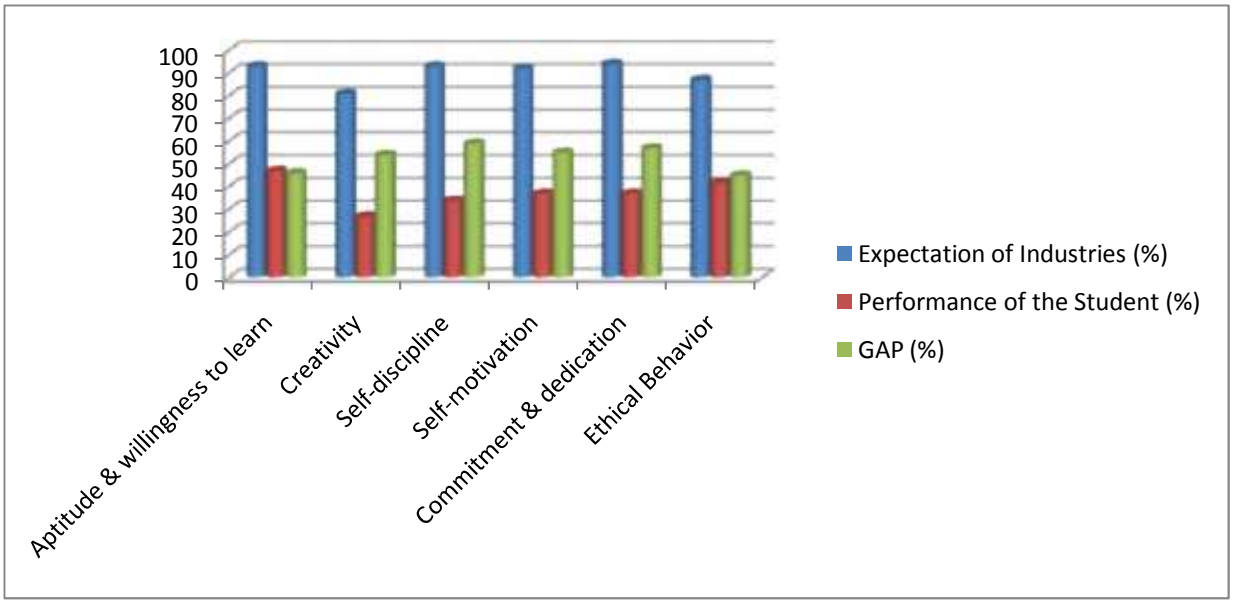
From the above data it is evident that, the students are not at all up to industry expectations in Analytical skills, Computation skills, Project management, Communication (verbal, written, email), Presentation skills, Team work and collaboration, Listening skills and Conflict resolution. All the above mentioned skills are essential for the development of a student as an employee of any organization. So the gap should be filled by educational institutions through the development of their curriculum and this has to be done on permanent basis by establishing Soft Skill Department (DSS) in all educational institutions.

Table No. 3: Analysis of Attitude

Attitudes	**Expectation Of Industries (In Percent)**	**Performance Of The Student (In Percent)**	**Gap (In Percent)**
Aptitude & willingness to learn	93	47	46
Creativity	81	27	54
#Self-discipline	93	34	59
#Self-motivation	92	37	55
#Commitment & dedication	94	37	57
Ethical Behavior	87	42	45

Source: Skill Gap Survey conducted by The Higher Education Forum (HEF)
 # -Areas to work upon

Figure No. 3: Analysis of Attitude



Interpretation

From the above table it is observed that, the attitude of the personnel depends on areas like aptitude and willingness to learn, creativity, self-discipline, self-motivation, commitment and dedication and ethical behaviour and the performance of the

student was 47 percent, 27 percent, 34 percent, 37 percent, 37 percent and 42 percent respectively. Out of all these areas, the gap between industry expectations and students performance was very high in self-discipline, commitment and dedication and self-motivation as it is evident from the gap analysis in table no.3 which is showing 59 percent, 57 percent and 55 percent respectively.

From the above data, it is evident that the students are not up to the industry expectations in Aptitude and Willingness to learn, Creativity, Self-discipline, Self-motivated, Commitment and dedication and Ethical Behavior. Attitude is very essential for the development of a student as an employee of any organization. So the gap should be filled by educational institutions by including various attitude development activities in their curriculum.

Suggestions to Know Industry Expectation and Meet Them

The Industry expectations in the areas of attitude, skills and knowledge are not meeting by the students of various educational institutions and it requires bridging the gap by modifying the educational institutions curricula to some extent. As the expectation would be changing in a dynamic way to oneself, it continuously engage with the industry to get to know what they are expecting from the students in core industry knowledge and other skills. So in order to meet the industry expectations from curriculum design, this study prefer to suggest three ways to fill the gap. They are

1. Industry Expectation Survey.
2. Industry-Institute Partnership Cell/Interaction Cell (Iipc).
3. Soft Skills Department (DSS).

Industry Expectation Survey

The Industry Expectation (IE) survey should be major input to curriculum design team at the educational institutions (or University). This survey helps educational institutions to get views from wide range of industrial experts. The Industry Expectation survey needs to be conducted on yearly basis by placement cell of respective educational institutions and changes should be done based on feasibility. This survey is essential to meet the expectations of industries on curriculum design in universities and its affiliated colleges. Survey is useful to know about the industry products/services, processes involved in manufacturing innovative and updated machineries' and its competitors. The reports of the survey would be useful for faculty to impart required inputs like knowledge, skills, attitude and ethical values to students.

Industry- Institute Partnership Cell (IIPC)

The main aim of this cell is to strengthen the linkages with the industry and educational institutions; this cell is useful for facilitating a very good Industry- Institute interaction. It can undertake the following programmes:

1. Workshops, conferences and symposia with joint participation of the faculty and the industrial experts.
2. Encouraging HR, Finance, Marketing and Technical professionals from industry to visit institutions to give lectures.
3. Arranging visits of staff members to various industries.
4. Joint research programmes and field studies by faculty and people from industries.
5. Visits of faculty to industry for study and discussions or delivering lectures on subjects of mutual interest.
6. Memoranda of Understanding between the educational institute and industries to bring the two sides emotionally and strategically closer.
7. Visiting faculty or professors from industries.
8. Practical training of students in industries.

The reports of the survey and experience of IIPC can be used to make changes in curricula which would meet the expectation of the industry. This process need to be reviewed as and when the dynamic changes happen in the industry.

Some of the examples by different industry players are

1. ICICI prudential life (Banking) – UDAAN –Campus Program for Executive Trainees
2. INFOSYS – "CAMPUS CONNECT"
3. L&T InfoTech – "SPARSH"
4. TCS – Academic Interface Program (AIP)
5. Memorandum of Understanding (MoU) between National Association of Software and Services Companies (NASSCOM) and University Grants Commission (UGC).

Soft Skills Department (DSS)

Most of the organizations consider soft skills are more important to get into corporate life than other areas. It is the responsibility of the educational institutions to try to impart some of the skills to their students and to meet the expectations of industries in the areas of skills, it should be better to establish a permanent Soft Skills Department (DSS) in every educational institution.

The main objective of DSS is to enhance the skills like English, aptitude, attitude, reasoning and other skills like Analytical skills, Computation skills, Project management, Communication (verbal, written, email), Presentation skills, Team work and collaboration, Listening skills, Conflict resolution, Aptitude and willingness to learn, Creativity, Self-discipline, Self-motivated, Commitment and dedication and Ethical Behavior. The above mentioned skills are essential for students to meet industry expectations. So the educational institutions must include soft skills as one of the major criteria in their curriculum and should be promoted. A separate department would give special impetus for the same.

Conclusion

Though there are many problems in higher education system which are prohibiting the educational institutions to promote an all-round development of the student, certain simple cost-effective measures in the form of curriculum modification and soft skill development go long way. This paper tries to explain how curriculum can be modified according to the needs of the industry through Industry Expectation Survey, Industry-Institute Partnership Cell/Interaction Cell (IIPC) And Soft Skills Department (DSS). It is substantially reached quantity of the students, but it is time to focus on the next important aspect of quality. The profit seeking private educational institutions and tightly controlled universities must find ways to make students not only graduates but also good citizens, entrepreneurs, employers and employees who would play greater role in the development of the country.

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