

New Strategies of Placement Office Towards Employability of its Graduates

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Abstract—Graduates are our national asset and we, as teachers, are responsible for their employability as well. If engineers are our potential product then we should own them even after their graduation. Materials engineers in Pakistan are facing serious problems of employability. We have investigated few reasons and somehow rectified these issues. The growing population of engineers with constant employment opportunities is posing serious problem. The saturation of market is creating turmoil in the society. In this study we have investigated that the graduates should not be blamed for their unemployment as this is a failure of that particular degree awarding institute. This study is mainly focused on the enhancement of employability of our graduates in Pakistan. It has been established that if we make our strategies similar to internship and placement office of SCME, we could be able to coup unemployment in Pakistan. In this paper we have studied that if we create a strong industrial liaison in Pakistan, we could be able to achieve high employability even with in limited resources. By implication of simple strategies we finally become able to achieve 44% of employability of our recent graduates just after six months of their graduation. This all have been achieved by the hard work of only three years with the help of devoted faculty members in SCME. Finally, if we could continue these efforts with same devotion, one day we will be able to get hundred percent of employability of our graduates just after their graduations.

Index Terms — Employability, Materials Engineering, opportunities, strategies, graduates, problems, population growth

INTRODUCTION

Pakistan is facing serious problems of employability due to growing number of universities, the number of graduates is also multiplied. But the number of industries is still constant. Engineering graduates are becoming liability for the government [1]. In order to combat with this heavy wave of unemployment we need to devise a powerful mechanism, long-lasting policies and effective strategies. The whole socioeconomic system is disturbed due to the unemployment of our graduates [2]. In school of chemical and materials engineering we are facing many problems trapping us to the deepest trench of unemployment every year. We are producing around 80 graduates per year and twenty percent of them hardly got their jobs just after their graduation. Rest of them had to struggle over two or three years to get employed. Fifty percent of them forced to pursue their higher education. It's an academic suicide for an average student to force him/her to the higher education, unwillingly. Further to the discussion the poor families can't afford their children for higher education. After getting some experience in placement office, it has been seen that the degree title and brand name of organization is important for getting the handsome employability. National university of sciences and technology is one of the leading institutes in Pakistan.

The school of chemical and materials engineering has been established in 2008. No doubt this school has also obtained the brand name in our society in very short period of time. But the employability of our graduates was not up to the mark. Hardly ten to twenty percent of graduates got their jobs just after their graduation and rest of the graduates had to strive for their jobs [3]. Leading towards the further discussion, it is the brand name and degree title of any organization which actually sells in market. Every industry has its marketing strategies. Similarly, academia must have such strategies to sell their potential products. The unemployment of graduates is only the failure of that particular degree awarding institute and should have some accountability for this negligence. Likewise in industries, only competitive products can be sold. The lower performing industries become bankrupt over the passage of time.

If academia is an industry then graduates are their products. University is always responsible for the jobs of their potential graduates [4]. In order to deal with this serious issue, I&PO (SCME) devised some strategies. The degree title has been changed in first place, and then liaison with industries was made strong by regular industrial tours, projects and consultancies. Also the linkage with centralized liaison office was established and counterstrategies for competitors were made. Dedicated faculty members were then employed to look after the matters of placement office. After the hard work of more than three years, finally we become able to get significant employability. In this paper we will investigate the reasons of unemployment of SCME graduates and which counterstrategies should be made to combat this fatal issue.

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INDUSTRIAL LIAISON OFFICE COOPERATION WITH IPO

Industrial Liaison Office offers its cooperation with Internship and Placement Office SCME. The ILO was made to facilitate the placement offices of each school in NUST. The structure of ILO contains Career Development Center (CDC), Industrial Relations and Internship and Placement Offices. It also has an unbiased setup of getting feedbacks to improve the efficiency. The CDC provides programs and services to students and alumni in exploring and making effective career choices. The office opens various avenues that encourage personal and professional development, as well as provide support in achieving career and life goals. The services that CDC offers are as follows: It facilitates the one-to-one and / or group career counseling, it helps our students to build their Resume and Cover Letters, it helps to develop the interview skills in our students by conducting the multiple counseling sessions, it provides the Internship guideline and Job search strategies to the fresh graduates, and it helps to develop the viable skills to write the best Motivation Letters for the jobs.

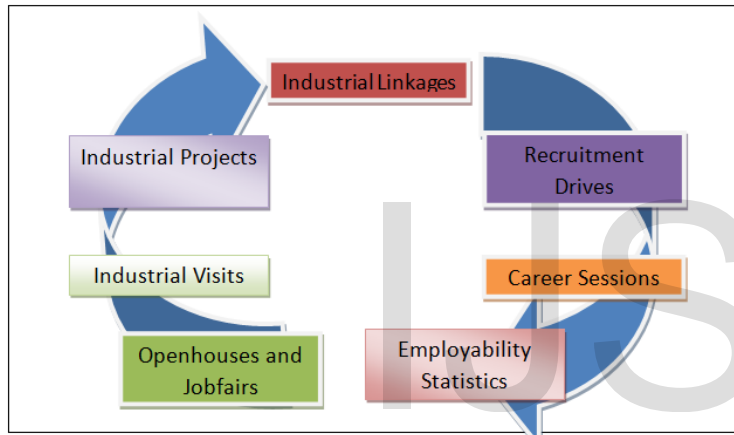


Figure shows the activities of ILO within NUST

NUST produces professionals and researchers of very high caliber, capable of developing indigenous technologies to meet the growing demand of the 21st century. It was the recognition of this need that led to the development of the Industrial Liaison Office (ILO), linking NUST graduates to the national and international market and making NUST graduates the premium choice for the employers. ILO conducts and facilitates all activities related to employability which are as follows: it helps the build the industrial linkages with the academia of NUST, it facilitates the schools to conduct the recruitment drives for their students, it conducts the career sessions with students and alumni and invite the successful entrepreneurs to the ILO platform to motivate the students, it gathers up the employability statistics and aware the schools about the upcoming unemployment slums, it facilitates the schools to conduct the openhouses and jobfairs, it helps to conduct the industrial visits for the awareness of the engineering students, and also help to get the industrial projects – called as Final Year Projects for engineering graduates.

ILO reached out to build its contact to over 500 companies significantly and increasing list of active contacts. This extensive reach out has resulted in an increased number of jobs and internships, employer sessions, networking events, industrial tours, and commenting the long term mutually beneficial

relationships. It also adopted a proactive approach in inviting renowned employers to the university. The ILO assisted them in conducting the tests and interviews enabling them to pick relevant resources and / or students to work in their organizations and also ILO conducted customized employment sessions which focused on improving interviewing skills, resume writing, group discussion, negotiation and networking skills etc.

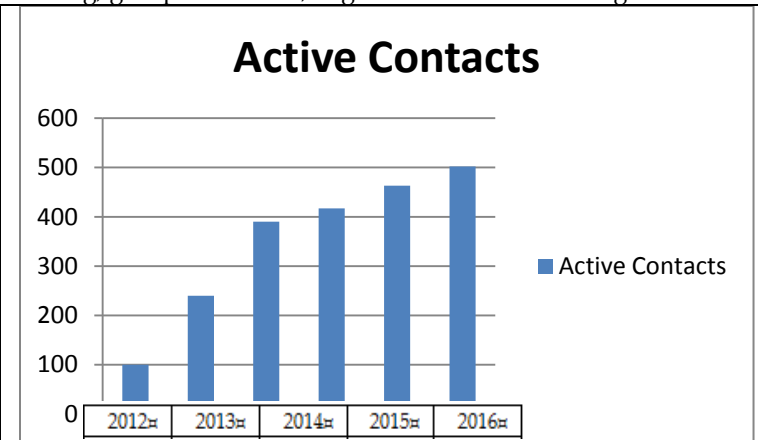


Figure shows the active contacts with the industries developed by ILO from 2011 to 2016.

Events	2012	2013	2014	2015	2016
Recruitment Drives	60	56	54	29	36
Career Sessions	33	57	57	44	40

Table shows the events conducted by the ILO and CDC mutually from 2012 to 2016.

Source: this data is acquired from the brochure of CDC Ms. Atiya Zulfuqar Deputy Director, Career Development Center, after Meeting at CIE building NUST

Many renowned companies have been affiliated to NUST and their officials regularly conduct their visits to the most of departments and schools throughout the years. The names of companies affiliated to NUST is as follows: Ftima Group of Companies, British American Tobacco, Engro Fertilizers Company Limited, Nestle, GSK, Huawei, HUBCO, ICI Pakistan Ltd, MOL Pakistan, P and G Shops, PLUMgrid, NAYAtel, Mapleleaf, Unilever, OBS Pharma, PTCL, Packages Ltd, KE, Philips Morris (Pakistan Ltd), ZONG 4G (China Mobile Company), Shell, Techlogix, TOYOTA, Ufone, and Mentor Graphics etc.

THE INTERNSHIPS THROUGH I&PO (MATERIALS ENGINEERING)

According to the Pakistan Engineering Council (PEC) rules for securing the internships as given in the policy documents, the internships of engineering graduates are mandatory to get their engineering degrees. The agenda Item No 14 given in PEC policy document describes that, the internship for all engineering disciplines have been made essential for their graduations. The house deliberated the issue and most of the members are in favor

to place the requirement of an internship as a mandatory clause for engineering students to be fulfilled by Higher Education Institutes (HEIs) during the degree course as a part of the study scheme [5]. The Secretary Engineering Accreditation Board (EAB) appraised the house, that as per the recommendations of the Washington Accord (WA)-working group and approved PEC Outcome Based Assessment (OBA) Manual 2014, the internship program cannot be made mandatory unless the country and all its regions have enough industrial opportunities available. Therefore, it was included in the revised OB Manual-2014 (3.2.3 Criteria 3: Curriculum and Learning Process, sub-title 3.2.3.1 Internship Program) that HEIs/Institutions should facilitate and promote cooperative learning through the supervised internship program of continuous 4-6 weeks in duration in an engineering practice environment/organization. The training program should have been supervised as planned and agreed between both the academic institution and the host of the professional engineering organization.

The history of student internships (or cooperative education) originated in the U.S. in the early 1900s. The history of internships is intimately intertwined with that of experiential learning and experiential education, school-to-work programs and initiatives, career academies and career-exploration programs and service-learning programs. Voluntary apprenticeships for youth originated in Europe in the early nineteenth century and remain a central component of many European training systems. In the U.S., apprenticeships have declined over the past 30 years and few high school students are involved in apprenticeship programs. There are questions whether the apprenticeship model can be reinvented to meet the needs of the contemporary workplace [7]. Some high schools are combining internships with career-themed academies. Qadri group of industries initiated its apprenticeship program in a National University of Sciences and Technology (NUST) in which students selected four different career interest areas and spent four-to-eight weeks at each job site working under the supervision of a resourceful person. Almost all engineering institutes have work-site curricular components that include internships and job shadowing under internship and placement offices (I&POs). These engineering institutes set up more personal learning environments that include small learning communities oriented around career building themes. Internships have also been key elements of the educational programs set up in the small public universities pioneered by the "Pakistan Engineering Council (PEC)". The growth of internship programs in Pakistani engineering universities can best be explained by the positive effects they have on the quality of instruction and education in general.

According to Internship and placement Office (I&PO) SCME, the IPO is responsible for the internships of undergraduate engineering students in their 6th semester. The reason of facilitating the students in their 6th semester rather than the 4th semester, is that the students may study most of the compulsory courses offered during their six (6) semesters and therefore, they could get a better picture of the industrial processes that could help them in their jobs. Most of the industries prefer to offer internships to the graduating batches (i.e. in 6th semester) because they aim to hire them right after their graduation. Some industries

like NESCOM started their internships in the 3rd semester and they also continue their internships in every following summer, which also covers the criteria of internships in 6th semester of under-graduates. Internship placement typically occurs during a students' junior or senior year. Students should be realistically assigned and appropriately placed in internships. They often choose their own internship sites with input from advisers. It is vital to find placements where the students can fulfill their personal goals as well as where their individual qualities can be used as a basis to select them for internships. An important factor that affects student placement is whether internships are paid, partially paid or unpaid. Most are unpaid, but internships in which students receive partial pay are stipend based. College-bound students predominantly take unpaid internships whereas non-college bound students typically take paid internships. According to the minutes of meetings of Career Development Center (CDC) on 23rd Nov 2016 at CIE building in Conference Room, it is decided that the NUST ILO will facilitate the internships of students in 3rd years of engineering.

- Identification of internship opportunities for 3rd year students/jobs for graduating batch and share with main ILO Office

Source: Minutes of Meetings in CIE Building on 23rd Nov 2016 Chaired by Ms. Atiya Zulfiqar (DDCDC)

School of Chemical & Materials Engineering (SCME)

Internship Evaluation form for the supervisors

Name of the internnee: _____

Name of the Organization: _____

Internship Area: Plant site ☐ Distribution ☐ HR ☐ Quality Control ☐

Duration of internship: _____

Evaluation of personal qualities of the internnee observed during the internship. Select one evaluation level for each

	Excellent	Good	Average	Poor	does not apply
Ability to accept the variety of tasks					
Persistence to complete tasks					
Enthusiasm for the experience					
Ability to work in a group					
Punctuality and attendance					
Problem Analyzing skills					
Professionalism					
Behavior and ethics					
Ability to deal with work load					
Interest in field/ job					
Knowledge about field/ Job					

Additional comments:

Signature and name of the Supervisor: _____

Date of evaluation: _____

Please kindly send this form both by mail and email. The form can also be send through fax if not by mail.

Above form is the description of Evaluation Criteria practiced by Internship and Placement Office SCME

I&PO Materials Engineering offer internship opportunities to almost all students. As it is mentioned earlier that on-campus recruitment drives for materials students is a rare activity conducted by ILO NUST. Therefore, I&PO struggles to get good opportunities for its students. In summer 2016, we have arranged sixty (60) industrial internships for our forty one (41) students. Almost a hundred (100) industries were targeted and invitations

were been sent to them. Only 30 industries had responded and two students were placed in every industry.

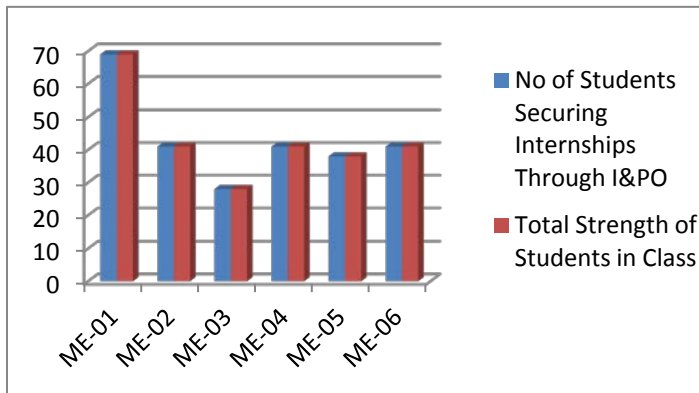


Figure shows that all materials engineering students were been facilitated by I&PO to get internships

INDUSTRIAL TOURS

According to the Letter from Director Acad on 26th December 2016 to I&PO SCME, the industrial tours have been made mandatory for engineering discipline in NUST. Since 2008 many industrial tours have been conducted for undergraduate materials engineering students. In-fact the policies of I&PO towards the industrial tours is much strict for industrial visit facilitation for undergraduate students. In fact, being an I&PO coordinator is not a permanent job, it's a kind of a voluntary service offered for department. The non-permanent nature of the job is spoiling the future of students. Obviously, it is very difficult to build the industrial relations but most difficult thing is to maintain these relations. It is only possible if we made this seat permanent and providing all leverages in order to sustain them. The capacity building of coordinators is important in order to improve the efficiency of this office. The establishment of this office was an entirely new experience and the coordinators are gaining their experiences with passage of time. It was much hectic to arrange the industrial tours and it depends on the interpersonal skills of the coordinators.

According to I&PO statistic about the industrial visits, only three tours were been made possible to send to the materials engineering industries in academic year of 2013. Only two tours were sent in 2014. In 2015 and 2016 number of industrial tours was increased and almost ten (10) industrial tours were then sent to the materials engineering industries in 2016.

INDUSTRIAL LINKAGE

Internship and placement office (I&PO) School of Chemical and Materials Engineering aims to establish the strong industrial liaison with Pakistan's renowned industries. Since the commencement of the office, it was emphasized to build strong relations with industries related to Materials Engineering. In 2008 the industrial linkages was established and few industries were added to our database. As time passes and after getting some handsome experience, finally I&PO successfully established industrial linkages to more than hundred Materials Engineering

related industries. We are considering our success that now-a-days most of the strategic industries have been linked to SCME. The employability of materials engineering students was then improved and even they are started to get employment assurance during their undergraduate studies.



National
University of
Sciences and
Technology
H-12 Sector,
Islamabad Tel

To: All Institutions (Less SCCE)
Info: SO to Pro-Rector (Academics)

Subject: Industrial Visit

Reference: Acad Dte letter no. 0972/A102/Gen/Acad-3 dated 24 Nov 2016

1. Industrial Visit is very important to any student undergoing professional education such as Engineering, Business Management, Biotechnology and Architecture. No institute offering these programs have got enough infrastructure to show case all the real working equipments, machinery, operational methodology and everything else, that students will come across once they enter into professional fields, after completion of their respective programs. The industrial visits are an effort to bridge this gap of practical exposure.

2. Above in view it is reiterated that institutions should plan visits of students who are in advanced stage of their studies, preferably on Saturdays and forward to this office for approval of competent authority.

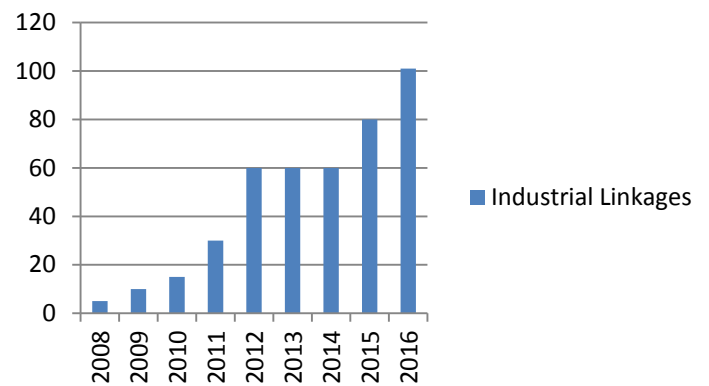
3. Forwarded for information / necessary action, please.

Director Academics

For Rector

(Dr Qaiser Hameed Malik)

Industrial Linkages



The estimated list of industrial linkages made by I&PO coordinators since 2008

The employment statistics of materials engineering students is

also increased. We are reaching up to 79% of employability in which 41% of them are employed in the direct industries and 38% of the graduates are getting prestigious scholarships for the higher education. The sixth batch (ME-06) is now going to be graduated in 2017. Since then 216 students from undergraduate course of materials engineering have been graduate.

The first thing which is done in a very first step is the up gradation of list of existing industrial data with valid contacts and email addresses. Almost 30 industries were added to the existing database in this semester. We aim to include as many industries in the list in near future. Resultantly, due to the industrial linkages, our current students are started to get employments during their studies. The current students - for an example the batch 06 - the employment ratio reaches up to 44% and batch 07 who are studying in third year of engineering secured 13.04% employment. The industrial partners from strategic industries are coming this year to hire the batch 08 who are currently studying in second year of engineering. I&PO also facilitate their students to develop some interpersonal, social and communication skills by assigning them group activities. Students were often engaged by I&PO to manage some events and to provide adequate facilitation to the event managers. The group of students was engaged in a team named as "Team Safeguard" and skills were tested on them by assigning the different tasks. Ten (10) students were inducted in "Team Safeguard" and simple T-test was then performed to check the Interpersonal Skills, Social Skills and Communication Skills. The student having high significant factor (0.96) has been assigned as "Commander Safeguard". Ten different tasks were assigned to the students individually and t-test was then performed. It is seen that the interpersonal skills of our students are very high (0.84) but social (0.64) and communication skills (0.68) are not too much high. The same case was observed by assigning the group assignments to the students.

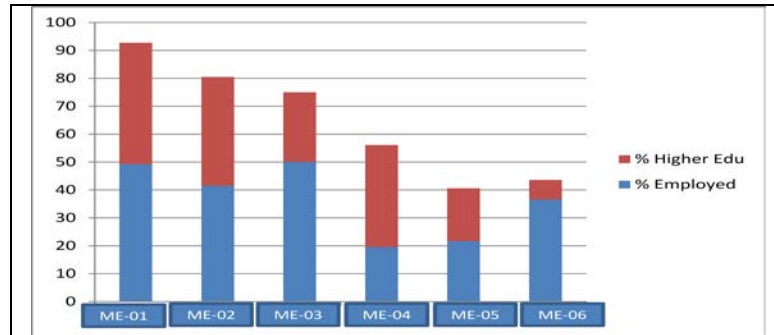
Name of Skills	Significant Factor (t-test)
Interpersonal Skills	0.84
Social Skills	0.64
Communication Skills	0.68
Learning skills	0.74
Leadership skills	0.76

t-test is performed to the "Team Safeguard" as a sample of students to estimate the performance of SCME students as a whole [6]

Now it is obvious that materials engineering students are lacking in social and communication skills. In order for their jobs they must have these kinds of skills otherwise. The mere change in the syllabus is not an option. We should not ignore this threat that could reduce the employability of materials engineering students in future. The following figure shows the employability of engineering students during their engineering degrees. When 10% of any graduating class during studies secured their jobs are considered as successful in their educational careers.

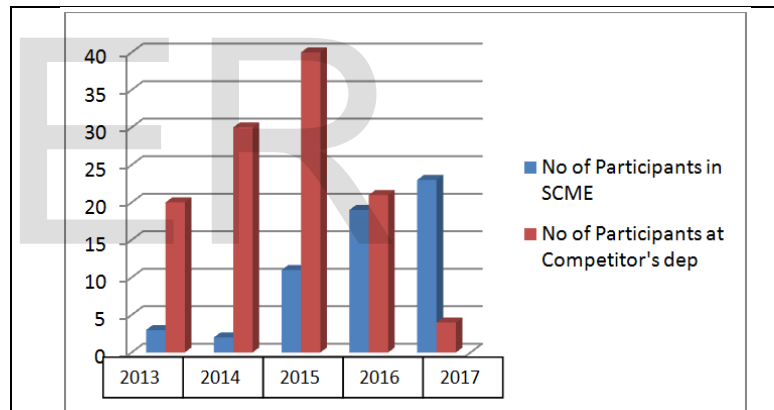
The I&PO, Materials Engineering (ME) has been successfully established the good liaison with the industries like Qadcast, IKAN Engineering works, Millat Equipments PVT Ltd, ICI, Chenab Engineering Works Faisalabad, Heavy Mechanical

Complex, Heavy Industries Texila, Pakistan Ordnance Factory, Gunj Glass PVT Ltd, Pakistan Aeronautical Complex, and many other industries related to material engineering discipline.



ME-06 is recent graduating class and attained 44% of employability just after 6 months of their graduation.

Some counterstrategies against the competitors were also practiced. Once our efficiency was judged with reference to our competitors, but now-a-days the performance of our competitors is being judged in light of SCME. We considered our students as a stakeholders and job market was also created for them.



The number of participants in SCME Vs at competitor's department. The trend for SCME is significantly increasing and in 2017 competitor has failed to attract good number of participants to their openhouse

CONCLUSION:

The performance of a university can be guessed by employability of its graduates. In this discussion we have concluded that the performance of our university is also linked with the performance of its placement offices. And the success of any placement office is related to the employability of its graduates. We investigated that the employability of our recent graduates is increased up to 44% just after six months of their graduation. This relative increase in employability is attained after implications of different strategies which are discussed in this paper in great detail. Eventually, the change in degree title, establishing strong liaison with industries, increasing the number of industrial tours and revision of curriculum helps in great content to enhance the employability. It

is seen that in previous three years we have been able to achieve almost double employability. We hope to move forward in getting hundred percent of employability one day.

ACKNOWLEDGEMENT

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