Industry Institute Partnership

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1 Introduction

Technology is the very essence of modern life. It is a fast developing phenomenon in magnitude and precision. Hence a meaningful and purposeful technical education and training should keep pace with growing technology. Our planning for technical education should be based on a vision of the future. We should aim at creating the conditions necessary for self sustaining growth and to provide the basic material requisite for the well being of our people. For achieving self reliant growth, domestic technological capabilities are of strategic importance.

Technical education is the backbone of a country for its economic development. On the other hand, knowledge is the most important wealth in the world that man can possess. Technical education should be the joint venture of two organizations in determining what is to be taught, how to teach, where to teach, when to teach, who to teach, and throwing open their facilities and resources for imparting educational training. Industrial training is the panacea to the causes of human error. At present the world is witnessing rapid technological changes. The emergence of engineering systems of growing complexities demands highly creative and responsive engineers and technicians to effectively channelize these developments into efficient and economical products. This can only be met by properly trained personnel.

In the present scenario when quality, productivity and economy are the main aims of an industry, it is not possible for the educational institutes to stay aloof from industries. The institutes must support and add to the tempo of industrial development and play a more positive role towards solving the technological problems. Therefore there is a need to develop and strengthen the bonds of partnership.

2 Significance of partnership

The industry institute relationship works in a circular path in which each has a role of a leader as well as a follower. The diameter of this circular path represents the level of magnitude of interaction between them. Industry needs professionally qualified and experienced engineers and skilled operators who can take responsible positions in industrial operations and management. To meet the exacting needs, industries have to extend full support and all possible assistance for achieving academic excellence in technical education. This would mean active collaboration in training, faculty exchange, and consulting and research areas. Active and strong collaboration would enable the making and shaping of competent engineers and supervisors having all round abilities to meet the specific job requirements and acceptability standards of industry.

Authors would like to suggest a few ways of interaction, which will strengthen the bonds of partnership.

A: Faculty exchange
B: Curriculum development
3 Faculty exchange

Industries and research organizations can offer the services of its experts to create a general awareness amongst the students regarding the latest development in industrial practices. It is essential to train teachers as well, particularly on the practical side of the subjects of specialization. A teacher working even for a short period in his own field of specialization in an industry would find it a very rewarding experience. As a regular practice, exchange of faculty from industry and institutes should be arranged or can be employed.

4 Curriculum Development

The curriculum for Master’s and Bachelor’s degree program in any discipline should be prepared and finalized according to the needs of private and public sector industries. In this regard, institutions should include specialists from industries and research organizations in their academic council, so as to ensure that the educational programs are duly oriented to meet the requirements of industry.

5 Projects

Projects undertaken at Master’s and Bachelor’s level should be industrial oriented rather than theoretical. These projects can ultimately be utilized by industries for current and future industrial projects.

6 Research & Development

Research projects on the problems of industry undertaken by educational institutes means handling of industrial problems in the class rooms and the laboratories of these institutions. The practice of industry entrusting educational institutions with research assignments will surely develop confidence in the faculty to deal with practical problems and preparing a student body ready to handle such problems in the future when they take up positions of responsibility in industry.

It would therefore be desirable that all large and small industrial units establish their own research and development wing which should work in close liaison with educational institutes to carry out applied research.

7 Placement sharing facilities

Industries are the ultimate end users of institutes. Industrial requirements can be sent to institutions with expected specialized skills in technology and in organizational behavior. During job search training programs, students can be trained to get appropriate know how of industrial culture in association with industry and institute professionals.

8 Resource sharing grants & donations

Industries can render assistance to technological institutions by providing scholarships or fellowships for specialized projects at universities/educational institutes. Such financial assistance is for attracting talented graduates and also for setting up pilot plants, experimental workshops, production centers etc. This collaboration cell should include specialists from university faculty, research institutes and R & D wings of industries.

9 Consultancy

The educational institutes can play a commendable role in the field of consultancy. This is because these institutes have the largest concentration of the most qualified men in various areas of science & technology. The initiative in this regard should come from industry and the educational institutes must accept the challenge. Consultancy work in due course will immensely improve the utility of both teaching and research which would in effect turn out to be an advantage to industry.

10 Familiarizing of industrial culture

The best practical way is by introducing compulsory “Practice school” method at graduate and undergraduate level. The practice course can be a total of 12 -18 months intermittently during the degree. Evaluation/gradation of Practice course should be integrated in the final score at graduation. The practice course of education is a vehicle through which one can meaningfully innovate in practical methods and evaluation to bring students closer to real life situations. The educational process in a practice course seeks out and focuses attention on many latent attributes which do not surface in classroom situations, such as intellectual ability, professional judgement and decision making ability, interdisciplinary approach, skills for data handling, ability for written and oral
presentation, initiative, ability for team work, leadership qualities, sense of responsibility, ability to meet deadlines and so on.

A suggested evaluation format (Table 1) is attached to this paper for the practice school. The same form may be used before and after the training school term to gauge the benefits of the practice school format.

11 Continuing Education

In this age of knowledge explosion and fast emerging new technologies obsolescence of knowledge is quite fast. It is estimated on the average that an engineer or technician needs to be retrained between 3 to 5 times in his/her career. In such a situation continuing education of the work force is the only way to remain competitive. Moreover there is definite evidence that continuing education leads to better job performance, job satisfaction and a high level of economic development.

Continuing education programs designed and organized jointly, utilizing the teaching expertise, up to date knowledge and basic educational facilities of the institutions and the practical experience of the industry will be more effective than those developed independently by either and can serve as a bridge linking these various institutions.

12 Benefits to institution

- In plant training to the students will benefit them in the form of exposure to the industrial environment.
- More number of campus interviews can be held through this partnership giving greater opportunity in the selection of the job.
- Small projects on cost reduction, low cost automation, material handling, work study etc., will enable the students to understand the application of theoretical knowledge.
- The partnership will help in changing the orientation of students thereby making them easily acceptable to the industry.

13 Benefits to Industry

- Medium and small industries have a ready access to a variety of resources available at the institute like library, supercomputer, laboratory, experimental facilities, product and material testing, to solve their techno-industrial problems and to improve their performance at a low cost.
- By changing/modifying the curriculum as per the requirements of the industry, there will be less need of inplant training after joining the industry, thereby reducing the time and amount spent on training.
- Research problems like new product or process development, layout of shop floor, cost reduction, inventory, and material substitution can be sponsored by industries as their need in collaboration with the institute.
- Industries can get trained manpower by conducting special courses as per their need at the institutional level which will reduce the cost of imparting training to new employees.

14 Conclusion

Engineering education is a process of learning various technologies by way of practice. Tailor made training courses help the technician to show better skills of workmanship. Authors have tried to enumerate and explain the various ways of strengthening partnership between industry and institute. This linkage is to be built up to the desired level of strength and utility. For this linkage to be meaningful both the systems should understand each other’s roles, and work for mutual benefit.

References


**Table 1**

**Rating Sheet**

<table>
<thead>
<tr>
<th>Student Characteristics</th>
<th>Maximum Marks</th>
<th>Marks obtained</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Knowledge of concepts</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With which candidate is already familiar</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Depth of knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Application of Principle</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>In a given situation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 Intellectual ability</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>To comprehend and act in a new situation</td>
<td></td>
<td></td>
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<tr>
<td>To follow logic in problem solving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Creativity &amp; Originality</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conceiving new and unusual ideas</td>
<td></td>
<td></td>
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<tr>
<td>Suggesting practice &amp; good solution</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5 Professional judgement &amp; Decision</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Interdisciplinary approaches</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>In problem solving situation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7 Skills for data handling</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>8 Ability to communicate</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>9 Team work</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Leadership</td>
<td>10</td>
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</tr>
</tbody>
</table>

**Personality traits**

Confident poised & courteous
Pleasant curious & forceful
Should be less aggressive
Should be friendlier with group
Should be more aggressive
Likeable

Indicate work for which candidate is best suited. Check only one or indicate order of choice.

- Research
- Design
- Finance
- Development
- Production
- Scientist
- Teaching
- Sales & Marketing

If necessary, you may elaborate on your reason for above rating and add any further comments you may have.

Final Grade
Signature of Instructor in charge