Steel Plant Training in India

Graduate Engineer/Metallurgist Training at Bhilai Steel Plant

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Bhilai Steel Plant, a one-million ton ingot steel plant, was established in the second five-year plan to increase the steel output of India. To overcome the shortage of skilled manpower, the Bhilai Technical Institute was established as a part of the Steel Plant in 1959 to train Graduate Engineers/Metallurgists, Senior and Junior Operatives and Skilled Artisans.[1]

To meet the initial requirements of technical personnel, 330 engineers and 385 operatives were trained in the steel plants of the U.S.S.R. Since 1959, all such personnel are being trained in B.T.I. After meeting the requirements of the needs of the million-ton plant, Bhilai Technical Institute had undertook the additional training for a 2.5 million ton expansion. The total number of personnel trained and under training under the pre-employment training scheme at B.T.I. is 4981 and 1013. (See Table I.)

The article deals with the training of Graduate Engineers/Metallurgists at the Bhilai Steel Plant.

Objectives

Graduates in Engineering/Metallurgy are selected:

1. to fill middle management posts in operation, maintenance, process control and other sections of the Steel Plant and
2. to build a core of technical officers

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Table No. I

Personnel in Pre-Employment Training Scheme at B.T.I.

Category of Personnel	*Trained in*				*Total*	*Under Training in B.S.B.*
	U.S.S.R.	*Other Steel Plants*	*B.S.P.*	*Engineering Industries (India)*		
Graduate Engineers/ Metallurgists	378	5	210	–	593	163
Junior Officers for Staff Departments	–	–	38	–	38	–
Senior Operatives	385	251	386	–	1022	229
Junior Operatives	–	–	552	–	552	109
Skilled Artisans	–	–	843	665	1508	479
Vacation Trainees from Engineering Institutions	–	–	863	–	863	–
Personnel trained for other Organizations	–	–	405	–	405	33
Total	763	256	3297	665	4981	1013

for top management.

The training also aims to inculcate a sense of self-confidence, teamwork, initiative and sound leadership to solve problems on the shop floor and to train the men working with them.

Training Programs

The total period of two years of training includes:

A. Orientation training	4 months
B. In-plant training	12 months
C. Supervisory development training	2 months
D. On-the-job training	6 months

Orientation Training

A series of lectures on steel plant technology, electrical and mechanical maintenance, followed by work visits to the shops/departments are arranged during this training. Study of plant equipment drawings and project reports are also included in the program.

Credits are given for group discussion, colloquiums, quiz-test, viva-voce, workshop diary, attendance and behavior. Written tests on important subjects are also taken. The results of all these are recorded in the "Progress Assessment Cards" of the Graduate Engineers.

On completion of the four-month orientation training at the Bhilai Technical Institute the G. E.s are posted for In-plant Training in the various departments in accordance with the vacancies, and the preferences of the G.E.s.

Placement of the G.E.s is done by a High Power Committee consisting of the General Manager, General Superintendent, Additional General Superintendent, Personnel Manager and one of the Chief Superintendents.

In-plant Training

Considerable importance is given to this aspect of training, as it is essential for the G.E.s to thoroughly understand the processes, facilities and practices in the departments. The training program includes:

A. Section-wise training and
B. One-day-a-week training at the B.T.I.

Section-wise Training

The training of the G. E. in the allotted department is divided into suitable sections and a detailed program, with a list of technical literature for prescribed reading is published and issued to each G. E.

During the period of in-plant training, three sets of tests are held for proficiency in theory, practical and viva-voce.

The results of such tests are also entered in the progress assessment cards of the respective G.E.s.

One-day-a-week Training at the B.T.I.

During the entire period of the in-plant training the G. E.s spend one day a week at the B.T.I., when they attend lectures by Senior Departmental Specialists and collect necessary project work.

Supervisory Development Training

This is organized by the Personnel Department and of nine-weeks' duration. It aims to provide information to the G. E.s about policies, procedures, rules and regulations of the company and assist them in improving their supervisory skill in leading, instructing and method study.

The course covers the following:

A. Industrial engineering methods.
B. Supervision and human relations.
C. Business management.
D. Industrial relations.
E. Administrative practices.
F. Safety.
G. Company information.

The course is given in the form of "lecture-cum-discussion" sessions. Qualified and experienced lecturers are selected from the plant for this purpose.

Syndicate, role-playing and case-study methods are used.

At the end of the course, an assessment is made and certificates are awarded to successful candidates. During the entire period of this course, the G. E.s are released full time from their respective departments.

Industrial Tour

At the conclusion of the Supervisory Development course, the G. E.s' proceed on a two-weeks' industrial tour to other sister steel plants in Rourkela, Durgapur and Jamshedpur to familiarize themselves with the different types of equipment, technology and practices followed in these sister concerns.

Shop Superintendents assign the G.E. s specific problems related to their departments for study during the tour and submission of reports on their return. These reports are discussed by the Shop Superintendents with the respective G. E.s.

On-the-Job Training

During this period, the G. E.s are put on the jobs, where they will be finally absorbed. They are trained to shoulder full responsibilities under the guidance of the General Foremen who help to develop their power of analysis of situations and instant mobilization of resources along with tackling of man-management problems.

Course Materials

Detailed syllabus for classroom instruction in Steel Plant technology and maintenance, training manuals, study guides, project reports, technical films, role-playing exercises, case histories of major breakdowns or commissioning of new units, latest technical and non-technical books and literature form the course materials.

Methods and Media

In addition to usual classroom lectures, works visits to the different departments, mines and quarries, the following methods are also used:

Project work on problems of the shop are set by the respective shop management for the G. E.s individually or in groups, to enable them to appreciate inter-shop and intra-shop problems. The project work reports are valued by the shop superintendents and the remarks are discussed by the Training Engineers with the G. E.s. Really deserving reports are catalogued subject-wise for purpose of reference at the B.T.I.

Role-Playing. Training in role-playing helps to develop skills and attitudes in handling problems of interpersonal relations. This is achieved by the G. E.s playing the roles of specific personalities in the department e.g. Chargemen, Foremen, General Foremen/Shop Superintendents, etc. Sometimes an operational man plays the role of a maintenance man and vice-versa.

These exercises are carefully drawn with reference to actual shop problems and conducted under the guidance of the shop superintendents.

Group discussion. Topics for group discussion are based on specific problems arising on the shop floor relating to production, maintenance, safety, etc. At these discussions, a senior officer of the department, not lower in rank than a General Foreman, presides and guides discussions.

Seminars are held periodically in which G. E.s are given specific topics to speak on. Discussions follow at the end of the talks.

All these exercises are held at the

rate of one per month by rotation.

Tutorial System

Senior officers of the plant are designated as tutors to small groups of G. E.s to look after their interests relating to their effectiveness as trainees and to develop their personality for becoming useful members of Bhilai Steel Community.

Performance Evaluation

Performance evaluation is done at every stage and results are recorded in progress assessment cards maintained for every G. E.

The G. E.s are kept informed of their performance then and there, so that they may have a chance of improving themselves, wherever necessary.

In additiion to these cards, quarterly assessment forms are filled by the Shop Foremen, reviewed by the Heads of the departments and sent to the Superintendent of Training. Any adverse remarks are brought to the notice of the G. E.s immediately.

On completion of the period of training, the assessment cards, as well as the quarterly assessment forms filled by the Shop Superintendents placed before the Evaluation Committee of the Academic Council for review prior to absorption in the regular cadre.

Reference

1. Muthuswamy R. "Main Features of Bhilai Steel Works," *Blast Furnace and Steel Plant,* Nov. 1962, p. 1081-82.

Calvin Forms Rental-Sales Affiliate for Photo and Audio-Visual Equipment

Two new Calvin companies have been formed to rent, lease and sell photographic and audio-visual equipment. They are called Calvin Cinequip, Inc. (C. C. I.) and are located at the facilities of Calvin Productions, Inc., in Kansas City, Missouri and Philadelphia, Pennsylvania.

In discussing the new companies, Gil Davidson, Manager of the Kansas City C. C. I. operation said, "For several years in Calvin's business of making and processing movies, we have been asked for recommendations about what type of equipment to use. Also, on the informal basis, we have rented camera gear to people that we were working with. Over the years this has grown to the point where Calvin decided to set up two companies that are in the business of renting, leasing, or selling movie and audio-visual equipment."

Additional information about Calvin Cinequip, Inc. is available by writing to the company at either 1105 Truman Road, Kansas City, Missouri 64106 or 1909 Buttonwood Street, Philadelphia, Pennsylvania 19130.