CHAPTER 9

FACULTY DEVELOPMENT AND CURRICULUM DESIGN AND UP GRADATION

9.1 NEW VOCATIONAL CURRICULUM AND QUALIFICATIONS FOR TRAINING PROGRAMMES

As per IMCs view, effort should be made to catalogue a new range of occupations reflecting the economic sectors that feature high promise of growth. Skills standards for new and current occupations should be developed with strong involvement of industry professionals.

The list of national vocational qualifications should be reviewed to:

- Update existing and eliminate obsolete basic industrial trades/qualifications;
- Introduce new qualifications & curriculum particularly those in the areas of personal care, commerce, etc. to reflect demand for new skills taking special account of the interests of women;
- Introduce new procedures for developing and updating vocational qualifications.
- The training programmes offered by the HRD Ministry should be taken account of in developing new trades and courses. The advanced countries’ vocational qualifications and programmes need to be examined in order to foresee the forthcoming demand for new skills.

9.2 DISCARD COURSES WITH DIMINISHING DEMANDS

IMCs wants to limit the provision of the long-term training programmes in certain NCVT trades as the demand for skills at large enterprises has contracted rapidly and the pass-outs increasingly risk unemployment. There was very low demand for certain NCVT trades like bakery, confectionary, fruit and vegetable processing and these trades were closed. In addition, due to the change of printing technology, the corresponding training courses also are discontinued. Because of the
lower admissions in the long-term courses, a considerable part of training equipment remained underutilized. Quite a number of turning laths remained idle or out of order while considerable space in workshops had no students. It is imperative to ensure greater efficiency of public investment in such assets and improve a capability of pass outs to find remunerative activities.

9.3 SPECIFIC STEPS REQUIRED FOR UP GRADATION OF THE LEVEL OF SKILLED WORKERS

- IMC is of the view that efforts should be done for giving emphasis on Training courses in manufacturing management

- Conceptualization and design a training programme/course in manufacturing management (titled ‘Programme for manufacturing excellence’) and formulate a roll-out plan at least in one IIT and one IIM. Education and training to orient R&D to meet customer’s demand

- Flexibility to R&D personnel employed by national laboratories, universities and the like to work in industry for a period of 3-4 years on deputation/sabbatical. Electronics, megatronics and software capabilities for automotive engineers in IITs

- Development of ITIs and ATIs

- Creation of a new automotive training institute for providing ‘mechanics’ training to all segments of society, act as a nodal agency for designing and developing training modules for various levels of training and education programmes and disseminating these training programmes through linkages with vocational colleges, ITIs and ATIs and various other education and training infrastructure of different State Governments

- Set up facilities for E-learning and E-training to reach a wider audience and be able to train more persons required to meet the demand.
9.4  UPGRADEATION IN VARIOUS ITIs

9.4.1  ITI Gurgoan

The above data for inviting Experts from industry for delivering lecture ITI Gurgoan shows following trends:

- There is almost increasing trend in experts visiting this institute.
- In the years 2001 (3), 2002 (4), 2003 (6), 2005 (7), 2006 (12), 2007 Experts visited ITI Gurgaon for interacting with students as well as the instructional staff for valuable advice.
- Though with an exception in 2004 only 2 experts visited probably due to recession in industry.
- The overall impact of IMC is good as formation of IMC made the industry think about the progress of ITI Gurgaon.

Figure 9.2: Faculty training
The data of ITI Gurgaon shows the following trend:

- This shows almost increasing trend in the number of faculty members training in different industrial units surrounding Gurgaon.


- But in the year 2004 and 2005 only 8 and 2 faculty members were industrial training respectively. This shows the industrial recession market and after 2005 the number of faculty members increased in who got training in industrial units.

- The IMC is playing a significant role with upgrading training skills in members, this is evident from the above data of ITI Gurgaon.

### 9.4.2 ITI Chandigarh

![Graph](image)

**Figure 9.3: Lectures by experts from industry**

The above graph of number of lectures delivered by experts from the shows the following trend for ITI Chandigarh:

- The data shows that in 2004 there was no significant number of expe the Industry visited this Institute. But, in mid 2004 (1), 2005(2), mid ; 2006(4) and 2007 again (4) experts from the industry visited this ins deliver valuable lectures on the latest trend in engineering and technolc
• Though, the IMC in ITI Chandigarh was fond in early 2000 but the graph shows that industry institute linkage remained weak till 2004 and after improved to some extent.

• But the above trend is also not encouraging for ITI Chandigarh where number of industrial units in Chandigarh itself, Mohali, Panchkula, Derabassi, Batala are established and IMC should have shown its willingness and interest to visit ITI Chandigarh frequently.

9.4.3 ITI Solan

![Graph showing faculty training](image)

**Figure 9.4: Faculty training**

ITI Solan data for lectures delivered by industrial experts in different years after the formation of IMCs shows following trend:

• Though, IMC Solan is one of the best Committee in India showing excellent results in every sphere, but, the above trend in the graph is little disappointing as the number of experts visited this institute is not on the increasing trend.

• But, overall in 2000 only 5 expert lectures were delivered, whereas, in 2001 about 27 lectures were delivered in the Institute. Whereas, in 2002(13), 2003(17), 2004(20) and further reduced to 4 lectures in 2005.

• The above trend shows that in 2005 due to industrial recession, industrialist have little lackadaisical approach towards this institute.
9.4.3.1 IMC solan sponsored mentors from industries

- IMC arranged Mentors from Industries, initially on experimental basis for two trade groups only of ITI, Solan. Mentor discussed & guided students in the ITI or outside as per mutual convenience. He also delivers lecture or impart practical training. Mentors are more like role model for students and therefore, should be a good-experienced skilled worker. Mentor play an important role in vocational guidance and career counseling as well as apprising students about latest technologies and trends in Industries so as to bridge the gap between “World of Work” and “World of Study”. Mentorship System have great flexibility in contact between students and mentor. The contact could even be over telephone.

- Shri A.B. Singh, Maintenance Expert from Dabur India Limited Baddi was nominated as Mentor from Mechanical Group Trainees of Fitter, Turner and Machinist Trade Trainees.

- Till November 2005, 3 mentors from industries has interacted with 128 trainees of 9 trades as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Mentor</th>
<th>Industry</th>
<th>Date of Visit</th>
<th>Interaction with No. of trainees</th>
<th>Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sh.A.B.Singh</td>
<td>Dabur India Ltd. Baddi</td>
<td>28.11.2002</td>
<td>22</td>
<td>Turner (Jr. &amp; Sr.)</td>
</tr>
<tr>
<td>2</td>
<td>Sh.A.B.Singh</td>
<td>Dabur India Ltd. Baddi</td>
<td>21.2.2003</td>
<td>31</td>
<td>Fitter (Jr. &amp; Sr.)</td>
</tr>
<tr>
<td>3</td>
<td>Sh. Anil Kr Dhiman</td>
<td>Micro Turners, Parwanoo</td>
<td>24.5.2004</td>
<td>75</td>
<td>Fitter (Sr.-17, Turner (Sr.)-13 Fitter (Jr.-17, Turner (Jr.)-14 Machinist-14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
<td><strong>3</strong></td>
<td><strong>128</strong></td>
<td><strong>09</strong></td>
<td></td>
</tr>
</tbody>
</table>

Before the constitution of IMC, there was no provision

9.4.3.2 One-day lecturers (guest lecturer)

- It was decided in the meeting that services of Experts from Industries will be taken as One-Day Lecturer to deliver lecture on imparting practical training in the ITI.

- Ms. Geeta Sachdeva, Senior Manager-HR, Gabriel India Limited, Parwanoo has delivered the lectures on 7Qs and 5-S to the trainees of ITI Solan.
Before the constitution of IMC, there was no provision.

Organizing of Exhibition


Before the constitution of IMC, there was no provision

9.4.3.3 Solan

![Figure 9.5: No. of instructors got training in industry](image)

Deputation of Instructors in Industries of ITI Solan

- Till November 2005, 144 Instructors have been deputed to 390 Industries during One-Month In-Plant Industrial Training and Industries Tours/Visits.
Before the constitution of IMC, there was no such provision

Table 9.2: Year-wise bifurcation for deputation of instructor in industries

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Instructors deputed</th>
<th>No. of Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>09</td>
<td>07</td>
</tr>
<tr>
<td>2000</td>
<td>18</td>
<td>89</td>
</tr>
<tr>
<td>2001</td>
<td>28</td>
<td>113</td>
</tr>
<tr>
<td>2002</td>
<td>18</td>
<td>49</td>
</tr>
<tr>
<td>2003</td>
<td>18</td>
<td>38</td>
</tr>
<tr>
<td>2004</td>
<td>21</td>
<td>89</td>
</tr>
<tr>
<td>2005</td>
<td>07</td>
<td>05</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>390</td>
</tr>
</tbody>
</table>

Involvement of Experts from Industries for Maintenance and Repair of Machinery & Equipment of ITI, Solan:

- Maintenance Experts from different Industries like Dabur India Ltd. Baddi are visiting this Institute for maintenance and repair of machines of ITI, Solan.

- Till November 2005, 5 Maintenance Experts from Industries has repaired 8 lathes machines in Turner Section, 2 Shapers and one Radial Drilling Machine in Machinist Section.

Before the constitution of IMC, there was no such provision.

9.4.3.4 Donation of Tools, Machinery and Equipments by Industries

- Shri Lalit Verma, M.D. Power Tech (India) Limited, Baddi has donated 4 gear hobbling cutters amounting to Rs. 18,400/- to Machinist Section of ITI, Solan.

- Ms. Dabur India Ltd Baddi has donated an amount of Rs 3000/- for spare parts of Lathe Machines.

- M/s Honda Motorcycle & Scooter India ltd. has donated a Scooter to ITI Solan on 15th October, 2003 amounting to Rs.32, 834/-

- Sh. Anil Sehgal, Managing Partner of Micro Turners, Naryal, Parwanoo has donated 7 Nos. of HSS Tool Bits (used) amounting to Rs.525/-and raw material of End Pieces of Bright Bar about 28 kg. amounting to Rs. 700/-
• Capt. Alok Sharma, CEO & M.D., Forge India Ltd., Parwanoo has donated 50 pieces of rejected Forgings weighing about 65 kg. amounting to Rs. 8,000/- for trial of machining for trainees of Turner & Machinist Trade.

• M/s NEWAGE Logic Systems, Solan, has donated P.C. Motherboard of 286 & 386 amounting to Rs. 3,200/- for Electronics trade.

Before the constitution of IMC, there was no such provision.

Table 9.3: Details of Donation of Tools, Machinery and Equipments

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name and Address of Industries</th>
<th>Machinery, Equipment, Tools donated</th>
<th>Qty.</th>
<th>Month &amp; year</th>
<th>Trade</th>
<th>Approx. Cost in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M/s Power Tech (India) 167, Industrial Area, Phase-II, Baddi-173205 M.D.: Er. Lalit Verma</td>
<td>Hobe Cutter, 10/12, D.P., H.S.S for Gear Hobbing Machine</td>
<td>1</td>
<td>June, 2001</td>
<td>Machinist</td>
<td>4800/-</td>
</tr>
<tr>
<td>3</td>
<td>M/s Power Tech (India) 167, Industrial Area, Phase-II, Baddi-173205 M.D.: Er. Lalit Verma</td>
<td>Hobe Cutter, 10/12 D.P., H.S.S. for Gear Hobbing Machine</td>
<td>1</td>
<td>June, 2001</td>
<td>Machinist</td>
<td>4500/-</td>
</tr>
<tr>
<td>4</td>
<td>M/s Power Tech (India) 167, Industrial Area, Phase-II, Baddi-173205 M.D.: Er. Lalit Verma</td>
<td>Gear Hobbing Cutter H.S.S. Module-2, Size: 4 x 54 x 22 mm</td>
<td>1</td>
<td>Sept., 2001</td>
<td>Machinist</td>
<td>4500/-</td>
</tr>
<tr>
<td>7</td>
<td>Micro Turners, Vill. Naryal, Parwanoo Managing Partner: Sh. Anil Sehgal</td>
<td>(i) HSS Tool Bits (used) (ii) Raw material of End Pieces of Bright Bar</td>
<td>7</td>
<td>April, 2004</td>
<td>Turner &amp; Machinist</td>
<td>525/- 700/-</td>
</tr>
<tr>
<td>8</td>
<td>Forge India Ltd., Parwanoo Capt. Alok Sharma, CEO &amp; M.D.,</td>
<td>50 pieces of rejected Forgings</td>
<td>65 kg.</td>
<td>April, 2004</td>
<td>Turner &amp; Machinist</td>
<td>8,000/-</td>
</tr>
<tr>
<td>9</td>
<td>EWAGE Logic Systems, Solan</td>
<td>P.C. Motherboard of 286 P.C. Motherboard of 386</td>
<td>1</td>
<td>May, 2004</td>
<td>Electronics</td>
<td>1,600/- 1,600/-</td>
</tr>
<tr>
<td>10</td>
<td>Exhibit, Vardhman Fabrics, Sai Road, Baddi</td>
<td>Bus Fare for Plant Visit/In-Plant Interview</td>
<td>-</td>
<td>June, 2004</td>
<td>-</td>
<td>7,000/-</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>73,659/-</td>
</tr>
</tbody>
</table>
9.4.4 ITI Jalandher

9.4.4.1 No. of training sent for industrial visit

For ITI Jalandhar, the number of trainees sent to industrial visit shows the following trend:

- The above data shows that for ITI Jallandhar there is constant increase in the number of industrial visits and the interest of the students is showing an increasing order.

- In 1999 (90), 2000 (148), 2001 (157), 2002 (175), 2004 (189), 2005 (205), 2006 (221) and 2007 (352) with only exception in 2003 which shows a downward trend where 106 trainees were sent for industrial visit.

- The overall trend in the institute shows a very positive where the number of trainees have been increased from 90 in 1999 to 352 in 2007 which is a very encouraging response from the industry.

- IMC Jallandhar has shown good industry institute linkage since its inception.
9.4.4.2 Lectures by experts from industry

ITI Jallandhar shows that number of lectures delivered by the industrial experts in different years from the inception of IMC in this Institute:

- In 2001 (6) lectures were delivered whereas, in 2003 (7) and in 2004 (10), 2007 (11) lectures were delivered by the industrial experts.
- There is little downward trend in 2002 where only 5 lectures and in 2005 (9) lectures were delivered which have been observed downing a trend from the corresponding years.

9.5 BEHAVIOR OF STUDENT, STAFF/FACULTY TOWARDS IMC

Improvement in quality, efficiency and productivity hinges around human resources. With the fast changing teaching economic scenario from protectionist economy to free market economy, when lot of multi-nationals are coming to industry is depending more and more on latest knowledge and information. Those who have necessary skill and knowledge to create, apply and manage the emerging technology will only survive and succeed.
The working professional becomes obsolete in a very short period if there is no updating of technology. IMC can contribute a significant role in a system of competency based continuing education and consultancy for problem solving. In industry it is essential to provide effective industry-institute interaction resulting in improvement in human resource development.

Impact of IMC significantly contributes to behavior aspect of faculty/staff & industrial list. Designing of IMC modified model will also take care of human behavior. Those faculty members and students who are interested to learn and earn more will only come forward. Because IMC will encourage only those persons for production/job work who really deserve and have devotion for work. Ultimately this model could create an atmosphere of competition, fittest of survival, yearning for learning & yearning for earning.

The temporary adverse effect of IMC on faculty/staff is fear of Privatization. In some cases faculty/staff members’ started spreading rumors that their institutes are going to be autonomous and control will be shifted form Govt. to private industrialists. Due to this staff unions raised the banner and also provoked the students that their subsidized fees would many times. Consequently students also become the part of this agitation.

The behavior impact of industries towards IMC be more effective because they become partner rather than advisors in this collaboration. This reduces the mismatch between training facilities offered and the actual market demand. Because previously the Linkage between institute and industry was only advisory nature under Local Advisory Committee or MOU/apprenticeship scheme.

Formation of IMC raised ego/superiority complex among industrialist (Chairmen/Members). They start thinking themselves as members of governing body having all the powers delegated to them by govt. This started unnecessary interference by them in institute with day-to-day matters. This created administrative problems for principals.

Contrary to the above, in some of institutes the industrialist nominated as Chairmen/members of IMC, were reluctant to spare time for even regular meetings of IMCs. They remained busy with their own occupation. Obviously they accepted Chairmanship or membership of IMC as statues symbol only. Consequently their non-active participation could not bring any fruitful results and defeated the basic purpose of IMC.
After the formation of IMC, some officers at Government level started creating hindrance in its proper implementation as they give impression that their powers are being decentralized. This will loose their grip on institutes.

This has been reviewed in Literature heading “Human Role in industry Institute interaction.

9.6 THE NCVT SYSTEM OF NATIONAL VOCATIONAL QUALIFICATIONS SHOULD ATTEMPT TO

- Introduce levels/grades for each vocational qualification that would be recognized across industry sectors
- Introduce practices allowing testing and certifying skills of workers that have been acquired through practical experience.
- Convert vocational programmes into modular-based ones; this would allow better integration of ITI-based training with apprenticeships.

9.7 INFRASTRUCTURE RELATED ISSUES IN FICCI SURVEY

9.7.1 Physical Infrastructure

The physical infrastructure in the Industrial Training Institutes has revealed a bright picture. When asked about whether they have building, classrooms and laboratories as per the norms laid down by the NCVT, a whopping 99% of the respondents were affirmative in their response.

Figure 9.8: Building, classrooms and laboratories available as per NCVT norms?
9.7.1.1 Power supply

Power is a critical factor to ensure uninterrupted practical training schedules for the Industrial Training Institutes, which depend heavily on the electrical machines used for instructions. Of the 69 ITIs surveyed, a substantial 85% of the respondents reported to have uninterrupted power supply between 9.00 am to 4.00 pm during working days. While for another 12% of the institutes power supply is available for 6 hours a day, an insignificant 3% said to have power for less than 4 hours per hour.

The institutes having power for less than 4 hours a day were not able to meet the practical training requirements of the trainees as per norms laid down by NCVT and cited non-availability of power as the main reason for this shortfall.

With regard to power load sanctioned, an overwhelming 84% of the institutes reported that the power load sanctioned for their respective institutes was either equal or above their power load requirements. For the remaining 16%, it was below required level.

9.7.2 Inspections/Supervision

The number of inspections carried out in the institutes by directors/inspectors during the last three years. It has been found that 11% of
institutes did not have a single inspection during this period, with 21% reporting to have less than 3 inspections over the period. While 42% had inspections between 3 to 6 times over the last three years, 26% of the institutes had been inspected more than 6 times.

![Figure 9.10: Number of inspections during last three years](image)

A region wise analysis of the responses revealed that it is the Northern region where inspections by designated authorities are not being carried out as per the NCVT/SCVT norms with 43% of the institutes reporting nil or less than 3 inspections during the last three years. While 28% of the institutes from the Southern region reported Likewise, only 12% of the institutes from the Western region reported to have nil or less than 3 inspections during the last three years.

**Table 9.4: Number of inspections during the last three years –Regional Picture**

(Percentage of ITIs)

<table>
<thead>
<tr>
<th>Region</th>
<th>Nil or Less than 3 times</th>
<th>3 to 6 times</th>
<th>More than 6 times</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>43%</td>
<td>47%</td>
<td>10%</td>
</tr>
<tr>
<td>South</td>
<td>28%</td>
<td>28%</td>
<td>44%</td>
</tr>
<tr>
<td>West</td>
<td>12%</td>
<td>50%</td>
<td>38%</td>
</tr>
</tbody>
</table>
9.8 REFORMS REQUIRED IN INDUSTRIAL TRAINING SYSTEM

IMCs want to provide skills to all entrants to the labour force will fulfilled by initiatives that viz:

- Increase the demand for training
- Increase the capacity for training

Thus, the process of reform will address both the factors that demand for industrial training and the factors that influence supply. So far thrust of Government policies has been on augmenting the supply capacity factors that restrain the demand did not receive adequate attention, greater expected, in the near future, from the initiatives that increase the demand for industrial training.

To reflect the continuing downsizing of the organized economy capability to employ skilled manpower. There is need to change the present Training courses in ITIs. In the view of IMC & industry it is required enrolments on long-term courses in basic industrial trades such as fitters, etc. for educated school leavers as long as passed out of these courses experience difficulties of finding employment in the formal economy and to join the unorganized sector.
It is required to introduce long and short training programmes in new industrial trades that should reflect the changing needs of various industrial sectors;

New training programmes are being introduced in ITIs for educated school leavers (8th Grade and above) in non-industrial trades that correspond to the fast-growing sectors such as commerce, insurance, personal care, agriculture-related forestry and paper, tourism, IT-enabled services, paramedical professions, etc. Although such trades are presently offered by colleges and other educational institutions, ITIs should enter into these trade areas and carefully avoid unnecessary competition for students;

Now ITIs are also introducing & expanding short courses in basic industrial trades for school drop-outs (with certain minimum entry levels, for instance, completing primary education) or for school graduates who are willing to rapidly acquire basic industrial trades but do not want to pursue the National Trade Certificate. As such young people are usually motivated to join the unorganized economy; this would result in the supply of semi-skilled workers and enable the gradual transformation of the outdated unorganized sector.

9.9 STAFF RELATED ISSUES

9.9.1 Availability of Staff

Shortage of staff has emerged as a serious cause for concern for the Industrial Training Institutes in India with a whopping 89% of the participating ITIs reporting to operate with staff strength less than the strength sanctioned for them by the NCVT, DGE&T.
Staff vacancy as a proportion of sanctioned staff strength remained 30% to 56% for a quarter of the surveyed training institutes. While a majority of the respondents had 10% to 30% vacancy in their respective institutes, for 20% institutes the sanctioned staff seats were either filled completely or the as a proportion of total sanctioned strength was less than 10%. It was the part of the country where the training institutes were suffering the most shortage of technical staff.

![Figure 9.13: Vacancy rate in ITIs](image)

In order to qualify as an instructional staff at the ITIs, it is essential to have NTC/NAC in the concerned trade or diploma in engineering with a Cl or higher qualification in the concerned trade. Almost all the institutes reported that the instructors at the respective institutes meet the prescribed criteria.

### 9.9.2 Outside Training for Teaching Staff

Training for the instructors is essential for making them aware of the technological changes that are taking place in the industry. Advanced training is provided to the instructors by the Advanced Training Institutes through a programme with the training modules involving trade technology, engineering technology and training methodology.
Although 82% of the participating institutes in the present system report to have outside training for which instructors are deputed, no technical staffs were deputed for outside training in the remaining 18% of the institutes surveyed. Some of the institutes reported to have refresher courses for their instructional staff. Outside training for the technical staffs should be made mandatory to upgrade the quality standards of training imparted by these institutes.

9.9.3 Transfer Policy for the Technical Staffs

Introduction of courses catering to the industrial needs replacing old and standardized industrial trades with new trades having strong industrial demands, which in turn calls for replacement of instructors. A majority 72% of the institutes reported to have transfer procedures in place for their technical staff. The responsibility of staff transfer being with the director of vocational education training at the respective regional offices.
9.10 DEMAND FOR INDUSTRIAL TRAINING

The demand for industrial training comes from the returns to the train form of a job and better income and returns to the employer by way of a high from a trained worker. If the income expectations of workers exceed the realised by the employer, the demand for training cannot be sustained, let increased. Hence, the quality of training should be of a standard that the expects. On the other hand, if the expectation from training is to get a job Government or public sector, which is not expanding much, no useful purpose served by acquiring such training.

9.11 CONCLUSION OF THIS CHAPTER

With the introduction of Institute Management Committees in development of faculty has been observed in many ITIs where chairman shown keen interest in upgrading the skills of instructional staff. Even son have sent their recommendations for developing curriculum as per industry de