CHAPTER - 5

TRAINING AND DEVELOPMENT IN BSNL

Effectiveness is doing right things,
Efficiency is doing things right.

- Peter F Drucker
CHAPTER - 5

TRAINING AND DEVELOPMENT IN BSNL

INTRODUCTION

With a corporate philosophy that considers Human Resource as the most prized assets of the organisation, it is natural for Bharat Sanchar Nigam Limited to continually hone employee skills, enhance their knowledge and their expertise and their aspirations to fruition. Even as BSNL loges about conducting its business activities, it lays emphasis on constant enhancement of knowledge and skills through regular training programmes.

BSNL has a vast reservoir of highly skilled and experienced work force of about 3,57,000 personnel. The best-trained manpower in the telecom sector, is its biggest asset. It believes that the future depends on its staff who provide services to the valued customers and stay in touch with them. The executives of BSNL while in DOT had installed and maintained switches of different technology. They were never found wanting in equipping themselves to any type of new technology inducted in Telecom industry. As such when sufficient manpower of the required caliber is very much available in house. The health of the organisation also depends upon the motivational forces operating within its work force. To meet the technological challenges, employees are trained for technology up-gradation, modernisation, computerisation etc. in BSNL's training Centers spread across Country.
Human Resource Development

The success of any organisation depends on how effectively its Human Resources are managed and utilized. In today's complex and competitive situation human resources development plays a vital role in achieving the objectives of the organisation. BSNL, committed to achieve the objectives of the New Telecom Policy, has been implementing human resource development practices in a commendable way. The image of an organisation is determined by the business of the organisation and the kind of job environment and benefits it provides to its employees.

Recruitment Policy

The Recruitment Policy of the organisation is unique and recruits the best talented young people from the employment market and appoint them after an induction training imparted in the training centres of BSNL. Direct recruitment to all cadres such as Clerks, Telephone Operators, Telegraphists and Technicians are made based on the marks obtained in the S.S.L.C (XI Std.) / H.S.C (XII Std.) Examinations purely on merit.

Telecommunications is the Department where opportunities are given for any person with ability to become a Junior Telecom Officer without getting a formal degree in Engineering or Technology from a University. Some of them are matriculates and joined the department as Operators, Clerks and
Technicians. They have written the competitive examinations that the department conducts for such people to come into the technical stream as Transmission Assistants, Telephone Inspectors and J.T.Os. They are given special training in Telecommunication engineering in one of the department's several Regional Telecommunication Training Centres. Some them are direct entrants with a degree with a first class degree in Science or Bachelor of Engineering. What is note-worthy is that all of becoming J.T.O. through the training Centres of the department, they can get recognition as a graduate engineer by further passing the graduate ship examination of the Institution of Electronics and Telecommunications Engineers or the Institution of Engineers. After that they can compete along with Graduate Engineers from Colleges in the combined Engineering Services Examination conducted by the UPSC and become Class-I Engineering Officers.

Immediately after formal training in one of the training centres, they are given charge of group of small exchanges in the country side or a section of telephone subscribers in a city or as one of the engineers maintaining or installing a telephone exchange or transmission system.

The entire Finance and Accounts management has been administered by the existing workforce of the organisation. Junior Accounts Officer cadre is the entry cadre to accounts wing of the organisation till 31st August 2001. The Junior Accounts Officers are promotees from Group 'C' cadre who had put on
five years service by passing a qualifying examinations conducted in two phases followed by the Accounts Management training imparted by the training centres of the organisation. Now 50% of the Junior Account Officer posts are filled by direct recruitment of outside candidates who are qualified in M.Com / ICWA / ICS.

The organisations is capable of handling world over technologies by its technical executives of the organisation and well maintain its Finance and Accounts administration with the promotees of the organisation, most of them are without any formal professional qualifications. Only because of the training system available in the organisation it is capable of meeting the requirements of effective human resources management.

Pay and Allowances

The performance and behaviour of the employees is related to the compensation and reward provided to the employees, which serves as positive reinforcement, in building the organisational climate. BSNL has revised the pay scales, allowances and welfare facilities to its employees comparatively in a fair and better way after conversion. The following are the revised pay scales of the employees and executives of BSNL:
Table 5.1  BSNL – PAY SCALES FOR NON-EXECUTIVES

<table>
<thead>
<tr>
<th>Category of Non-Executive</th>
<th>C.D.A Scales of pay on 01.01.1996</th>
<th>Corresponding Scales of pay on I.DA. Pattern w.e.f. 01.01.2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE-1</td>
<td>2550-55-2660-60-3200</td>
<td>4000-120-5800</td>
</tr>
<tr>
<td>NE-2</td>
<td>2610-60-3150-65-3540</td>
<td>4060-125-5935</td>
</tr>
<tr>
<td>NE-3</td>
<td>2650-65-3300-70-4400</td>
<td>4100-125-5975</td>
</tr>
<tr>
<td>NE-4</td>
<td>2750-70-3800-75-4400</td>
<td>4250-130-6200</td>
</tr>
<tr>
<td>NE-5</td>
<td>3050-75-3950-80-4590</td>
<td>4550-140-6650</td>
</tr>
<tr>
<td>NE-6</td>
<td>3200-85-4900</td>
<td>4720-150-6970</td>
</tr>
<tr>
<td>NE-7</td>
<td>4000-100-6000</td>
<td>5700-160-8100</td>
</tr>
<tr>
<td>NE-8</td>
<td>4500-125-7000</td>
<td>6550-185-9325</td>
</tr>
<tr>
<td>NE-9</td>
<td>5000-150-8000</td>
<td>7100-200-10100</td>
</tr>
<tr>
<td>NE-10</td>
<td>5500-175-9000</td>
<td>7800-225-11175</td>
</tr>
<tr>
<td>NE-11</td>
<td>6500-200-10500</td>
<td>8570-245-12245</td>
</tr>
</tbody>
</table>

Table 5.2  BSNL – PAY SCALES FOR EXECUTIVES

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>C.D.A Scales of pay</th>
<th>Corresponding Scales of pay on I.DA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5500-175-9000</td>
<td>7830-230-12430</td>
</tr>
<tr>
<td>2.</td>
<td>6500-200-10500</td>
<td>9850-250-14600</td>
</tr>
<tr>
<td>3.</td>
<td>7500-250-12000</td>
<td>11875-300-14275</td>
</tr>
<tr>
<td>4.</td>
<td>8000-275-13500</td>
<td>13000-350-18250</td>
</tr>
<tr>
<td>5.</td>
<td>10000-325-15200</td>
<td>14500-350-18700</td>
</tr>
<tr>
<td>6.</td>
<td>12000-375-16500</td>
<td>16000-400-20800</td>
</tr>
</tbody>
</table>
Pension Protection even after Corporatisation

Pension is available only for the retired employees of State or Central Government of India. Pension is the only social security for retired employees. Family pension is granted to the family members of the employee in the event of death of the employee/pensioner. The public sector employees working in Banks and LIC had the provision of one time lump sum payment in lieu of pension at the time of retirement. Only in the recent past, five or six years back, the employees of the public sector undertakings fought and got pension facility foregoing the lump sum payment in lieu of pension as the pension facility is recurring in nature than one time payment. There is a general trend all over the world to withdraw the pension facility already available. The reason is, the pension cost was lesser since the average pension period was about fifteen years after retirement of the employee. Now the life span has increased to twenty to twenty five years virtually increasing the pension cost. So, the Government of India and governments of other countries have evolved a new pension scheme in which both the employee and the government have to equally contribute to the pension scheme every month. So there is apprehension in the minds of the employees whether pension is guaranteed or not. But in the already existed pension has been paid from the Consolidated Fund of India.

When the government converts a government sector to public sector/private sector due to the policy of the government the employees of the industry will become the victims as the pension facility is denied to them. When the government proposed to convert the Department of
Telecommunications into a public sector enterprise, the 3,50,000 employees unitedly fought under the leadership of National Federation of Telecom Employees during September 2000 and protected their pension facility. The Government of India assured payment of pension from the Consolidated Fund of India and revised the Pension Rules for continuance of pension to the employees of BSNL. As per Rule 37 A of CCS (Pension) Rules and also as further clarified by the Department of Pension, the pension/family pension is to be paid in the IDA Pay scales for the employees absorbed in BSNL. The pension is to be calculated on the basis of total service rendered in DoT and BSNL. This aspect of social security of the employees should be considered by any government or employer for a healthy job environment in the organisation.

No Job Loss due to Modernisation and Corporatisation

The Overseas Communication Services a constituent of Department of Telecommunication was converted into Videsh Sanchar Nigam Limited wholly as a government owned company on 1st April 1986 alongwith the conversion of Mumbai and Delhi domestic telecom services into Manager Telecom Nigam Limited. The 3750 employees and executives working in the Overseas Communication Services on 1st April 1986 were reduced to 2759 in 1st April 1993. Nearly 1000 employees and executives had to retire voluntarily from service.

In the developed countries like USA, Japan and Germany, the technological, structural and regulatory processes taking place have resulted in
job loss. During the last two years alone, it is reported that one million job has been lost in Telecom sector. The reduction in jobs in the above countries in 1990 - 1995 and 1999 - 2000 can be found out from the table below:

<table>
<thead>
<tr>
<th>No</th>
<th>Name of Company</th>
<th>1990</th>
<th>1995</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>British Telecom</td>
<td>2,46,000</td>
<td>1,38,000</td>
<td>1,36,000</td>
<td>No Infn</td>
</tr>
<tr>
<td>2.</td>
<td>NTT (Japan)</td>
<td>2,57,600</td>
<td>1,85,000</td>
<td>1,36,600</td>
<td>1,22,400</td>
</tr>
<tr>
<td>3.</td>
<td>Deutch Te (Germany)</td>
<td>2,27,000</td>
<td>2,12,000</td>
<td>1,36,952</td>
<td>1,26,157</td>
</tr>
</tbody>
</table>

Privatisation in New Zealand failed leaving the telecom sector in a fragmented state. Staff were asked to resign and become individual sub contractors. Staff reduced from 16,256 in 1989 to about 1300 now. In Hong Kong after privatisation staff were reduced from 15,000 in 2000 to about 10,000 in 2003. 1,550 staff were made contractors. In Australia after reforms, employment reduced from 96,700 in 1986 to 40,000 in 2003. Job losses, shift to part time employment, loss of civil servant status, loss of trade union rights etc. are the results of the reforms in telecom sector.

The experience in China is quite contrary to this. The number of workers in telecom sector in china which was 4,79,000 in 1995 has now increased to more than 10,00,000. This is due to the enormous increase of telephone network. The landlines are about 23 crores and cellphone about 18 crores and cellular phones more than 1 crores. It is clear that spectacular economic growth in China under socialist market economy is the reason.
In the telecommunications sector in India the conversion process to public sector corporation was smooth with the commitment of the workforce for a new change after securing necessary assurances from the government on the vital issues such as: no retrenchment, protection of pension benefits and pay revision in a fair manner. There was no job loss even after completion of five years of conversion. The firm stand taken by the employees' associations under the leadership of the recognised employees association, National Federation of Telecom Employees and the progressive reciprocation extended by the management and government is to be followed by other organisations. The workforce of the organisation never opposed any technology change, modernisation and computerisation process realising the national and global environment. The workforce has been well informed of the ongoing process of modernisation, automation and computerisation in telecom technology all over the world and inculcated with the social responsibility of supporting such initiatives of the government through trade union education. While withstanding the moves of the government to high technology in telecommunication, the workforce has converted all such moves in protecting its interests by Cadre Restructurisation through training. Almost all the Group-C employees are computer literate and all executives are well trained in computers.

The mighty BSNL is earning good revenue\(^5\) as may be seen from the following Gross Revenue figures:

2001 - 2002  Rs.24,682 Crores.
2002 - 2003  Rs.25,893 Crores.
2003 - 2004  Rs.33,918 Crores.

2004-2005  Rs.26,000 Crores* subject to announcement

COMMITMENT OF EMPLOYEES AND EXECUTIVES

The Executives\(^6\) and employees of BSNL, having tied their prospects with the organisation, well know that their own growth and prosperity is very much inter linked with the growth and prosperity of BSNL. Therefore, they want BSNL to be financially viable, to make a rapid growth of its network and also upgrade the same. They want BSNL to provide varieties of new services and meet the expectation of the public and the customers to get superior quality telecom services at most affordable rates. They are committed to face any competition and want the BSNL to continue to be the leader in the Industry. In order to remain as a strong and viable competitor they are of the opinion that BSNL continue to remain as a Government run public sector undertaking and as such opposed to any idea of disinvestment of BSNL and consequent handing over of BSNL to private companies.

BSNL is almost 5 years old and have performed well and in fact going very strong. In the last five years the BSNL has already established itself very strongly in the competitive environment in spite of several odd elements. In the present competitive era of Telecom revolution, they are very well aware that only the fittest can survive, BSNL is the fittest with a set of 45000 executives on its side. While competitors of BSNL are working day and night to out slash its reputation, strength or quality, the employees and executives are extraordinarily vigilant and try their level best to avert the migration of customers
from BSNL. Having shown that this work force is capable of delivering the goods, the sole aim is to sustain the growth of BSNL to remain as the number one Telecom service provider in India. The technical team in each division requires strengthening besides technical training.

TRAINING POLICY OF BSNL

The company's goals and vision can only be met through the efforts of its employees. The company recognises that job satisfaction requires working environments, which motivate employees to be productive and innovative. The company's endeavour is to provide opportunities for employee training and development to maximise personnel potential and develop careers within the organisation.

The company is having 47 Telecom Training Centres comprising of three. Apex level Training Centres namely Advanced levels Telecom Training Centre (ALTTC), Ghaziabad, Bharat Ratna Bhima Rao Ambedkar Institute of Telecom Academy of Telecom Finance & Management (NATFM), Hyderabad.

During the year 2003-2004, a total of 91,083 (Ninety one thousand and eighty three) employees of the company were imparted training in three centre.

ALTTC, GHAZIABAD\(^7\)

Advance level Telecom Training Center (ALTTC) at Ghaziabad and Bharat Ratna Bhimrao Telecom Training Center at Jabalpur are comparable to
any world class Telecom Training Center. Moreover, 46 zonal training centers and a National Academy of Telecom Finance and Management have been running for several years. Different curriculum run in these centers to impart technology based training, training for Attitudinal Change, basic educational and skill development program etc. These centers are properly equipped with the requisite infrastructure facilities such as Lecture rooms, modern audio-visual aids, libraries, hostels etc.

Advanced Level Telecom Training Centre (ALTTC), Ghaziabad, BRBRAITT - Jabalpur, NATFM - Hyderabad, RGCTTC - Chennai, RTTC - Chennai, RTTC - Trivandrum and RTTC - Kalyani are ISO 9001-2000 accredited institutes of BSNL. ALTTC was set up as a joint venture of International Telecommunication Union, Geneva, UNDP and the Government of India in 1975. The Institute currently caters to the training needs of BSNL, Department of Telecom and Member countries of ESCAP and Asia Pacific Telecommunity.

BRBRAITT, JABALPUR AS COORDINATOR

The whole training process of Bharat Sanchar Nigam Limited is evolved and controlled by Bharat Ratna Bhim Rao Ambedkar Institute of Telecom Training, Jabalpur. The Telecom Training Centre which has been renamed as Bharat Ratna Bhim Rao Ambedkar Institute of Telecom Training (BRBRAITT) from 30th May, 1992 had its origin at Calcutta where it initially started functioning in the 1920's. During the Second World War, it was however, decided to locate it at Jabalpur where it commenced activities from
22nd April 1942. In the beginning the Training Centre was set up in the Telecom Factory compound at Wright Town, Jabalpur. Since this did not provide adequate space for conducting the training activities effectively, the Telecom Training Centre was shifted to a new building at Ridge Road, Jabalpur and the training activities started functioning in its new campus from 1956. Since then, BRBRAITT has made a continued effort to cater to the training needs of the Indian Telecommunication Department, other allied organisations and foreign participants.

Releasing the importance of the Telecommunications in building up of the nation with strong industrial base, Government of India has decided to make huge investment in the Telecom Sector. Apart from this with the process of liberalisation, the private sector has also been allowed to augment the efforts of the department in building the telecom infrastructure. With this a host of new technologies are expected to be introduced in the telecom network. In such a scenario the role of training cannot be ignored. BRBRAITT undertakes training in many of the high technology areas to the executives and employees of the organisation. BRBRAITT exercises technical control over fifteen Regional Telecom Training Centres, nineteen Circle Telecom Training Centres and thirteen District Telecom Training Centres spread over the country. Besides planning and ordering of Induction batches for JTOs and In-service batches BRBRAITT helps in the development activities of these training institutes. These Training Centres impart training to the Circle cadres up to the level of Junior Telecom Officers (JTOs) and also run some need based in-service courses. The main objectives of this institute are:
• To impart induction training to group A officers of department of telecom.

• To conduct seminars on latest technologies in fields of telecommunication.

• To conduct workshops on different topics concerning DOT.

• To review existing courses and develop new courses as per on the needs of the department of telecom.

• To exercise Technical control over all RTTC/DTTC/CTTC’s in the country.

• To conduct Field training programmes.

The Chief General Manager(Training), BRBRAITT, Jabalpur is the Training Coordinator of Bharat Sanchar Nigam Limited. Apart from building their infrastructure, the planning and ordering of the training is also being done by BRBRAITT, Jabalpur. The six training centre ALTTC-Gazhiabad, BRBRAITT- Jabalpur, NATFM-Hyderabad, RTTC-Trivandrum, RTTC-Kalyani and RGMCTTC-Chennai have been issued with ISO 2000:9001 standard certification. The key distinction of ISO 2000:9001 certification is that everything in such organisation is designed and used to satisfy the trainees, who are customers of the organisation.2

i. Regional Telecom Training Centre, Ahmedabad

ii. Regional Telecom Training Centre, Mumbai
iii. Regional Telecom Training Centre, Kalyani  
iv. Regional Telecom Training Centre, Lucknow  
v. Regional Telecom Training Centre, Chennai  
vi. Regional Telecom Training Centre, Mysore  
vii. Regional Telecom Training Centre, Nagpur  
viii. Regional Telecom Training Centre, Patna  
ix. Regional Telecom Training Centre, Rajpura  
x. Regional Telecom Training Centre, Hyderabad  
xi. Regional Telecom Training Centre, Trivandrum  
xii. Regional Telecom Training Centre, Pune  
xiii. Regional Telecom Training Centre, Jaipur  
xiv. Regional Telecom Training Centre, Bhubaneshwar  
xv. Regional Telecom Training Centre, Guwahati.

In addition to the RTTCs mentioned above, the Circle level and District level training centres are also functioning at the following places.

CIRCLE TELECOM TRAINING CENTRES

Ahmedabad, Bhopal, Bhubaneshwar, Calcutta, Jaipur, Jammu Tawi, Guwahati, Nasik, Kakinada, Lucknow, Mysore, Patna, Rajpura, Shillong, Trivandrum, SunderNagar(HP), Chennai, Kurukshetra (Haryana), Meerut(UP).
DISTRICT TELECOM TRAINING CENTRES

Ahmedabad, Bangalore, Mumbai (Bandra), Mumbai (Parel) Calcutta (Ranikutti), Calcutta (StrandRoad), Delhi, Hyderabad, Kanpur, Chennai, Pune, Jetpur and Tiruvilla.

TRAINING PLANNING

The training programmes outlined here are evolved to develop knowledge and skills of the employees of the organisation which are consistent with organisational goals and career plans. Organisational, Performance and Individual analyses are integral part of the planning process for identifying the training needs. Answers to the following questions are sought as a preliminary step in planning a complete training programme.

- What are the job requirements?
- What past training, job experience and/or education contributes to job performance?
- What performance deficiencies or problems could be attributed to a lack of knowledge and/or skills?
- What related job functions would be useful to know?
- In what areas is knowledge needed in order to develop potential for future assignments?
Answers to these questions provide sufficient information to identify training requirements. The following activities are performed as part of the planning process:

Step 1: Identify the areas in which training is needed.

Step 2: Determine which courses address those needs.

Step 3: Determine pre-requisites and ensure that they are met.

Step 4: Map out the appropriate sequence of courses to be taken.

Step 5: Document training planned and scheduled.

Step 6: Schedule of training.

TRAINING INFRASTRUCTURE

In the main building all the administrative offices, classrooms and laboratories etc. are housed. There are several faculties viz. Electronic Switching I (OCB - 283, E-10B), Electronic Switching -II (C-DOT, ILT, NEAX), Radio Transmission, Transmission lines, Telecom External Plant, Computer, ITMS. The technical faculties are supported by the three sections namely Programming, Works and Administration. There are 15 class rooms for lecture sessions fully equipped with facilities like overhead/slide projectors.

There are 66 laboratories for practicals. They are equipped with a wide variety of latest technology telecommunication equipments like OCB-283, E-10B, C-DOT 512P, ILT 512P, Digital Microwave, Optical Fibre, V-SAT, Digital UHF, EKB & EKBC, SFMS, Local Area Network, Pentium/486
computers, Window based PC software, Commercial service and other latest software.

The Support facilities for teaching/labs, available in the BRBRAITTT are:

i) A big library having about 32189 books and 236 technical journals.

ii) A Video lab equipped with soundproof studio, editing video and audio chain & Computerised video animation.

iii) Instructional Technology (I.T.) lab fully equipped with micro teaching equipment like Video Cameras, TV monitors, VCRs etc.

iv) Desk Top Publishing unit fully equipped with Computers, Laser Printers, Scanner, where the text processing of course material / handouts is done.

v) A seminar hall with a capacity of about 40 participants fully equipped with P.A. system, Video and Computer projector on a wide screen and slide/tape projector.

vi) Screening room with facility for projecting 16 mm films and video films with a capacity of 25 audience.

vii) An Audio Visual hall for bigger gatherings upto 200 persons for A/V programmes and cultural functions.

WORKING HOURS OF BRBRAITTT

The working hour of the BRBRAITTT is between 0900-1730 hrs, observing 5 days a week pattern. The working period of all the courses are
normally divided into 7 sessions consisting of classroom lectures, practicals, group discussions, film shows, library, field units and course validation.

ACCOMMODATION

The BRBRAITT, Jabalpur generally ensures furnished double/single room accommodation to the participants with all the basic amenities like provision of cot, bedding, blankets, mosquito nets and study chair, recreation and welfare activities. The trainees are accommodated in four hostels, as per availability. The information about hostel allotment to trainees is displayed at Gate No. 1 and respective hostels. In all these hostels, mess facilities are available, which are run by the trainees on self-management basis. A Post office and a P&T dispensary are also situated inside the BRBRAITT campus for the benefit of the trainees and staff. Branches of State Bank of India and Central Bank of India are available near the campus.

REGISTRATION PROCEDURE FOR THE COURSES

The Course Directory gives the necessary information about the various training courses planned to be conducted in the different RTTCs & BRBRAITT Jabalpur. The HRD officers of the Telecom Circles are requested to assess the training needs of their circles and submit to this office the consolidated requirements of seats for each course, for the entire year with specific remarks that how many candidates can be spared at a time for each batch. The requirement of seats from all Circles must reach this office before 31st December of every year. Seats are allotted to all Circles for each course
through separate allotment orders called 'A' Circular, which are normally released three months in advance to the actual dates of commencement of each batch. Circles may depute the participants for the respective courses after the fulfillment of various conditions as laid down in the allotment orders and confirmation of the nomination in 'B' Circular.

For trainees from other Departments and organisations in a fee of Rs. 10,950/- per trainee per week excluding boarding and lodging shall be charged. For foreign trainees a fee of U.S. Dollar 650 (six hundred fifty U.S. Dollar only) per trainee per week excluding boarding and lodging shall be charged. In addition, charges for boarding and lodging and study tours outside Jabalpur are also payable.

TECHNICAL JOURNAL

"TELECOMMUNICATIONS" is a prestigious technical journal of BSNL. It is being published by the Technical and Development Circle, Jabalpur since 1951. The Editorial Board consists of members from Technical and Development Circle and other Units of the Department. It is being managed from resources gained by way of selling the Journal at a nominal cost to both departmental and other units and individuals within India and abroad. The aim of the journal is to spread the knowledge of telecommunication technologies in the country. The articles are mainly concerned with telecommunication technologies or any connected activities. The articles are contributions from eminent people within and outside the Department, and are
generally based on their experiences. The Journal has a circulation of about 10,000 copies and is widely read within the country and abroad.


Jan-Feb. 2003
The institute plays a key role in human resource development for telecom services. To make the training effective, a good infrastructure of well equipped laboratories with experienced teaching staff has been provided. The equipments are in live condition and the trainees are free to handle the same to have clear concepts about the working of the system. It is always endeavoured that the personnel trained should gain such knowledge and skill that they are in a position to install, operate and maintain the systems without any difficulty after completion of the training. Keeping in view the rapid development in telecom technologies throughout the world, new labs are being added to the training center. These are installed and commissioned by the faculty members. A Sub Divisional Engineer with the help of Junior Telecom Officers maintains each lab. Details of laboratories in each faculty are as follows:

**Electronic Switching-I**

E-10B Training Model Exchange with OMC (MITRA 225).
A full fledged exploitation lab with 12 TTYs.
ISDN Lab.
OCB-283 Training model Exchange Lab.

**Electronic Switching-II**

Subscriber Apparatus
Digital lab
Fundamentals of Electronic Exchange
Battery and Power Plant
Air conditioning
Engine lab
MILT-64 P
C-DOT 128 port
C-DOT 512 port (SBM)
ILT 512 port
ITEX
C-DOT MBM
C-DoT 256 port
Transmission Faculty
Microwave
UHF
Coaxial Cable
Coaxial Multiplexing
Openwire carrier and VFT
Optical fibre Cable & System.
V-SAT lab
PCM lab
MARR lab

Computer Faculty
Desk Top Publishing Lab
PC Hardware
Data Communication
First Computer lab
Second Computer lab
Third Computer lab

TRAINING AND OTHER ACTIVITIES

BRBRAITT, Jabalpur is imparting training in telecommunication technology, administrative and financial management to mainly Group 'A' & 'B' Officers of the Department of Telecommunications. In addition ADET Probationers, which is an entry, level for Group 'A' Officers of Indian Telecom Service are also imparted basic and specialisation training in this institute. Apart from above, the institute is also partly imparting training to Junior Telecom Officers and Junior Accounts Officer in order to augment the efforts of Regional Telecom Training Centres in meeting the huge training requirements of Department in these cadres. Personnel from foreign countries and other departments of Government of India including public sector undertaking are also trained in different areas of telecom. There are basically
two types of training courses i.e. induction and in-service. Induction courses are for imparting training to the newly recruited staff in various areas of telecom and as such these are pre-recruitment programmes. The in-service refresher training courses, both institutional as well as field training programmes are meant for upgrading the knowledge and skills of the departmental personnel already working in various fields of telecom. In addition BRBRAITT, Jabalpur is also conducting seminars and workshops on highly technical as well as management subjects for Sr. Administrative Grade and Junior administrative Grade level officers. In addition to the above training activities several other welfare and recreation activities like cultural programmes, tournaments, sports etc. are also being organised by this institute regularly.

TRAINING PROGRAMMES FOR TRAINERS

The success of any training programme is dependent on the persons who perform the training task. Trainers are to be innovative as well as to inspire the trainees to greater achievements. A group of well trained trainers could form the nucleus around which the entire training effect of the organisation can be built. Since the training of trainers is a major factor in the system and needs to be done systematically and consistently, BRBRAITT arranges training programmes for trainers regularly.
1. **For Lecturers/Instructors**

   Effective Communication in Class Room/Laboratory, Procedure for checking and operating A V aids, Conduct group exercises, Post course evaluation. Micro teaching, Multi Media Presentation. T.D.G. Guidelines, Coaching, Discussion leading, Mirco Teaching Practice, Questioning Techniques.

   **Duration:** Two weeks. Level of Participants: Lecturer, Instructor from CTTC, DTTC, RTTC, JTO/JAO & above level.

2. **Refresher in Instructional Technology**

   Learning Techniques, Effective Communication in class room/Laboratory, Course Development Method under TGD, Questioning Techniques, Micro Teaching Lesson, Coaching & Discussion Leading.

   **Duration:** One week. Level of Participants: Lecturer, Instructor from CTTC, DTTC, RTTC, JTO & above level.

3. **Instructional Techniques for Lecturers/Instructors**

   Effective Communication in Class Room/Laboratory, Procedure for checking and operating AV aids, Conduct group exercises, Post course evaluation, Micro teaching, Multi Media Presentation Coaching. Duration: Two weeks. Level of Participants: Lecturer, Instructor from CTTC, DTTC, RTTC below JTO level.
4. **AV AID**

OHP, LCD Projector, Power Point presentation, Operation of Video Camera and replay on Screen (TV), VDL systems its principal & utility in distance learning. Duration: One week. (Three Days). Level of Participants: Lecturer, Instructor from CTTC, DTTC, RTTC of any level.

5. **Course Development**

TGD Guidelines and use of different formats M1 to M7, Checking and study of forms by participants and how to use, Trainee should decide the topic of course they want to develop and process according to guidelines & prepare one lesson, Preparation of lesson and submission. Evaluation by trainer and trainee by exchanging the prepared lesson. Duration: One week (Three Days). Level of Participants: Lecturer, Instructor from CTTC, DTTC, RTTC, JTO & above level.

**TRAINING ACTIVITIES**

The training programmes are broadly classified into three on the nature of the training. They are, Induction Training, In-Service Training and Field Training programmes.

a) **Induction Training**

The induction training is imparted in various disciplines for the newly recruited staff as a pre-job training. The cadres for which the training is given in the training centre are ADET (Probationers), Asst. Manager (Probationers)
(Telecom Factory), Junior Engineers (Telecom Factories) and Junior Accounts Officers.

b) **In-service Training**

The purpose of in-service training is to give the necessary knowledge and know how about the new systems/technologies inducted into the network from time to time. The institute offers in-service training in latest technologies and techniques. JTO specialisation batches conducted are a part of in-service training. The courses are monitored continuously and the utility of these in-service courses is assessed from time to time and courses which are not in demand are weeded out and new courses are introduced.

c) **Field Training Programmes**

Considering the need to update the knowledge and skills of the technical maintenance personnel in specific disciplines of technology from time to time, a system of short-term practical oriented training programmes has been developed by this institute. For conducting these courses the trainers go to the field stations. These programmes called Field Training Programmes (FTP) are for a maximum of 5 days duration and conducted with the help of the equipment available in the field. Besides training the lower staff on job, this also helps the trainers getting acquainted with the day-to-day problems in the field, which can later be taken care of in the training modules being developed in the Training Centre.
IN-SERVICE COURSES ON ELECTRONIC SWITCHING

The In-service training programmes are sorted according to the subject content of the course such as Switching, Transmission, Computer and Accounts. The following are the In-services courses conducted by the training centres on Electronic Switching Telecommunication Technology.

1. **CB Familiarization**

   Basic functional architecture, hardware details of the system, ISDN & CCS#7 signaling in brief. Duration: one week. Pre-requisites: Participants should be trained in FEE. Level of Participants: JAG / SAG.

2. **OCB-283 (Installation, Operation and Maintenance)**

   Installation, operation and maintenance of OCB-283 switches. The course covers the topics like hardware structure of control stations and interface units for subs-services and circuits, hardware and software installation, Routine exchange maintenance and administration, exploitation of CCS - 7 Signaling, TI/PGS and data terminals for operation maintenance, software loading, system startup, all acceptance testing and commissioning. Duration: Five weeks. Level of Participants: JTOs and above.

3. **OCB-283 Maintenance**

   This course aims at providing basic overview of the OCB-283 system architecture the special features provided by the system and day-to-day operation and maintenance activities required to be carried out. In addition,
maintenance routines required to be carried out will also be covered. Duration: Three weeks. Level of Participants: JTOs and above.

4. **C-DOT MBM (I)**

Installation, operation and maintenance of C-DOT-MAX Digital Switching system. The course deals with XL Hardware & latest software version. The topics covered are, system and hardware architecture; call processing; installation of SBM and MBM exchanges. Data creation; software overview; equipment planning; man-machine communication; Exchange administration; maintenance procedures, testing diagnosis and system reconfiguration and RSU overview. Introduction to CCS#7 signaling, Application of CCS#7 & ISDN in C-DOT, introduction to Exposure is also given on SBM Training Simulator developed by C-DOT. Duration: four Weeks. Level of Participants: JTOs and above.

5. **C-DOT MBM (U)**

The course objective is to upgrade the skill of the officials trained in the installation, operation & maintenance of C-DOT SBM Exchanges to C-DOT MBM exchanges. Course deals with XL Hardware & latest software. Topics covered are review of C-DOT SBM principles, hardware architecture of the Central module, installation of MBM Exchanges; Data creation, Exchange Administration & maintenance, call processing; RSU Overview, Introduction to CCS#7 & ISDN, Application of CCS#7 in C-DOT, Introduction to IN. The participants get hands-on practice on PC based SBM Mtce. Simulator developed by C-DOT. Duration: two weeks. Level of Participants: JTOs and above.
6. **CCS#7, ISDN, IN in C-DOT AND OCB.**

   Concept of CCS#7, MTP, ISUP, SCCP, TCAP & MAP, IN Services, Call Processing, V 5.2 Protocol ISDN Protocol, C-DOT & OCB SSP. Duration: two weeks. Level of Participants: JTOs and above.

7. **Integrated Course on CCS#7, ISDN, IN & MOBILE**

   Concept of CCS#7, MTP, ISUP, SCCP, TCAP & MAP, IN Services, ISDN Protocol, Mobile. Duration: one week. Level of Participants: JTOs and above.

8. **Course on DLC/DIAS/V5.2**

   Emphasizing the advantages of connecting the access system from PSTN. Duration: two days. Level of Participants: JTOs and above.

9. **IUC**

   The Principles laid down to workout the proportionate charges for different Network vendors. Duration: two days. Level of Participants: JTOs and above.

10. **GSM Introduction**

    The course on GSM deals the latest advancement in the field of Mobile Telephony including the principle and architecture of latest technology subjects of GSM. Duration: one week. Level of Participants: DEs, SDEs and JTOs.
11. New Tech IN

Concept of IN based on ALCATEL platform covering IN architecture and services. Duration: two days. Pre-requisite: Trained in any Digital Electronic systems, JTOs and above.

12. GSM & Access Network

This course covers the concepts of MSC based on 5ESS Lucent Technology, BSC,BTS and OMCR Terminal. Duration: one week. Level of Participants: DEs, SDEs and JTOs.

13. Familiarization of Cor-DECT WLL System

A course on familiarization of Cor-DECT WLL. This course covers the principle, Architecture and troubleshooting of Cor-DECT WLL technology. Duration: one week. Level of Participants: DEs, SDEs and JTOs.

14. Upgradation Of External Plant

A course on up gradation of external plant. This course will enable the participants to improve/enhance his knowledge about the external plant. Level of Participants: DEs, SDEs and JTOs. Duration: one week.

15. GSM (5 ESS)

A course on GSM. The course deals the latest advancement in the field of Mobile Telephony including complete details of MSC, BSC and BTS along
with the MS. Level of Participants: DEs, SDEs and JTOs. Duration: three weeks.

16. **O&M of BSS in GSM (5 ESS)**

   The course deals the latest advancement in the field of Mobile Telephony including complete details to do the operation & maintenance of Lucent based BSS, BSC and BTS along with the Mobile Station. Level of Participants: DEs, SDEs and JTOs. Duration: two weeks.

17. **GSM Switching System (5 ESS)**

   The course deals with O&M of MSC based on 5ESS technology. This also includes introductory parts of GSM System along with the MS. Level of Participants: DEs, SDEs and JTOs. Duration: two weeks.

18. **GPRS (GENERAL PACKET RADIO SYSTEM)**

   A course on GSM GPRS covers the process of Packet Switching in GSM Technology including billing & customer care. Level of Participants: DEs, SDEs and JTOs. Duration: four days.

19. **IO&M of Cor-DECT WLL System**

   Introduction to WLL & cor-DECT, Description of DIU, CBS, BSD, RBS, OMC, WSIP, FRS, MWS, Cor-DECT deployment & RF survey, NW design & deployment, subs creation, Trunk & Routing, system dimensioning in Cor-DECT, IP network & configuration, Billing Backup procedure,
R2MF/V5.2 interface in cor-DECT. Level of Participants: DEs, SDEs and JTOs. Duration: two weeks.

20. **Re Engineering & Optimization**

A refresher course covers RF Engineering, Planning and Optimization of GSM Technology network. Level of Participants: DEs, SDEs and JTOs. Duration: three days.

21. **WLL Familiarization**

Introduction to WLL Cor-dect wireless access system, features at a glance, Air interface, link budget, cell planning, operation & MTCE, billing, IP NW & configuration, introduction to CDMA WLL, feature road map etc. Level of Participants: DEs, SDEs and JTOs. Duration: one week.

**IN-SERVICE COURSES ON TRANSMISSION TECHNOLOGY**

**Optical Fibre Cable**

The course covers the installation and maintenance of fibre cable route and includes the topics like principles of fibre optics characteristics, optical connectors, splices, fusion, splicing, OFC cable laying, Testing and Fault Location by O.T.D.R., Optical Light Source, Power Meter, Optical detector, Attenuator, 8 Mb OLTE, 2/140 Mb Optimisation, Introduction to FILL, SDH & GSM. Duration: two weeks. Participant Level: DE /ADET/SDE/JTO.
FIBRE OPTICAL SYSTEM

The course includes the topics like, introduction to OF Cable, Operation of Digital Transmission Analyser, H.O. Mux Equipments & OLTE of OPTEL & NEC MAKE, 140 Mb Combimux (ITI), 2/140 Mb/s Optimux (HFCL & Crompton Greaves), 8 Mb OLTE (MAC), 140 Mb (Natelco), Introduction to SDH & GSM. Duration: three weeks. Participant Level: DE/ADET/SDE/JTO.

Measuring Instruments

The course will enable the participants to use the following Testing Instruments and conduct various tests on the respective systems. The instruments are: M/W Power & Frequency Meter, VSWR Meter, Spectrum Analyser, Digital Transmission Analyser, SDH Analyzer, OTDR and Optical Power Meter. Duration: one week. Participant Level: SDE/JTO.

Rural Communication

The course contains, introduction to rural communications, traffic theory modulation techniques, Link engineering, transmission systems used e.g. Single Channel VHF, Digital MARR and LCRs Rural communication through VSAT and other latest technology systems like OFC, Cellular Radio etc and introduction to GSM. Duration: two weeks. Participant Level: SDE/JTO
SDH System

The objective of the course is to familiarise the participants, with the installation & testing of equipments based on SDH. The topics covered in the course are: Overview of optical fibre communication, review of PDH MUX, introduction to SDH, principle of SDH mapping & multiplexing, SDH network elements and topology, SDH optical interface, telecom management network, local craft terminal, and element manager, transport network architecture based on SDH, ATM communications technology, SDH measurements, SDH Analyser, DOT plans and introduction GSM. Duration: two weeks. Participant Level: DE/SDE/JTO.

Introduction DWDM

The course deals with introduction of B-ISDN, development of optical transport network technologies of present and future, optical amplifiers, SDH mapping & multiplexing, ATM cell transmission, optical data networking & theory of fibre optics in concern to the DWDM. Also, 8 channel WDM system and its testing & introduction to GSM. Level of Participants: DGM/DE/SDE/JTO. Duration: one Week.

Leased Line & MLLN

The objective of this training is to know about the working of MLLN System their configuration, dimensioning, Installation operation & Maintenance. Introduction of MLLN, Physical description of MLLN Systems, Dimensioning, Network hardware, NMS, Duration: one week.
Level of Participants: DE/SDE/JTO. Prerequisites: Participants should be working in this field or likely to be posted in this field in future.

Table 5.3 **ENTRY CRITERIA FOR INSERVICE COURSES**

<table>
<thead>
<tr>
<th>O/F Cable</th>
<th>2 Weeks</th>
<th>Working or likely to work in O/F Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>O/F System</td>
<td>3 Weeks</td>
<td>Trained in PCM</td>
</tr>
<tr>
<td>Dig. UHF System</td>
<td>2 Weeks</td>
<td>Trained in FDT</td>
</tr>
<tr>
<td>M/W Instruments</td>
<td>2 Weeks</td>
<td>Trained in Transmission Specialisation</td>
</tr>
<tr>
<td>T.D.M. VFT System</td>
<td>1 Week</td>
<td>Trained in PCM</td>
</tr>
<tr>
<td>Rural Telecom</td>
<td>2 Weeks</td>
<td>Having background of Transmission Fundamentals</td>
</tr>
<tr>
<td>2/15 SRS (ARM)</td>
<td>1 Week</td>
<td>Working or likely to work in this system</td>
</tr>
<tr>
<td>4/30 MARR</td>
<td>1 Week</td>
<td>Working or likely to work in this system</td>
</tr>
<tr>
<td>Dig. M/W Systems</td>
<td>4 Weeks</td>
<td>Trained in PCM preferably completed analogue M/W</td>
</tr>
<tr>
<td>Dig. CXL</td>
<td>2 Weeks</td>
<td>Trained in PCM or working in Dig. Coaxial</td>
</tr>
<tr>
<td>Trans P/P</td>
<td>2 Weeks</td>
<td>Officers working in Instln. &amp; Mtce. of Trans. Equipments</td>
</tr>
<tr>
<td>V-SAT Familiarisation</td>
<td>3 Wkg. Days</td>
<td>Cadres of DE/SDE/JTO</td>
</tr>
<tr>
<td>2 GHZ Digital System</td>
<td>1 Week</td>
<td>Working or likely to work in installation &amp; Mtce. of 2 GHz DPs.</td>
</tr>
</tbody>
</table>

**IN-SERVICE TRAINING PROGRAMMES ON COMPUTERS**

1. **P.C. Hardware Maintenance**

   - PC Principles and PC H/W Configuration.
   - Evaluation of Processor
   - H/W components, connectors, cable & connecting cards.
   - Floppies & Floppy Drive Subsystems
   - HDD Subsystems, Memory & its characteristics.
• Operating System & DOS/windows booting CMOS BIOS
• Dismantling and Assembling of a PC
• Power supply requirements, Printers, Key Board & Mouse
• Display sub system, Up gradation of PC, Modem
• LAN Hardware, Selection of PC, Trouble Shooting
• Internet Overview and Demo

**Duration**: two weeks. Level of Participants: JTOs and above.

2. **UNIX/LINUX Familiarization:**

• Introduction and Overview of Unix
• Unix Basic Commands, VI editor
• Unix Files, Directory Structure & Permissions
• Copying, Printing commands, SCO Shell
• Unix/Linux Concepts
• Unix Communication Utilities, UNIX in C-DOT
• Understanding the Linux file & Directory structure.
• Common file management tasks.
• Using the GNOME interface.
• Essential Linux commands from command prompt.
• Using the vi editor, Using Internet Services.

**Duration**: one week. Level of Participants: JTO's/IAO and above.
3. **ORACLE**:

- RDBMS Concepts, Getting started with SQL*PLUS
- Create, Alter, Drop, Select, Insert, Update, Delete
- Commit, Rollback, Savepoints
- Range Searching, Pattern Matching
- Joins, Constraints, Views, Index, Synonyms, Sequences
- PL/SQL Program Structure
- Control Flow, Exception, Triggers, Cursors
- Procedure, Functions, Packages, SQL *FORM
- SQL*REPORT

*Duration*: two weeks. Level of Participants: JTOs/JAOs and above.

4. **NIB - II**

The course includes Concepts of Data Communications, IP Addressing & routing protocols. It covers MPLS-VPN Backbone of NIB-II & operation & Maintenance of equipment of NIB-II Project 2.1 Narrowband & NIB-II Project 2.2 Broadband. Duration: One week. Level of Participants: JTOs and above.

5. **Office Automation (For Group ‘B’ & above)**

- Introduction to Win 95/98 and its features.
- Introduction to Word & its Features
- Advances Features of word (Mail Merge, Word Art, Clip Art, Template, Wizards, Columns, Tables etc.).
• Introduction to Excel and its features.
• Advanced Features of Excel (i.e. Formula, Graphics etc.)
• Introduction to Power Point and its features.

6. Overview on Internet and Internet access, E-mail

The basic requirements to operate Internet, Web accessing and e-mail browsing are taught in this course.

Duration: one week. Level of Participants: Group ‘B’ and above.

7. Data Communications And Ip Based Networking
• Data Communication Overview
• OSI Layers, TCP/IP, Packet switching.
• LAN Technologies, N/Wkg Elements.
• FRAME RELAY, ATM<, X.25, PAD
• Implementation of IP based Networking with specific NOS
• Network Planning, Security, Firewall implementation
• Overview on Internet Services, Mail, FTP, Telnet
• Intranet Concept & facilities, Network Management System.
• Quality of Services (QOS), Network optimization.

Duration: two weeks. Level of Participants: JTO/SDE/DE and above.

8. Windows NT

• Introduction to Networks & Windows NT
• Navigation & Exploring Win NT
• User accounts & Access Mgmt, Files & Directory
• Management File Server & Print Server
• Understanding RAS & TCP/IP
• Installation of Window NT Server & configuration
• DHCP/WINS
• File Backup & Recovery
• Configuration of Fault Tolerance
• Domain Security & Auditing
• Internet Information Server (IIS)
• Server performance, Monitoring & Tuning, Trouble shooting

**Duration**: two weeks. Level of Participants: JTO / SDE and above.

9. **New Technology Familiarisation**

Packet Switching Data Communication and Networking Internet, Intranet, DIAS, VOIP, ISDN, Video conferencing IN, CENTREX, ATM, Frame Relay, V5.2 DLC, ANRAX (all the application of V.5.2) SDH, WDM, DWDM, Broad Band Services, VPN, MPLS, CDMA, WLL, CORDECT, GSM, WAP, GPRS/EDGE, WLAN, Blue Tooth concept. **Duration**: one week. Level of Participants: JTO/SDE and above.

10. **UNIX / LINUX Administration.**

• UNIX overview, Administration Basics, Design of UNIX OS
• Start up and Shut down, User management.
• Print Services, Environment Variables.
• Process Management, Backup & Recovery.
• Shell Programming, Installation, Configuration.
• Applications under UNIX, LINUX Introduction.
• Installing Linux Server, Linux file system Management
• User and group administration
• Configure work station for common network services.
• Configure GNOME, and KDE
• Memory and process management, Backup & Restore
• Perform basic trouble shooting.

**Duration**: two weeks. Level of Participants: JTO / SDE and above.

11. DOTSOFT

• DOTSOFT Intro
• Commercial Master, New lines, P T registration.
• Commercial working lines, Level change, area transfer
• All India transfer and shifts, A/N cancellation
• Networking concept of dotsoft, over view of TRA
• Trunk Phonograms, International trunk entry.
• LCC processing stage wise, PTs & non PTs
• AO authorisation, AO to CO clearance, verifying Demand Note.
• Online, Offline payments, receipt and cancellation
• Bill Processing, Stage wise adjustment PTs and non PTs
• Rept classification & Misc Bills
• Ringing list generation, disconng / closure / reconn.

**Duration**: Two weeks. Level of Participants: JTO / JAO/SDE/AO/DE and above.

12. **Building Intranet On Linux Platform**

• Computer Network hardware components, Networking principles and Technologies.

• IP addressing schema and sub netting.

• Intranet Services

• LINUX Concepts, Startup & Shutdown, File system, User Mgmt.

• Installation of Configuration of LINUX Server

• Configuration of LINUX for Web, FTP, DNS Services.

• Administer the Linux Server (System Monitoring, Security)

• Backup and Recovery, Database Service, Setting up Intranet.

**Duration**: two weeks. Level of Participants: JTO/SDE/DE and above.

13. **Building Intranet On Windows 2000 Platform**

• Networking, and Intranet concepts.

• TCP / IP, IP Addressing and sub netting.

• Windows 2000 server overview, User accounts

• Installation, Configuration of Windows 2000 server

• Virtual Directory and Virtual Site concepts on IIS

• Configuration of Web, FTP Services with IIS
• Configuration of Other Services like DHCP, DNS, Intranet Concept

Duration: two weeks. Level of Participants: JTO/SDE/DE and above.

14. Broad Band

• Introduction to Broadband Network and Services.
• Broadband Deployment through NIB-II
• NIB-II Features
• Broadband access network components and features
• Implementation Case Study
• Customer Premises Equipments
• Marketing of Broadband services
• DoT Broadband Policy
• Future plans of BSNL

Duration: one week. Level of Participants: JTO and above.

15. DIAS

Installing & Testing DIAS equipments V5.2 Layer, Implementation of V5.2 in OCB, C-DoT ISO OSI Layer, Equipment associated with each layer Subs premises equipments, NT, Tel Line, Modem V35, G703, ASM-20, Router Configuring router for use in Internet. HW architecture of DIAS, Lifeline description, Subs management, Subs facilities, Charging, Billing, Installation, DSLAM, Broadband, Field problems. Duration: One week.
COURSES ON ACCOUNTING AND MANAGEMENT

Management Of Works Accounts

This course covers the topics like checking of estimates; control and allocation of expenditure, contribution works and completion reports etc. Duration: one week. Level of Participants: AO/AAO/JAO

Tendering Procedure and Evaluation

This course covers the topics like, procedure in connection with evaluation and acceptance of tenders; Legal aspects and arbitration clauses etc.

Duration: One week. Level of Participants: Group 'A' & 'B' in Tech./Accounts.

Refresher Course for Drawing And Disbursing Officers

The course contains the topics like, pay billing, income tax, court attachment, Advances-Interest bearing / Non Interest-bearing including HBA and GPF, Checking and settlement of personal claims. It also includes classification, cash book maintenance, non-cash transaction, cash account current, store account current and Bank reconciliation Test. Duration: one week. Level of Participants: Sr.AO/AO/AAO/JAO.

BSNL Accounting Policies & Procedure

The course contains the topics like Fundamentals of Book keeping & Accountancy under Double Entry System. Preparation of cash book, Bank

Finance Course For Technical Officers


Business Development

Business Development concept and Customer relationship management, customer value analysis etc. Duration: two days. Level of Participants: JTOs and above.

Sales Promotion

Sales promotions, Strategy, Need analysis, Marketing Communication & Marketing model, Organisation inputs & sales promotion tools, Communication & persuasions planned selling, different approaches of sale promotions and advertising vs sales promotions, Motivational selling
distribution strategy, event mgmt corporate premium product strategy, attitude formation sales training system. Duration: two days. Level of Participants: Group 'B' Officers, Group 'C' and above Non-Tech. Officers.

**Personality Development**

This course will enable the participants to improve/enhance his personality skills, self-confidence with competitive skills in the present competitive environment of corporate working culture. Level of Participants: DEs, SDEs and JTOs. Duration: three days.

**Marketing**

This course covers the concepts of Marketing, sales and business development, Telecom Marketing Environment, Marketing Research and Call Centre, Competitive Telecom Marketing Strategy, (BSNL v/s MTNL v/s Private operator) and Customer Relationship Management with case study of BSNL Marketing Strategy and MTNL Marketing Strategy. Level of Participants: DEs, SDEs, JTOs, JAO, AO and CAO. Duration: four days.

**Behavioural and Attitudunal Training**

This course will enable the participants to improve/enhance his personality skills and covers the concepts of Attitudinal and Behaviour, Effective Communication, Dealing with Customer, Teamwork and role-play, Image building and role identification, Telecom services and facilities offered,
Cleanliness at work place and Fire fighting. Duration: One week. Level of Participants: Group 'C' and above in BSNL.

NATFM - HYDERABAD

National Academy Telecom Financial Management (NATFM), Hyderabad is the apex level management institute of BSNL established with the objective of becoming the leading resource centre for telecom studies and learning in the Asia-Pacific region. It conducts regular training courses formulated by BRBRAITT, Jabalpur and designs and develops suitable training modules for different levels and cadres by conducting training need analysis on continuous basis and implements them with the approval of BRBRAITT, Jabalpur. It also conducts training programmes for trainers of various telecom-training centres of BSNL.

NATFM has so far conducted more than 150 courses, workshops and seminars since inception, click for detailed Course Inventory. All the courses could bring participants working in various BSNL offices and field units all over India. In the international level NATFM has taken the challenges of training of executive of two batches of Bhutan Telecom, Royal Government of Bhutan in the third year of its functioning. Also has undertaken the task of designing and delivering the Induction Training of Junior Accounts Officers of MTNL (Mahanagar Telephone Nigam Limited), a public sector enterprise, in the same year and successfully completed the training. The primary courseware for the training of Junior Accounts Officers of BSNL "BSNL Accounts and Finance" is designed and developed by the-in-house faculty of NATFM.
Welcome to e-Campus
TRAINING CENTRE FOR TAMILNADU CIRCLE

Rajiv Gandhi Memorial Circle Telecommunication Training Centre (RGMCTTC), Meenambakkam, Chennai caters the training needs of the executives and employees of BSNL working in Tamil Nadu Circle and trainees deputed by other Circles as on the orders of BRBRAIITT, Jabalpur. The fraternity consisting of executives and employees avows to provide quality training to all its customers to face the challenges in Telecom and IT sector and to ensure optimum utilisation of its training resources. RGMCTTC aims to be an institute of excellence through continual improvement. For this every faculty and staff of RGMCTTC are committed to adhere ISO 9001:2000 standards and will demonstrate its compliance in all spheres of activities. Aspiring to achieve Global standards in Telecom and IT Training and developing Confidence, Competence and Commitment of Human Resource through training are the vision and mission of the RGMCTTC.

The training policy is to deliver quality courses and endeavor to provide excellent course content, quality presentations, handouts and congenial classroom environment. The training capacity is twelve simultaneous batches on an average.

Apart from the training programmes formulated by BRBRAIITT, Jabalpur and sent for implementation in RGMCTTC, this training center can identify the training needs of the Tamil Nadu Circle, which includes Pondicherry Union territory and conduct them with the approval of BRBRAIITT, Jabalpur. Since all training centers could not design training
programmes for all the new telecom technologies coming in all over the world, training centers are free to formulate specialised trainings satisfying the conditions laid down and subject to the availability of necessary infrastructure.

**Specialisation of RGMCTTC in C-DOT Technology**

RGMCTTC is specialised training center for C-DOT technology. The importance of C-DOT telecom technology is the indigenous technology developed by Centre for Dotmatrics under the leadership of Sam Pitroda with the encouragement and inspiration of former Prime Minister Rajiv Gandhi. The special feature of C-DOT technology is it is best suited for rural Indian environment conditions, which can even cater to a customer base less than hundred. Topics on maintenance testing and fault diagnostics are also covered. Emphasis is placed on the use of man-machine communication through lecture and a number of hands on practice sessions. After completion of the courses, the trainee will be able to- Maintain CDOT SBM, CDOT SBM XL, CDOT MBM telephone exchanges. The participants should be SDEs and JTOs and who have completed the course on Fundamentals of Electronic Exchanges.

**e- Learning in e- CAMPUS**

Apart from conducting all courses relating to Telecommunication technology as per the training schedule ordered by the BRBRAITT, Jabalpur, RGMCTTC is well equipped with the latest infrastructure of computer labs, web center etc. The training center conducts various Computer courses such as Unix, Oracle, Visual Basic, Internet, and Intranet including E-Learning. Hence
it is named as e-Campus. e-Learning is a smart step in the direction of making distance learning effective, interesting and fun. If you tell me I’ll forget, If you show me I’ll remember, If you let me work I’ll learn. Learning at the trainee’s own time, Place and Pace are unique features of training. Broadband, GSM Technology and Networking are the training programmes available in the e-learning intranet developed by the RGMCTTC. Employees of BSNL are free to log in and learn the above courses by interactive tools. Certificates are also issued after passing the tests online.

CHENNAI TELEGRAPH TRAFFIC DIVISION

Telegram is a common man's communication need. The first telegraph message was transmitted live on Morse through electrical signals between Calcutta and Diamond Harbour on 5th November 1850. The Telegraph services were opened to public during February 1855. To implement modern technology in the telegraph network a National Message Switching Network Plan was prepared in 1986. The growth of Telegraph services has been affected owing to the impact of other non-voice services and improvement in density of telephones, nevertheless the service has social relevance and historical importance. All the cities (300) and towns (4689) as per 1991 census and a large number of villages have access to Public Telegraph Services through Telegraph Offices. Telegraph services are being provided through Telegraph offices, Telecom Centers and Bureau FAX centers. A number of new types of telegraph services such as Store & forward message switching system, electronic keyboard concentrator, electronic teleprinters and formatted terminals have
been introduced. Apart from the facility of booking of telegrams, following services are also offered in some Telegraph Offices:

- FAX Service is available at many selected telegraph offices for national and international outgoing and incoming messages
- A new class of telegram "Fax Telegrams" is available for public.
- Booking of telegrams on phone/Telex.
- Delivery of telegram over Telex /Phone if the same is specified in the address of the telegram.
- Delivery of telegrams through Fax, if the telegrams contain fax numbers in the address.
- Internet browsing counters are available in some of the Telegraph Offices such as, Central Telegraph Office, Anna Road and Ethiraj Salai.

**Importance of Chennai Central Telegraph Office**

The Central Telegraph Office is the head office of Chennai Telegraph Traffic Division functioning at Rajaji Saalai, Chennai opposite to Beach Railway Station. The Central Telegraph Office, Chennai plays a vital role in providing telegraph services to the society. The Stored Forward Message Switching Systems (SFMSS) installed and functioning in Central Telegraph Office, Chennai is the Computerised Telegraph system, which receives, stores and forward telegraph messages to the required destination. Chennai SFMSS is the only one system, which is routing all Foreign Telegraph messages received
from the telegraph offices of the country meant for foreign countries and vice versa through the International Gateway available at Videsh Sanchar Nigam Limited. The Chennai SFMSS system is interconnected with SFMSS systems available in other metro cities Calcutta, New Delhi and Mumbai and routes the messages to a required SFMSS system. In case of any failure in any one or two systems messages can also be diverted through this system. The Chennai SFMSS system routes the messages received from all over Tamil Nadu and Ponicherry Union Territory to other places of the country and vice versa.

The following Branch Telegraph Offices available throughout Chennai and Chengalpattu and Thiruvellore Districts are under the control of Chennai Telegraph Traffic Division.

**List of Telegraph Offices**

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Name of the Place</th>
<th>Sl. No</th>
<th>Name of the Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adayar</td>
<td>20.</td>
<td>Perambur</td>
</tr>
<tr>
<td>3.</td>
<td>Ambattur</td>
<td>22.</td>
<td>Poonamalli</td>
</tr>
<tr>
<td>4.</td>
<td>Anna Nagar</td>
<td>23.</td>
<td>Royapettai</td>
</tr>
<tr>
<td>5.</td>
<td>Anna Road</td>
<td>24.</td>
<td>Koyambedu Market</td>
</tr>
<tr>
<td>6.</td>
<td>Avadi</td>
<td>25.</td>
<td>Sowharpet</td>
</tr>
<tr>
<td>7.</td>
<td>Central Railway Station</td>
<td>26.</td>
<td>St.Thomas Mount</td>
</tr>
<tr>
<td>8.</td>
<td>Egmore</td>
<td>27.</td>
<td>Tambararam</td>
</tr>
<tr>
<td>10.</td>
<td>Guindy</td>
<td>29.</td>
<td>Thiruvotriyur</td>
</tr>
<tr>
<td>11.</td>
<td>ICF</td>
<td>30.</td>
<td>Vadapalani</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>12. IIT Campus</td>
<td>31. Washermanpet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Kilpauk</td>
<td>32. Central Metropolitan Bus Terminus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Mambalam</td>
<td>33. Manali</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Mylapore</td>
<td>34. Ennore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. MET Centre, Nugambakkam</td>
<td>35. Chengalpattu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Nanganallur</td>
<td>36. Kalpakkam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Pallavaram</td>
<td>37. Kancheepuram</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Park Town</td>
<td>38. Sriperumpudur</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Chief Superintendent is the Head of the Office under the control of Chief General Manager, Tamil Nadu Circle, Chennai - 600 002. The following is the staff strength of Chennai Telegraphic Traffic Division as on 31.3.2005.

**Executives**

- Group A Officers: 4
- Group B Officers: 35

**Employees**

- Group C Employees: 1169
- Group D Employees: 72

**Total**: 1280

**Vital Role of Executives**

The technical operations and maintenance of the SFMSS system and connected systems available in the telegraph offices of Chennai, Thiruvellore and Chengalpattu districts are manned by the technical executives of the
Chennai Telegraph Traffic Division. The executives are assigned with the human resource management of entire workforce of the Division. Hence continuous updating of knowledge and skills of the executive is very much essential for efficient and effective service to the society. The Chief Superintendent is the head of the division and Human Resources Manager of the Division. With the minimum number of available executives, it is able to depute them for training development programmes conducted by the training centre available in Chennai –RGMCTTC and other Training Centres of BSNL. The following are the lists showing the training various programmes attended by the executives of the Division during the study period of 1st October 2000 to 31st March 2005.

Table 5.4  Training Courses on Accounting

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Training Programme</th>
<th>Duration</th>
<th>Chennai RGMCT TC</th>
<th>Out Station</th>
<th>Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>New Accounting Package</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Accounting Policies and Procedures</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>Tally Accounting</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Orientation Programme for Accounting</td>
<td>1 week</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Refresher Course for Aos/SAOs</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>Workshop on Implementation of Cost Accounting in BSNL</td>
<td>2 Days</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>5</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Training programmes on Accounting Management Attended: 9
Table 5.5 In-Service Courses on Technologies

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Training Programme</th>
<th>Duration</th>
<th>Chennai RGMCTT C</th>
<th>Other Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fundamentals of Mobile Communication</td>
<td>1 weeks</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Fundamentals of WLL Technologies</td>
<td>1 weeks</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>ISDN</td>
<td>1 weeks</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>MBM-I</td>
<td>1 weeks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>SDH</td>
<td>1 weeks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>Digital Transmission System</td>
<td>1 weeks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>MBM-U</td>
<td>2 weeks</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>OCB-283 Installation</td>
<td>2 weeks</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>OFC</td>
<td>2 weeks</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>SDH</td>
<td>2 weeks</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>FEE</td>
<td>3 weeks</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>12.</td>
<td>OCB-283 O&amp;M</td>
<td>3 weeks</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>PCM</td>
<td>3 weeks</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>C-DOT SBM 512</td>
<td>4 weeks</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>E-10B Mtce</td>
<td>4 weeks</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>16.</td>
<td>E-10B Basic</td>
<td>5 weeks</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

Total Training programmes on Telecom Technology Attended: 53
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Training Programme</th>
<th>Duration</th>
<th>Chennai RGMCTTC</th>
<th>Other Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ISP</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Windows 97 / Windows 2000</td>
<td>1 week</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>Unix</td>
<td>1 week</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Java</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Intranet</td>
<td>1 week</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>Visual Basic</td>
<td>1 week</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Foxpro</td>
<td>2 weeks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8.</td>
<td>ASP</td>
<td>2 weeks</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>9.</td>
<td>PC Hardware</td>
<td>2 weeks</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10.</td>
<td>MS Access</td>
<td>2 weeks</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>11.</td>
<td>HTML Web Designing</td>
<td>3 weeks</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>12.</td>
<td>Internet Action Plan</td>
<td>3 weeks</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>13.</td>
<td>Oracle</td>
<td>2 weeks</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>Foxpro</td>
<td>2 weeks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15.</td>
<td>MS Excel</td>
<td>2 weeks</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>16.</td>
<td>Windows 95</td>
<td>2 weeks</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>17.</td>
<td>Personality Development for Group B Executives</td>
<td>1 week</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>18.</td>
<td>Vigilance and Disciplinary Proceedings</td>
<td>1 week</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>19.</td>
<td>Computer Course for Executives MS Office</td>
<td>3 weeks</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>79</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

Total Computer Training Programmes attended : 93
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Training Programme</th>
<th>Duration</th>
<th>Chennai RGMCTTC</th>
<th>Other Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tendering and Purchase Procedure</td>
<td>2 Days</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Internet, Intranet, BSNL Mail</td>
<td>2 Days</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>MPLS &amp; VPN</td>
<td>3 Days</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>SMPS</td>
<td>3 Days</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Commercial Tax Laws</td>
<td>2 Days</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>Leadership and Management Skills</td>
<td>3 Days</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Conflict Management</td>
<td>2 Days</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>Customer Care</td>
<td>3 Days</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9.</td>
<td>SDH</td>
<td>3 Days</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10.</td>
<td>OFC</td>
<td>3 Days</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>11.</td>
<td>GSM</td>
<td>3 Days</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12.</td>
<td>Broadband</td>
<td>2 Days</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>12</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Workshops/ Seminars Attended : 16
On perusal of the above lists of training programmes attended by the executives of the Chennai Telegraph Traffic Division, it may be seen a considerable number of executives have been deputed for the training programmes. The total programmes attended by the executives aggregates to 162 during the study period of 1st October 2000 to 31st March 2005. Apart from sparing the services of the executives for training programmes, the executives have been deputed for Hindi Teaching Scheme classes arranged by the Official Language Implementation Committee of Central Government Offices in Chennai. The importance given for training and development programmes in a Division of BSNL could rarely be seen in any organisation.

**Summary**

BSNL has a vast reservoir of highly skilled and experienced workforce who are constantly trainees through its training centres spread across the country. It has unique training system with 46 training centres spread over the country with well equipped training infrastructure.

The training process of the organisation's training centres are co-ordinated by a training co-ordination BRBRAITT, Jabalpur. The thee apex training centres ALTTC Ghaziabad, BRBRAITT, Jabalpur and NATFM Hyderabad and from Regional and Circle training centres are ISO 9001 : 2000 certification for its quality of training programmes. The three apex training centres have acclaimed world recognition are provide trainee programmes to the telecommunication executives of the neighbouring countries.
The organisation constantly upgrading the technical knowledge skills and abilities of the employees and executives by In-service training programmes so as to handle new telecommunication technologies of the world in the competitive business scenario.

The organisation has launched two latest telecommunication technologies namely GSM mobile cellular services in 2002 and Broadband services in 2005 and maintaining them effectively with its own well trained workforce without seeking technical expertise from any outside agency.

The achievement of crossing 12 million cellular connections and 17 lakhs broadband connections and world-class services provided by the organisation is evidence to the competency of the workforce of BSNL and effectiveness of the training programmes.
END NOTES


2. K.Rajasekaran, Circle Secretary, circle Secretary’s Report, AIBSNLEA, First Circle Conference of AIBSNLEA, Trichy, 28th Feb, 2005.


5. P.Venugopal, Circle President, AIBSNLEA, Tamil Nadu, Presidential Address, First Circle Conference of AIBSNLEA, Trichy, 28th Feb, 2005.


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8. http://www.brbraitt.bsnl.co.in

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10. http://tamilnadu.bsnl.co.in/training/cttc/indext.htm