



सत्यमेव जयते

**Programme Handbook**

**P&T BWS Group 'A' Officer Trainees**

**Induction Training**

National Telecommunications Institute for Policy Research, Innovation & Training  
**Department of Telecommunications, Ministry of Communications & IT**  
**ALTTC Campus, Govt. of India Enclave**  
**Ghaziabad-201002, India**  
**Website: [www.ntiprit.gov.in](http://www.ntiprit.gov.in)**

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## **ABOUT NTIPRIT**

The National Institute for Policy Research, Innovations & Training, NTIPRIT, Ghaziabad is the premier training institution of the Department of Telecommunications under the Ministry of Communications & IT, Government of India. Initially, it was set up as National Telecom Academy (NTA) during the year 2010 to assist the Govt. to meet the long term requirements of trained personnel for planning, licensing, monitoring and management of the rapidly developing telecommunication network in India. In March 2011, NTA was upgraded to NTIPRIT bringing Policy Research and Innovation under its scope of activities. The institute imparts technical as well as managerial training to the officers of the Department of Telecom and its training expertise is open to other Govt. departments and industry.

NTIPRIT is enlisted as one of the Central Training Institutions (CTIs) by the Department of Personnel & Training, Ministry of Personnel, Public Grievances and Pensions, Govt. of India.

At present, NTIPRIT is operating from ALTTC campus which consists of Administrative and Academic Blocks, Satellite Earth Station, hostels and residential complex spread over 81 acres of land situated in Government of India Enclave, Rajnagar, Ghaziabad. The Institute is nearly 30 Kms. from New Delhi Railway Station and about 50 Kms. from Indira Gandhi International Airport, New Delhi.

## **FACILITIES AT NTIPRIT-ALTTC CAMPUS**

**OFFICE COMPLEX:** The eight-storeyed Administrative Block of the ALTTC campus houses all administrative offices along with a number of fully equipped classrooms with audio-visual aids, a library, a seminar hall, a conference hall and a canteen. The Academic Block houses laboratories of latest telecom technologies such as NGN, 3G, GSM, CDMA, SDH, DWDM, Broadband etc. A little distance away from these blocks is the Satellite Earth Station easily distinguished by its large parabolic antenna.

**HOSTELS:** There are three hostels for course participants namely, J.C. Bose Hostel, Raman Hostel and Bhabha hostel. Residence in the campus is compulsory for the Officer Trainees under probation. Permission to stay outside can be accorded only under the most compelling circumstances. Families and guests are not allowed to stay in the hostels.

**AUDITORIUM:** The campus has a state-of-the-art, multipurpose auditorium named C.K. Reddy Hall with a seating capacity of about five hundred.

**SHOPPING CENTRE:** A small shopping centre with few shops and a bank is situated between the colony and hostels to cater to both the residents and trainees.

**SPORTS FACILITIES:** The campus provides various indoor and outdoor sports and recreation facilities for the trainee officers and faculty members, including Tennis, Volleyball, Basketball, Badminton, Table tennis, Chess, Carom, Cards etc. A Cricket ground and a Football field are also available in the campus.

## **ABOUT THE INDUCTION TRAINING PROGRAMME**

**OBJECTIVES:** The purpose of this course is to prepare the P&T BWS Group 'A' Officer Trainees under probation (also referred to as OTs in this handbook), for handling various duties assigned in Department of Telecommunications (DoT)/ Department of Posts (DoP), such as, office administration, planning, designing, tendering, execution & maintenance of building works. This course exposes the participants to the fundamentals for administration covering macro environment as well as the departmental rules. Apart from above, the Officer Trainees also learn the fundamentals & basics of telecommunication infrastructure, Accounts & Finance, Project planning and execution of construction & maintenance works. The course also helps the Officer Trainees to learn managerial skills and Information Technology for office working.

**CONTENTS:** The Programme broadly comprises classroom modules at NTIPRIT and other institutions, field visits and field attachment to various units of DoT, its PSUs, and DoP.

The description of training modules, given in this handbook, is indicative only. The training structure, sequence of training modules and field attachments, their contents and duration may be changed at any stage to cover the latest developments and emerging needs or due to other administrative reasons.

## SCHEDULE OF THE TRAINING AND FIELD ATTACHMENT PROGRAMME

The schedule of the training and field attachment programme shall be as under:

S. No	Topic	Duration in week(s)
1	<b>Administration &amp; Establishment (Four weeks)</b>	
1.1	Orientation Programme	1
1.2	Administrative Rules	1
1.3	Establishment	1
1.4	Vigilance and Disciplinary Proceedings	1
2	<b>Foundation Course (LBSNAA/ ATIs/ Other reputed Management Institutions)</b>	15
3	<b>Telecom Infrastructure</b>	1
4	Disaster Management (3 days)	
	Ethics in Public Administration (2 days)	1
5	<b>Study visit to Major Telecom Installations, Telecom Industries and TERM Cells</b>	2
6	<b>North-East study visit</b>	1
7	<b>Telecom Technologies Familiarization</b> Switching & NGN, Transmission, Wireless access technologies, Data communications, IT / Cyber Security.	1
8	<b>DoT Functions</b> TERM Cell Functions, Licensing Functions, Wireless Planning & Spectrum Management, USO Fund, TEC functions, Regulation & Dispute Settlement.	1
9	<b>Hindi (Raj Bhasha)</b>	1
10	<b>Public Works Accounts System, Stage-I</b>	1
11	<b>Public Works Accounts System, Stage-II (Civil &amp; Elect.)</b>	2
12	<b>Technical Training</b>	
	Technical Training – Civil & Arch.	3
	Technical Training – Civil	4
	Technical Training – Architect	6
	Technical Training – Electrical	7
13	Joining time before Field Attachment	1

<b>S. No</b>	<b>Topic</b>	<b>Duration in week(s)</b>
14	Field Attachment Stage-1 (BSNL/MTNL/DoT/DoP)	3
15	Field Attachment Stage-2 (DoT / DoP units)	60
16	<b>Project Report submission and Presentation</b>	1
17	<b>Valedictory and Professional Exam</b>	2
	<b>Total duration (in weeks)</b>	<b>104</b>

The individual course details and contents are covered in the subsequent sections.

**Note:**

1. The sequence of conduction of individual training modules shall be decided by NTIPRIT, which may not be in the same sequence as given above.
2. The Hindi exam of the Officer Trainees will also be conducted during the training programme.
3. Following modules may be conducted together with ITS Officer Trainees:
  - a) Administration & Establishment
  - b) Foundation Course
  - c) Telecom Infrastructure
  - d) Disaster Management
  - e) Ethics in Public Administration
  - f) Study visit to Major Telecom Installations, Telecom Industries and TERM Cells
  - g) Hindi (Raj Bhasha)
4. Following modules may be conducted together with ITS Officer Trainees, if feasible:
  - a) North-East study visit
  - b) Project Report submission and Presentation

# **Course objectives and contents of various trainings and field attachment modules**

## **SECTION-1**

### **1. ADMINISTRATION & ESTABLISHMENT**

**DURATION: 4 WEEK**

#### **1.1 ORIENTATION PROGRAMME**

##### **PROGRAMME OBJECTIVES**

The objective of the Orientation Programme is to expose the Officer Trainees to the Ministry of Communications & IT, the Telecom Commission, Department of Telecom and its service provider organisations- Bharat Sanchar Nigam Limited (BSNL) & Mahanagar Telephone Nigam Limited (MTNL), other PSUs of DoT and Department of Posts. The Programme also provides an opportunity to the Officer Trainees to meet and interact with the senior officers of the Department.

**DURATION: 1 Week**

##### **CONTENTS:**

- Briefing on the Training Programme of the Officer Trainees
- Organisational setup of the Ministry of Communications & IT, Telecom Commission Department of Telecom and Department of Posts.
- Organisational structure and functions of the Telecom Directorate, Telecom Engineering Centre and TERM cells
- History of Telecom and overview of Indian Telecom scenario
- Roles of the public sector organisations of DoT i.e. BSNL, MTNL, BBNL, ITI, TCIL & C-DOT
- Role of TRAI and TDSAT
- International co-operation in the field of telecom, role and functions of ITU, UNDP, and APT
- Innovation in Telecom & ICT
- Policy Analysis & Research in Telecom & ICT
- Telecom Technology trends and role of TCOEs
- Role of Industrial bodies in Telecom sector- COAI, AUSPI, ISPAI, TEMA etc.
- Interaction with senior officers
- Guidelines on conduct, behaviour and etiquette-*Shishtachar*.

#### **1.2 ADMINISTRATIVE RULES (1 WEEK)**

##### **OPERATIONAL**

- Administrative Power of officers
- Office Administration
- Office Procedures



- Handling of VIP & court cases
- Handling of Parliament questions

#### **MATERIALS**

- Material Management
- Tendering

#### **FINANCIAL ACCOUNTING**

- Work Expenditure and Accounting
- DoT Revenue sources
- Work Estimates

#### **FINANCIAL DELEGATION & PROPRIETY**

- Delegation of Financial Powers
- Exercise of Financial Powers-Case Studies
- Control of Expenditure

#### **FINANCE ADVICE FOR PROCUREMENT**

- Tender Evaluation
- Preventive Vigilance
- DGS&D Procedure

### **1.3 ESTABLISHMENT (1 WEEK)**

- General rules and regulations
- CCS (CCA) Rules, 1965, CCS (Conduct) Rules 1964
- Staff establishment, Appointment and Training
- Organised services and their recruitment
- Reservation Policy
- Promotions, Cadre review
- Office Inspections
- Role & Function of CAT
- Rules relating to Unions & Associations
- Fundamental Rules, Supplementary Rules
- Annual Performance Appraisal
- Leave Rules
- Terminal Benefits
- Medical Rules
- Income Tax

### **1.4 VIGILANCE & DISCIPLINARY PROCEEDINGS (1 WEEK)**

Constitutional provisions, Principles of Natural Justice, CVC, UPSC, CBI setup, Major & Minor penalties, Disciplinary proceedings, Suspension, Dilatory tactics, RTI framework & its impact, Case studies.

## SECTION-2

### 2. FOUNDATION COURSE (at LBSNAA/ ATIs/ other reputed Management Institutes)

#### DURATION: 15 WEEKS

The Foundation Course is of fifteen weeks duration and may be conducted at Lal Bahadur Shastri National Academy of Administration (LBSNAA), Mussoorie or other DoPT designated Administrative Training Institutes (ATIs) or other reputed Management institutions. This programme may be scheduled along with Officer Trainees of IAS or other Central Civil services.

The major objectives of the Foundation Course are the following:

- (i) Developing an *esprit de corps* among the Officer Trainees of different services,
- (ii) Fostering the attitudes and values that every civil servant should possess, and
- (iii) Imparting a basic understanding of the environment, the machinery of the Government and of the subject competencies and skills that the officers have to possess for discharging their duties in the initial years of service.

The curriculum of Foundation course generally consists of 12 weeks Course work and 3 weeks for extra-curricular activities such as trekking, village visits etc.

The Academic sessions under the Course work will follow the following pattern:

Sl. No.	Subject/ Module	No. of Sessions (approximate)
1.	Political Concepts and the Constitution of India	20
2.	Public Administration	60
3.	Law	40
4.	Management & Behavioural Sciences	30
5.	Basic Economics	30
6.	Information and Communication Technology (ICT)	20
7.	Indian History and Culture	25
8.	Language	20

A brief outline of the various topics under the scope of the aforesaid subjects in the Course work is given below:

#### 1. Political Concepts & Constitution of India

- Political concepts
- Political theories
- The basic structure of our Constitution
- Federalism
- Organs of the Govt.
- Role of the Judiciary
- Human rights

- Democratic values
- Fundamental rights and Directive Principles
- Civil services under the Constitution
- India's Foreign Policy, etc.

## **2. Public Administration**

- Structure of bureaucracy and the challenges faced by the bureaucracy
- Basic administrative skills including-
  - time management
  - delegation
  - conduct of meetings
  - presentation skills
  - report writing
  - noting
  - office procedure
- **Governance:** Exposure to different areas of governance such as
  - Social Sector
  - Rural Development
  - Science and Technology
  - Public Distribution System
  - Audit
  - Social Audit
  - Budgeting
  - people's participation in governance
  - innovations in governance
  - e-governance
  - business process re-engineering
  - public-private partnership
  - gender sensitisation
  - weaker sections and the differently-abled persons
  - human element in administration etc.

## **3. Law**

- Introduction to Law & Sources of Law
- Concept of Law and Judicial System
- Civil Procedure Code (CPC)
- Law of Torts
- Consumer Protection Act
- Specific Relief Act and Arbitration Act
- IPC: General Principles
- Principles of Natural Justice
- Judicial Review of Administrative Action
- Criminal Procedure Code (Cr PC)
- Contempt of Court
- Suits by or against Government
- Liability of Government Servants in Contracts and Torts
- Law of Contract

- Contempt of Lawful Authority of Public Servants
- Rule of Law
- Principles of Administrative Law, Administrative Discretion
- Inquiry by Domestic Tribunal
- Legal Remedies including Writs
- Sexual Harassment of Working Women etc.
- Indian Companies Act
- Labour Law & Trade Unions
- Industrial Dispute Act
- FDI policy, acts & regulations
- Tax Laws- Sales Tax/ Service Tax/ VAT etc.

#### **4. Management and Behavioural Sciences**

##### Basic Principles

- Schools of Management thoughts
- Management Systems & Processes

##### Project Management

- Project Formulation and Appraisal
- PERT-CPM
- Resource Analysis
- Risk and Uncertainty in Project Management
- Risk Sharing

##### Quantitative Techniques in Management

- Data Analysis
- Sampling & Sampling Distribution

##### Operation Research & MIS

- Operation Research & Management Decision Making
- Operation Research Techniques & Models
- Research Methodology
- Management Information Systems

##### Behavioural Sciences

- Introduction to Organisational Behaviour
- Motivation
- Group dynamics
- Team building
- Decision Making
- Organisational Leadership
- Principle of Centered Negotiation and Conflict Resolution
- Transactional Analysis
- International Negotiation

Self- awareness

- Personality & Behaviour

Communication

- Interpersonal Communication
- Corporate Communication

## **5. Basic Economics**

Managerial Economics & Indian Economy

- Introduction to Economics
- Theory of Demand, Supply, Market Structure, Elasticity
- Structure of Indian Economy
- Fiscal Policy
- Resource Mobilisation
- Economic Reforms & Liberalisation
- International Trade and Balance of Payments
- WTO
- Theory of Growth
- Role of economic conditions in decision making in various sectors

Financial Management

- Financial Concepts
- Accounting for Managers
- Cost Accounting & Transfer Pricing
- Fund Flow Analysis
- Ratio Analysis
- Profit and loss A/C, Balance Sheet
- Budgeting
- Public Financial Administration

## **6. Information and Communication Technology (ICT)**

- Office Productivity software including
  - MS-Word, Excel, Power-Point and MS-Access
- Database Management systems
  - RDBMS, SQL, Oracle, FoxPro etc.
- Web designing tools & techniques
- Networking Concepts and Techniques

## **7. Indian History and Culture**

History

- Overview of Indian History

Polity and Governance in Indian history

- The State & Administration in Ancient, Medieval and Modern India
- Changing fiscal structures

- Resistance against the State
- Indian Nationalism; Gandhi
- Communal Politics, Partition and Independence
- Issues in Economic History
- Issues in Social History
- A brief Introduction to the major religious traditions of India

#### Culture

- Culture: Meaning, Context and Forms
- Conservation of Heritage
- Art and Architecture
- Literature
- Performing Arts

### **8. Language**

The Officer Trainees will have to learn one language including Hindi or one Indian/ Foreign language. Officer Trainees will have to choose from among the language options available at the Institute. There will be a proficiency test of Hindi for all Officer Trainees at the time of joining the Foundation Course. On the basis of this test, the OTs will be split into two streams, i.e., those who are exempted from attending Hindi classes and those who have to undertake Hindi as a Language.

## **SECTION-3**

### **3. TELECOM INFRASTRUCTURE**

**DURATION: 1 WEEK**

#### **COURSE OBJECTIVES**

The prime objective of the course is to expose the participants to the basics of telecommunication and network infrastructure.

#### **COURSE CONTENTS**

- **Power supply arrangements for Telecom Systems:**
  - Power plant systems - Conventional and SMPS
  - Indoor / Outdoor Power plants in Wireless networks
  - Storage batteries and VRLA Battery
  - UPS and Inverters
- **Electrical installations:**
  - General Introduction to electrical infrastructure in Telecom Exchange buildings (E/A, Lighting, Lifts, Electrical installations etc)
  - Air-conditioning -requirements and different systems
  - Earthing Types & Methodologies and Lightning Protection
  - Fire detection and Fire-fighting, fire drill/demonstration
  - Bureau of Energy Efficiency (BEE) Standards for Electrical Installations, Energy conservation and Energy auditing
- **Green technologies**
  - TRAI guidelines, Alternative energy sources etc.
- **Civil Construction & Maintenance aspects in Telecom Buildings:**
  - Telecom buildings- types of buildings- Norms
  - Civil infrastructure in Telephone Exchange buildings
  - Towers- GTT, RTT, RTP, Wall Mounted etc.
  - Smart buildings – concepts
  - Water conservation and water harvesting
  - Visit to a tower site

## **SECTION-4**

**4.** This section shall consist of two modules: **(Duration: 1 Week)**

### **4.1 DISASTER MANAGEMENT (Duration: 3 days)**

- Types of Disasters
- Fundamentals of Disaster Management
- Role of Communication Technologies
- DM framework in India
- Role of DoT
- Case Studies

### **4.2 ETHICS IN PUBLIC ADMINISTRATION (Duration: 2 days)**

- Basic ethical principles
- Values for administration
- Integrity
- Case study



## **SECTION - 5**

### **5. Study visit to Major Telecom Installations, Telecom Industries and TERM Cells**

**DURATION: 2 WEEKS**

#### **COURSE OBJECTIVES:**

Under this module the Officer Trainees will be visiting major Telecom installations and Telecom industries of the country like ITIs, Telecom Equipment Manufacturers, Telecom Centres of Excellence (TCOEs), TSP/OSP installations and Network Operation and Control Centres, including those of private operators, and TERM cell offices etc., where they would familiarise themselves with the working of these units and gain useful practical exposure through site visits and interactions. These visits shall give them a feel of various aspects and activities of Telecom sector.

The study visit shall also help the OTs to familiarise themselves with the working of TERM cells and their requirements from the Building works prospective.

## **SECTION-6**

### **6. NORTH-EAST STUDY VISIT**

#### **DURATION: 1 WEEK**

The construction of buildings is different in hills due to the difficult terrain and other challenging conditions related to specific precautions and challenges of nature.

As a study tour, the Officer Trainees will be given an opportunity to visit and explore the various Buildings and Equipment Installations of Telecom & Postal Department in these areas. The trainees shall do a survey of the Telecom and Postal buildings and installations in some of the urban and rural areas of the North-Eastern states. They shall meet and take feedback from different users of these buildings and installations in the region and understand their requirements. This shall also help them in having a better understanding of the region and its people.

After completion of their field visit, the Officer Trainees shall submit a visit report and deliver a presentation on their study at NTIPRIT. The report shall enumerate the suggestions for the improvement of Telecom & Postal buildings and installations in the region. The report of the OTs shall be evaluated at NTIPRIT based on the work done during the study and suggestions given.

## **SECTION-7**

### **7. TELECOM TECHNOLOGIES FAMILIARIZATION**

**DURATION: 1 WEEK**

- Switching
- Next Generation Networks (NGN)
- Transmission
- Wireless access technologies
- Data communications
- IT / Cyber Security

## **SECTION-8**

### **8. DoT FUNCTIONS**

**DURATION: 1 WEEK**

- TERM Cell Functions
- Licensing Functions
- Wireless Planning & Spectrum Management
- USO Fund
- TEC functions
- Regulation & Dispute Settlement.

## **SECTION-9**

### **9. HINDI (RAJBHASHA)**

**DURATION : 1 WEEK**

This module will cover the Hindi policy of Government of India, important Hindi terms used in office working and practical exercises on drafting Hindi correspondence.

## **SECTION-10**

### **10. PUBLIC WORKS ACCOUNTS SYSTEM, STAGE-I**

**DURATION: 1 WEEK**

**COURSE OBJECTIVE:** Objectives of this module is to impart basic understanding of Public Works Accounts System. This course will cover the following:

- Public Works Account System
- General Financial Rules
- Imprest & Temporary Advance
- Procurement Procedure
- Various Registers & Forms – Basics
- Preparation of Estimates, Notice Inviting Tender & Tender documents – Basics
- Inter disciplinary Co-ordination

## **SECTION-11**

### **11. PUBLIC WORKS ACCOUNTS SYSTEM, STAGE-II**

**DURATION: 2 WEEKS**

**COURSE OBJECTIVE:** Objectives of this module is to impart complete understanding of Public Works Accounts System. It will prepare the OT's for field postings in construction and maintenance units. This course will cover the following:

- Central Public Works Department - Works Procedure
- Various Registers & Forms
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Contractor Ledger & Bills and Cash Book
- Contract Clauses
- Contract Management
- Arbitration & Reconciliation

## **SECTION-12**

### **12. TECHNICAL TRAINING**

#### **12.1 CIVIL (7 WEEKS):**

##### **12.1.1 CONSTRUCTION PRACTICE AND MATERIAL SPECIFICATIONS DURATION : 1 WEEK**

- Overview of CPWD specifications for works and BIS
- Site Particulars and Surveyed Site Plan
- Concrete Technology
- Masonry/Wall Cladding/Floor & Wall Rendering.
- Door/Windows and their Fittings.
- Timber Substitutes.
- New Building materials

##### **12.1.2 DESIGN OF BUILDING SERVICES**

###### **DURATION : 1 WEEK**

- Plumbing Design of Buildings
- Water Supply and Sewer Systems for Large Layout
- Design of Roads and Pavements
- Sewage Treatment and Disposal
- Landscaping and Horticulture

##### **12.1.3 BUILDING MAINTENANCE**

###### **DURATION : 1 WEEK**

- Technical/Financial Standards for Maintenance
- Setting up a Maintenance Organisation
- Inventory/Funds Managements
- Information System for Effective Maintenance
- Preventive Maintenance
- Retrofitting, rehabilitation and face lifting works

#### **12.1.4 STRUCTURAL ANALYSIS & DESIGN**

##### **DURATION: 3 WEEKS**

- Estimation of Static Loads, Wind and Earthquake Forces/Live Loads
- Structural Analysis of Building Frames
- Interpretation of Soil Investigation Reports/ Estimation of SBC
- Design of RCC Beams, Columns & Slabs
- Computer Aided Structural Analysis and Design

#### **12.1.5 WORKS OF SPECIAL NATURE**

##### **DURATION: 1 WEEK**

- Water Proofing Systems and their Applications
- Pile Foundations – Design and Installations
- CTE and Common Irregularities

#### **12.2 ARCHITECTURE (9 WEEKS) :**

##### **12.2.1 Construction Practice and Material specifications**

##### **DURATION: 1 WEEK**

- Overview of CPWD specifications for works and BIS
- Site Particulars and Surveyed Site Plan
- Concrete Technology
- Masonry/Wall Cladding/Floor & Wall Rendering.
- Door/Windows and their Fittings.
- Timber Substitutes.
- New Building materials

##### **12.2.2 DESIGN OF BUILDING SERVICES**

##### **DURATION : 1 WEEK**

- Plumbing Design of Buildings
- Water Supply and Sewer Systems for Large Layout
- Design of Roads and Pavements
- Sewage Treatment and Disposal
- Landscaping and Horticulture

### **12.2.3 BUILDING MAINTENANCE**

#### **DURATION: 1 WEEK**

- Technical/Financial Standards for Maintenance
- Setting up a Maintenance Organizations
- Inventory/Funds Managements
- Information System for Effective Maintenance
- Preventive Maintenance
- Retrofitting, rehabilitation and face lifting works

### **12.2.4 ARCHITECTURAL PLANNING & DESIGN (FOR DEPARTMENTAL BUILDINGS)**

#### **DURATION: 2 WEEKS**

- Understanding Schedule of Accommodation (SOA) and relation of spaces
- Planning and Designing of buildings.
- Familiarisation with CPWD specification
- Design for disabled/physically challenged.
- Building maintenance problems and solutions
- Signage system
- Overview of National Building Code.
- Landscaping and Parking space management
- Disaster Management
- Challenges while designing on Contours.
  - Planning on Contours
  - Building Structure management
  - Retaining walls
  - Land slide management
- Design and Execution of Building Services
  - Water supply
  - Electrical services
  - HVAC Services

## **12.2.5 SUSTAINABLE DESIGN AND ARCHITECTURE**

### **DURATION: 1 WEEK**

- Sustainable Architecture
- Sustainable Energy Use (HVAC)
  - Heating Ventilation And Cooling system efficiency
- Renewable Energy Generation
  - Solar panels
  - Wind turbines
  - Solar Water heating
  - Heat Pumps
- Sustainable Building Materials
  - Recycled Materials
  - Lower Volatile Organic Compound
  - Material sustainability Standards
- Waste Management
- Green Rating for Integrated Habitat Assessment (GRIHA) studies.
- Pre-fabricated structures

## **12.2.6 NEW CONSTRUCTION TECHNIQUES**

### **DURATION: 1 WEEK**

- Cost effective construction techniques
- Cost effective designing
- Green Building Concepts.
  - Eco-friendly building materials and resources
  - Energy efficient and eco-friendly equipment
  - Air Conditioning and Indoor Air Quality
- Smart Building Concept
- Familiarisation with latest buildings materials
- Rain Water Harvesting
  - Water conservation
  - Water recycling management



## **12.2.7 INTRODUCTION TO AUTO CAD AND REVIT ARCHITECTURE**

**DURATION: 2 WEEKS**

- **Auto Cad: 1.**
  - Basic drafting commands
  - Layers
  - Annotation, Block
  - Plot publish drawings
- **Auto Desk Revit**
  - Creating levels - different levels, height of building etc.
  - Basic drafting commands -walls, windows, doors, components, edit commands etc.
  - Modelling -column, roof, floor, staircase, ramp etc.
  - View - 3D section, elevation, sheets, plans at different levels etc.
  - Area, for viewing the drawing window, tile etc.
  - Rendering, site
  - Mass
  - Plot & publish drawing, export in DW form/image Form etc.

## **12.3 ELECTRICAL (7 WEEKS):**

### **12.3.1 EI & FANS:**

**DURATION: 1 WEEK**

- Design of Electrical Installations
- Internal and External Specifications
- Earthing
- Lightening Conductors
- Distribution Panel, Rising Mains & Cabling
- Load Distribution
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation, Testing & Commissioning
- Maintenance

### **12.3.2 SUBSTATION:**

#### **DURATION: 1 WEEK**

- Types of Substation
- Substation Equipment - Specifications & their Selection
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation, Testing & Commissioning
- Maintenance of Substation
- Latest Trends in Substation
- Electrical Inspection
- Chief Technical Examiner's observations & common irregularities

### **12.3.3 ENGINE ALTERNATOR SET (EA)**

#### **DURATION: 1 WEEK**

- Engine-Alternator Set & their components - Electrical & Mechanical
- EA Set types & specifications
- Regulatory Framework
- Selection of Site & EA set
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation Practices & Testing
- Maintenance of EA sets
- Chief Technical Examiner's observations & common irregularities

### **12.3.4 HEATING VENTILATION AIR CONDITIONING (HVAC)**

#### **DURATION: 1 WEEK**

- Air Conditioning System - Types & their Selection
- Types & Selection of Air Conditioning System
- Outside Design Conditions & Heat Load Calculation
- A/C - Specifications & Duct Design
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation, Testing & Commissioning
- Latest Trends in Air-Conditioning
- Chief Technical Examiner's observations & common irregularities

### **12.3.5 LIFT**

#### **DURATION: 1 WEEK**

- Lifts - Types & Selection Analysis
- Lift System - Components & Specifications
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation, Testing & Commissioning
- Maintenance of Lifts
- Latest Trends in Lifts
- Chief Technical Examiner's observations & common irregularities

### **12.3.6 FIRE PROTECTION AND FIRE FIGHTING:**

#### **DURATION: 1 WEEK**

- Fire & its types and various Fire Extinguishers
- Active & Passive measures for fighting the fire
- Fire Detection System - Types , components & specifications
- Fire Detection System - Selection & Design
- Fire Fighting Systems, selection & design
- Preparation of Estimates, Notice Inviting Tender & Tender documents
- Installation, Testing & Commissioning
- Maintenance of Systems
- Latest Trends
- Chief Technical Examiner's observations & common irregularities

### **12.3.7 ENERGY CONSERVATION & GREEN ENERGY:**

#### **DURATION: 1 WEEK**

- Energy Conservation & Efficiency
- Bureau of Energy Efficiency, Star Labelling & Standards
- Energy Conservation Act & Energy Conservation Building Code
- Energy Management & Energy Efficiency in ICT infrastructure
- Government Directives - Deployment of Renewable Energy Technology in Telecom Sector

## **SECTION-13**

### **13. Joining time before Field Attachment**

Subsequent to the previous module, a **Joining time of 1 week** shall be given to the Officer Trainees between relieving from NTIPRIT and joining at the respective Field Attachment stations. Field attachment will be conducted as described in Section-14 and Section-15. This joining time will be given only once, i.e. before joining at Field Attachment station. Further, as per the existing rules, only the direct journey via the shortest route between NTIPRIT and Field Attachment station shall be reckoned for the purpose of travel expenses.

## **SECTION-14**

### **14. FIELD ATTACHMENT TO BSNL/ MTNL/ DOT/DOP (3 weeks)**

Under the Field attachment of three weeks with BSNL/MTNL, each Officer Trainee shall be attached to one of the units of BSNL/ MTNL/DOT/DOP, where they shall undergo field exposure to Administration, Monitoring, Planning, Designing, Tendering, Execution & Maintenance Works.

## **SECTION-15**

### **15. FIELD ATTACHMENT STAGE-2 (DOT/DOP UNITS) (60 weeks)**

**OBJECTIVE:** The objective of second stage of Field attachment to Field Units is to enable the Officer Trainees to take responsibility while working in a particular unit as attached officers. This would help the Officer Trainees gain deeper and contextual appreciation of the theoretical inputs that are given to them during the institutional training. This will also give a greater comfort level and confidence to the Officer Trainees in handling the charge of the working posts independently.

During this attachment period, each Officer Trainee shall be posted at one of the units of DoT/DoP to get an in-depth understanding of the concerned unit by working as a part of the same. The Officer Trainee will discharge all duties assigned to him/her during this period by the controlling officer in the unit.

## **SECTION-16**

### **16. PROJECT WORK SUBMISSION AND PRESENTATION (1 week)**

Project work will be assigned to the Officer Trainees by the NTIPRIT to enable them to do in-depth exploration of various topics related to respective stream to bring out their creativity. Depending on the batch size of OTs, groups may be formed while assigning the project topics, or may be assigned individually to each OT.

The project topics will be assigned during the initial stage of the induction training, so that the Officer Trainees may start project study concurrently. A time duration of one week will be given, as per schedule decided by the Institute, for project report finalisation and submission, including the presentation on the project.

## **SECTION-17**

### **17. VALEDICTORY AND PROFESSIONAL EXAMINATION (2 weeks)**

Towards the end of the Training Programme the Officer Trainees shall return to NTIPRIT from their Field attachment for a period of two weeks, for a Valedictory Module. Under this module, emphasis will be laid on experience sharing by the Officer Trainees out of the exposure gained from the various attachments.

**The Professional examination of the Officer Trainees shall also be conducted during this period.**

## GENERAL INSTRUCTIONS FOR P&T BWS OFFICER TRAINEES

### A. EXPECTATIONS FROM OFFICER TRAINEES- CODE OF CONDUCT

- 1. Etiquette and Behaviour (*Shishtachar*):** Good manners and etiquette lend confidence and charm to an officer's personality. The Officer Trainees are expected to maintain the highest standards of behaviour and decorum, befitting an officer - both inside and outside the Institute. It is expected of the Officer Trainees to be courteous, polite and well-mannered towards each other, with faculty and with the institute and hostel staff. The same standard of behaviour and decorum is expected from the Officer Trainees when they go to other Institutions/ Offices for training or visits. Officer Trainees must ensure that their behaviour and conduct towards Officer Trainees of opposite sex is beyond reproach. The Officer Trainees are advised to go through the *Shishtachar* booklet (enclosed as Appendix), which contains exhaustive guidelines on etiquette, protocol and manners during official and semi-official occasions, compiled for guidance and ready reference of the Officer Trainees.
- 2. Punctuality:** Punctuality on each occasion is a sine-qua-non for discipline. It is expected that the Officer Trainees will reach the venue of any scheduled event, at the classroom or otherwise, five minutes ahead of time and will be seated in their allotted place-position at least five minutes before the event. This is the first expectation from Officer Trainees and they should ensure that there will not be any occasion to remind it during the course.
- 3. Conduct:** All officers in Govt. service are bound by a code of conduct and norms of behaviour. The Officer Trainees are advised **to familiarise themselves with the CCS (Conduct) Rules, 1965 at the earliest** and follow the code of conduct and the norms of behaviour in letter and spirit.
- 4. Attire:** The Officer Trainees are expected to be appropriately attired for every occasion. The details about what constitutes proper attire are given in the *Shishtachar* booklet (enclosed as Appendix). The Officer Trainees are advised to follow the appropriate norms of attire in the Institute as well as Hostels. Inappropriate or shabby attire during classroom sessions shall be viewed seriously.
- 5. Participation:** It is expected that the Officer Trainees participate fully in all the activities that make-up the Training Programme. The Officer Trainees shall demonstrate their youthful and praiseworthy creativity in all their endeavours. During participation in classroom discussions, the Officer Trainees are expected to be polite and considerate to all others present.
- 6. Maturity:** Above all the Officer Trainees are expected to behave like mature individuals. Mature persons have a balanced frame of mind at all times be it their workplace or personal space. They prove to be an asset to any organisation.

## **B. INSTRUCTIONS**

1. Use of mobile phones/tablets etc. during classroom sessions is strictly prohibited.
2. Officer Trainees are expected to take their own notes in the classes. Some supplementary/background reading materials may be circulated for some of the lectures.
3. Questions may be asked to clarify doubts. However, in case of difference of opinion, lengthy argument with the speaker is to be avoided. On such occasions, the point may be separately discussed with the speaker after the class.
4. The Officer Trainees shall ensure that there is no noisy behaviour during the assembly or dispersal of classroom sessions, or during tea-breaks. No disturbance or inconvenience should be caused to other offices or classrooms in the institute.
5. The Officer Trainees shall ensure prompt and enthusiastic participation in all extra-curricular activities organised at the campus, including PT/Jogging/Yoga, games & sports and cultural events. They shall also be required to organise sports tournaments and cultural programmes, with participation by all Officer Trainees in individual or team events. The participation in all these activities and events shall form part of the assessment and evaluation.
6. **Leave**
  - a. **No leave will normally be granted during the courses, except in the most compelling circumstances.**
  - b. In case leave is granted, then before proceeding on leave the written approval of the ADG in-charge must be obtained. Any absence without permission would be treated as 'unauthorised absence from duty' and will be dealt with as per disciplinary rules.
  - c. Wilful absence from duty after expiry of sanctioned leave period renders a Govt. servant liable for disciplinary action. If any Officer Trainee overstays beyond the sanctioned period of leave, the entire period of absence will be treated as unauthorised and probation period may also be extended.
  - d. If an Officer Trainee is unable to attend the course on medical grounds, he/she shall obtain a certificate from the Medical Officer from a Government Hospital and only thereafter he/she shall apply for leave.
  - e. Officer Trainees who are granted leave shall take specific permission for leaving the station. Even during weekends and holidays, station leave permission shall invariably be obtained from the ADG in-charge, duly furnishing their leave address and contact number. Station leave permission during weekends can be denied by the ADG in-charge, in case assignments or self-study topics are given to the OTs during a training module.

### C. ASSESSMENT AND EVALUATION

The Institute has a well-laid out methodology for assessment and evaluation of the Officer Trainees during the probation period. The approach of the Institute in this regard is elaborated below:

- i. The evaluation and assessment of the Officer Trainees should be exhaustive,
- ii. Each individual training module will have tests, for which the Officer Trainees will be awarded marks. It would be necessary for every OT to pass these tests as per the qualifying criteria of 60% marks. The qualifying criterion has been elaborated in para-h.

The following methodology will be adopted for assessment & evaluation of the Officer Trainees:

- a. Each individual classroom training module will have a written test or a lab-based test for 40 marks per week, e.g. a two-week duration training module may have one or more than one test of total 80 marks.
- b. The fifteen weeks Foundation Course conducted at designated institute will also have an overall evaluation of 600 marks, which shall be included as such in the overall marks.
- c. The North-East Study visit shall be of 40 marks.
- d. The Project work shall be of 80 marks.
- e. The Field Attachment Stage-2 (DoT/DoP Units) of 60 weeks duration shall be assigned 260 marks and it shall be based on the performance of the Officer Trainee during Field Attachment as assessed by the respective controlling officer i.e. the concerned Head of unit. The controlling officer shall provide the assessed marks to NTIPRIT.
- f. **Assessment by Head of Institute:** During the Training Programme, the Officer Trainees shall also be assessed on a continuous basis, based on their participation & performance in group-activities, presentations, sports & cultural activities and general behaviour, attendance, punctuality, discipline & personal conduct. This assessment shall be out of total 100 marks, which will be awarded by the Head of NTIPRIT.
- g. **Total marks at NTIPRIT:** The overall marking on the basis of Paras- a to f will constitute a total of 1800 marks, as given in Table-1:

Assessment Heads	Total duration (in weeks)	Marks
Administration & Establishment (Orientation Programme not included)	3	120
Technical Modules	7 (9 Arch)	280 (360)
Public Works Accounts System	3 (1 Arch)	120 (40)
Disaster Management & Ethics in Public Administration	1	40
DoT Functions	1	40
Telecom Technologies Familiarisation	1	40



<b>Assessment Heads</b>	<b>Total duration (in weeks)</b>	<b>Marks</b>
Telecom Infrastructure	1	40
North-East study visit	1	40
Hindi (Raj Bhasha)	1	40
Project work		80
Foundation Course (FC)		600
Field Attachment Stage-2 (DoT/DoP Units)		260
Assessment by Head of Institute		100
<b>Total Marks</b>		<b>1800</b>

**Table-1:** Constitution of Total marks at NTIPRIT

**h. Qualifying Criteria:**

- i.** It will be necessary for every Officer Trainee to secure at least 60% marks in each test to successfully complete the concerned module. In case the OT fails to secure 60% marks in any test, or fails to appear in the test, he/she will be given an opportunity to appear in a re-test. The OT shall have to qualify the re-test (with 60% marks) and this will be treated as a second attempt/supplementary test, but he/she will be awarded the qualifying marks (60%) only, for the purpose of arriving at the total marks obtained during probation period. If the OT fails to qualify in the re-test also, then he/she will have to repeat the concerned module, and his/her probation period will be extended to that extent. However, for the Foundation Course (FC) conducted at any other Institute, the qualifying criteria would be as decided by the Institute conducting the same.
- ii.** For the Field Attachment Stage-2 (DoT/DoP Units), the qualifying criteria will be to secure at least 60% marks. The qualifying criteria of securing at least 60% marks shall also be applicable to the marks obtained in other training modules which do not include tests, including NE Study visit, Project work, Assessment by Head of Institute etc. as listed in Para-g above. In case the OT fails to qualify in any of the aforesaid modules, the probation period shall be extended, as decided by the Competent Authority.
- iii. Attendance:** Every OT will have to maintain a minimum attendance of 60% in each course/module during the training programme. This attendance criterion shall also be applicable in those cases where he/she has been sanctioned any leave, including any leave sanctioned on medical grounds. If the attendance of any OT falls short of this criterion, he/she may not be permitted to appear in the tests, and he/she may have to repeat the concerned module. In such a case, his/her probation period will be extended by the duration of the repeated modules. No request for relaxation of this criterion will be entertained.

**D. ASSESSMENT BY OFFICER TRAINEES**

An evaluation questionnaire will be given to the Officer Trainees at the end of the individual courses to obtain their comments about the various aspect of the course. Informal discussions will also be held with the Officer Trainees during the course to obtain feedback from them. Feedback given by the Officer Trainees will be used for improving future courses.

Feedback can be useful only if it is made objectively. All comments made by Officer Trainees must be polite.

#### **E. STAY IN THE HOSTEL**

Stay in the campus is compulsory for the Officer Trainees. Permission to stay outside will be accorded only under the most compelling circumstances. Families and guests are not allowed to stay in the hostels. No visitors will be allowed after 10 P.M.

Officer Trainees are expected to return to the hostel before 10 P.M. The hostel warden should be informed in advance if an Officer Trainee intends to come later than 10 P.M.

The hostel has a fully equipped mess for use of all Officer Trainees. A mess committee may be appointed to supervise and suggest the improvement in the arrangements of mess.

No intoxicating drinks and drugs are allowed in the hostel. Action will be taken under Conduct Rules if any OT is found consuming liquor or in an inebriated state.

Cultural programmes are arranged in the C. K. Reddy Hall. Special programmes are arranged on National Festivals. Attending the Flag Hoisting Ceremonies on National Festivals is compulsory for all Officer Trainees.