

WORKS MODULES

A. INITIAL: CE-26

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: SE/WORKS

STAGE: INDUCTION (PH-I)

NAME-----

P.F. NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 03 MONTHS

MOD DESCRIPTION DAYS CERTIFICATION

72

CE/951 I R WORKS MANUAL 15

CE/952 ENGINEERING CODE 15

CE/954 BUILDING & STRUCTURE 05

INCLUDING INSPECTION &
MAINTENANCE PROCEDURE

CE/955 WATER SUPPLY & SANITATION 10

CE/956 STATION YARD

CE/957 STORE ACCOUNTS & OFFICE 05
PROCEDURE

CE/958 SCHEDULE OF DIMENSIONS 02

CE/---- NEW BUILDING MATERIALS 03

CE/---- STANDARD SPECIFICATIONS 10
FOR MATERIALS & WORKS

CE/---- SCHEDULE OF RATES & 03
ANALYSIS OF RATES

CE/---- CARE & COSTODY OF SURVEY 02
EQUIPMENTS

CE/972 COMPUTER & IT'S USAGE 03

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APP. SE/ WORKS, (PHASE-I):

PAPER-I:

CE/951: I.R.WORKS MANUAL:

7. Duties of SE/Works - A brief idea about duties of SE/Works (Ch.I)

2. Inspection & maintenance of building & structure other than bridges, Siting of building, Building register, Water supply & sanitary arrangements at station & colony, Various colour schemes, Maintenance of Building, Directed maintenance, Periodical renovation works, Petty repair book, Inspection schedule for building and structure (Ch.II)

3. Maintenance of sanitary and hygienic conditions in station, yards and colony: Sanitation committee, Colony care committee and their inspection (Ch.III).

4. Station & Yards - Platform and equipment thereon, Indication boards and colour shown (Ch.IV)
5. Water supply: Sampling, capacity of sources and cleaning of storage tanks, Pipe line valves and meters, Distribution of water, Service pipes from mains, Responsibility of Engg. Staff, Calculating BHP of pump. (Ch.V)
6. Drainage and Sewerage, Sewer lines and their maintenance, Surface Drainage, Laying of sewer line pipes, Sanitary, Drainage, Laying of Sewer line pipes. Sanitary arrangements at station and colonies. (Ch.VI)
1. Garden and Plantation - Planting and care of young trees: Garden in Officer's Bungalow & Sr. Subordinates quarters, Maintenance, Incidence of service, Provision of lawns and hedges in bungalows (Ch.VII)
8. Acquisition, Management & disposal of land, Incl. policy letters, Acquisition of land, Demarcation and custody of land, Land boundary, Land records, Verification of land boundaries, Leasing & licensing, Policy letters. (Ch.VIII)
15. Preparation of plans: Plans for other departments, Size of drawings, Title & numbering of drawings, Scale of drawings, Details on drawings, Symbols & colours on drawings, Standard drawings, Plans issued by the Chief Engineer's office, Plans in Division, Dy. Chief Engineer's, Assistant Engineer's and Section Engineer's office, Completion drawings, Care & filling of Tracing. (Ch.IX)
10. Storage and use of Explosive, Storage of explosive, Use of explosive, Destruction of explosives (Ch.X).
17. Police Jurisdiction: Cognizable and non-cognizable offence, Prevention of trespass, Disposal of human bodies found run over, Disposal of cattle found on the line, Correction slips & CE circulars. (Ch.XI)
18. Correction slips & CE circulars.

CE/952: ENGINEERING CODE:

1. Organization and Administration - Engineering organization and administration at Head Quarter, Divisional office, Sub-divisional office, Construction office (Ch.1)
2. Modes of investigation of Railway projects - Techno economic surveys, Categories of lines (Ch.II)
9. Engineering Surveys - Classification of survey, Reconnaissance survey, Preliminary Survey, Final location survey, Survey reports.(CH-IV & V)
4. Investment planning and Works Budget - Preparation of preliminary works programme. Final works programme, Works Budget, Demand for grants (CH. VI)
5. Estimates - Kinds of estimates, Abstract estimates, Detailed estimates, Supplementary estimate and Revised estimates, Project abstract estimate, Construction estimates, Completion estimates, Estimate for railway project, Estimate of open line works, Estimate of deposit works, Checking of estimate and currency of sanction. (CH. VII)
6. Rules for acquisition of land, Acquisition of land, Responsibilities of Administration, Classification of Railway land, Land plans and schedules, Application for acquisition, Procedure for acquisition of land, Custody of land,

Management of land, Leasing and licensing, Policy letters regarding land, Demarcation of land (Ch.VIII, IX, X)

7. Execution of works - Urgency certificates, Material modification Agencies for executing works, General instruction regarding execution of works, Execution of Deposit works, Departmental charges (Ch.XI)

8. Contract for works - Definition of contract, Works contracts, Forms of work contracts, Tender system, Classes of tender, List of approved contractor, General principles for contract agreement, General and special conditions of contract, Earnest money and security deposit, Standing earnest money, Tender committee, Delayed and late tenders, Contract agreement, Advance to contractors, Liquidated damages, Classification of contractor (Ch.XII)

9. Initial records - Muster sheet, Register of wages, Payment to supplier and contractors, Measurement book, Powers of recording measurements, Standard measurement, Measurement of ballast, Petty contract bill, On Account bill, Final bill, Hand receipts, Preparation of contract bill, Pay-order, Checking of Initial records. (Ch.XIII)

10. Initial accounts of revenue and works expenditure, Imprest stores, Store returns, Daybook, Half yearly review of imprest & surplus stores, Departmental stock verification, Charged off stores, Stores obtained for specific purpose, Register of works, T&P, Adjustment memo, Adjustment bills, Ballast train returns, Revenue allocation registers, Departmental registers, Accounts of contractors. (Ch.XIV)

11. Expenditure and budgetary control, Responsibilities with regard to expenditure, Budgetary control, Budgetary reviews and Exchequer control. (Ch.XV)

12. Commissioning of Railway Project Commissioning of new lines, Opening for goods traffic, Opening for passenger traffic, Handing over of new lines for opening. (Ch.XVI)

13. Completion of railway projects - Completion estimates, Completion reports, Completion statements. (Ch.XVII)

7. Miscellaneous works, Works required for defence purposes, Works required to meet the requirement of the civil and defence department/Ministries Road cum rail bridges and public footpaths over rail bridges, Works for civil departments/ Ministries, Level crossing over and under bridges, Assisted sidings, Deposit works. (Ch.XVIII)

15. Building and rent: Staff quarters rent, Various charges, Rest Houses, Military building on railway land, Service buildings, Recovery of charges for maintenance of lawn in staff quarters & bungalows, Rent rolls, List of buildings. (Ch.XIX)

16. Correction Slips.

CE/954: BUILDING & STRUCTURE INCLUDING INSPECTION & MAINTENANCE PROCEDURE:

List of building specification for construction of building & structure, Maintenance of building repair & inspections, directed maintenance, Quality control and quality assurance in concrete production, Use of admixtures for high performance concrete, Compound for curing &

concrete repair.

CE/955: WATER SUPPLY & SANITATION:

WATER SUPPLY:

Chief Engineer's Circulars on Water Supply, Tube wells, Site selection for tube well, Sinking of tube well, Verticality test, Yield test of tube well, Treatment of water, Sedimentation, Filtration, Disinfection, Chlorination, Overhead tanks, Distribution network, Laying of pipe lines, Management of water supply, Various valves and meter, Fittings to pipe line, IS code for various water supply fittings.

SANITATION:

Sewer line: Their maintenance & construction, Open drains: Construction and maintenance, Septic tank, Soak pit, Bio-latrines, Standard specification for various sanitary fittings.

CE/958: SCHEDULE OF DIMENSIONS:

1. Introduction
2. Standard Dimensions – Standard dimensions connected with Works: General, Station, yards and workshop machinery, Rolling stocks all dimensions connected with works. (Schedule I)
3. Recommended dimensions – Recommended dimensions connected with Works: General, Station, Yards workshops and station machinery, Relevant dimension connected with works. (Schedule II)
4. List of infringements only understanding of Schedule III.
11. Correction slips.

CE/----: NEW BUILDING MATERIALS:

Light weight concrete, Decorative surface and laminates, PVC pipes, Bitu-mastic sheet, Hard and soft boards, Particle boards, Wooden doors & windows substitutes such as plastic doors/windows, PTMT fittings, FRP water tanks.

CE/----: STANDARD SPECIFICATIONS FOR MATERIAL & WORKS:

Introduction of all chapters.

CE/---- : SOR & AOR:

Introduction of all chapters of SOR, Introduction to schedule of rates, Authority to issue correction slips, Thorough study and use of SOR, Recovery of water charges, Preparation of estimates & bill as per SOR, Schedule and non-schedule items, Rates & their analysis.

CE/----: CARE & COSTODY OF SURVEY EQUIPMENTS:

Handling of instruments, Transport & protection from sun, Upkeep of instruments, Permanent adjustments, Repairs & periodical overhaul, Numbering & allotment of instruments, Register of instruments & its valuation.

CE/972: COMPUTER & THEIR USES:

Various languages suitable for civil engineering applications, Windows–2000, M.S. Office, Use of Internet, E-mail, Latest advancement in Information Technology.

CE-27

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: SE/ WORKS

STAGE: INDUCTION (PH-II)

NAME-----

PF NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 02 MONTHS

S.NO. MOD NO. DESCRIPTION DAYS CERTIFICATION (48)

1. CE/969 P.WAY 09
2. LABOUR MANAGEMENT 06
3. CE/965 SOIL MECHANICS & FOUNDATION 06
4. CE/966 BRIDGES 09
5. CE/961 TRANSPORTATION AND G & SR 04
6. CE/---- ACCIDENT MANUAL 02
7. CE/953 FINANCIAL CODE 03
8. CE/---- FINANCIAL POWER 01
9. CE/957 STORE CODE 06
10. CE/---- RAJ BHASHA 02

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APP. SE/ WORKS (PHASE-II):

CE/969: P.WAY:

Parts of permanent way and Functions, Brief idea of standard sleepers in use Standard fittings and fastenings and their use, Typical sketches for formation in embankment and cutting for single line and double line for BG, MG and NG, Ballast sections for ordinary and welded rails, Specification for stone ballast and measurement, Track on bridge, Timber dimensions, Spacing and use of hook bolts, **Breaches type, Prevention of breaches**, Welded rails, Theory and reason in brief for special maintenance precaution, Brief idea of organisation of permanent way gangs and their duties, **Drainage of yard and track** , Important terms of turnouts with sketch, Brief idea of X-overs, Scissors X-overs, Diamond Crossing with or without slips, Gathering lines, Hump, Important terms of a curve, Relation between radius, Degree of curve, Versine and chord length and formula for off set, Brief idea of types of curves, Laying of simple circular curve by tangential off set method, Long chord method, Quartering of versine method, Chord deflection method and theodolite method, Transition curve, Necessity, Shape, Length and laying of transition curve, Super elevation, Cant deficiency, Cant excess, Rate of change of Cant/Cant deficiency, Cant gradients and their maximum limits, Maximum permissible speed on curves, Maximum sanctioned speed, Formula for SE in metric unit and designing of speed on simple curves with transition, Curves, Gradients, Ruling gradient, Pusher gradient, Momentum gradient and grade compensation, Diversion, Types, formula for length of diversion and designing of diversion, Extra clearance of curves, Track on bridges, Bridge timber, Temporary and semipermanent

diversion, **Breaches**, Correction slips and CE circulars, Specification of Track ballast, **Action during accident and breaches**, Pre-monsoon precautionary measures, Special attention to vulnerable locations, Engineering restriction, **Short duration work, long duration works, Protection of line, Temporary Engineering fixed signal, Indicators, Working of light Trollys, Motor Trollys and Material lorries, Rules of working with light Trollys, Motor Trollys and material lorries, Engineering works in electrified area, Rules for working in electrified section, Precaution while working in electrified section.**

CE/970: LABOUR MANAGEMENT:

Railway service conduct rules, Leave rules, Pass rules, Medical assistance rules, Pension Scheme, Staff benefit fund, Discipline and Appeal rules, Hours of employment regulation act, Workman's Compensation Act, Payment of Wages Act, Minimum wages Act, Pay sheet, Trade Test, Establishment records in SSE/SE/JE/Work's office, Provident fund, PNM, JCM, PREM.

CE/965: SOIL MECHANICS:

Terms used in soil mechanics, Properties of soil, Classification of soil, Identification of soil, Compaction & Quality control in earth work, Rehabilitation of weak formation, Soil exploration, Foundation, Bearing capacity.

CE/966: BRIDGE:

Bridge Terminology, Classification of bridges, Inspection and maintenance of bridges including replacement of bed block and painting, Schedule of Inspection by SSE/SE/JE/Works/Bridge/ADEN, Bridge Inspection Register, Detailed Inspection of bridges, Distressed Bridges, Numerical Rating System, Precautions while working on bridges, Types of bearings and their maintenance, Rivers and Floods: Flood records, Classification of Rivers, River training works: Such as Guide bunds, Marginal bunds, Groynes & spurs closure bunds, assisted cut off, Temporary arrangement, Sleeper crib, CC crib, Rail cluster, Inspection and maintenance of tunnels, Schedule of inspection, Detailed inspection of tunnel and inspection register, Correction slips and CE circulars.

CE/961: TRANSPORTATION:

G&SR: Important definitions, Fouling mark, Adequate distances, Competent authority, Authority to proceed, Block back, Block forward, Facing points & Trailing points, Material Train, Isolation, Line clear, Main line, Obstruction, Running line, Station, Station limit, Block section, Track circuit, Train, Interlocking, Mixed train, C.R.S.

CLASSIFICATION OF STATIONS: Block station (A, B, C & special class), Non- Block station (D, K & Flag), Layouts of A, B & C class stations.

SIGNALS & THEIR ASPECTS: Fixed signals, Detonators, Flare signals.

SPEEDS: Maximum sanctioned speed, Booked speed.

SYSTEMS OF WORKING: Various systems, Essentials of absolute block system & automatic block system, Essential conditions of granting line clear.

CE/----: ACCIDENT MANUAL:

Definition and general instructions, Classification of accidents, Restoration of

accidents, Action taken in case of serious accidents, Examination of evidence and preservation of clues, Duties of Engineering officials dealing with serious accidents, Accident enquiries.

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CE/953: FINANCIAL CODE:

1. Financial organization - Railway financial organization, Canons of financial proprieties. (Ch.1)
2. Railway budget - Preparation of railway budget, Submission and compilation, Demand for grant, Appropriation bill, Voted expenditure, Charged expenditure, Re-appropriation, Contingency fund, Consolidated fund of tender, Works demand (Ch.III)
3. Appropriation accounts, public accounts committee, civil grants (Ch.IV)
4. Allocation of expenditure - Capital, Development fund, Depreciation reserve fund, Open line work revenue and Revenue Fund. (Ch.VII)
11. Classification of expenditure concerning to civil engineering. (Vol.II)

CE/ : FINANCIAL POWERS:

Financial powers of Division & Head Qrs. Engg. Officers.

CE/957: STORE ACCOUNTS:

Store organisation on Railways, Working on store departments, Price list classification of stores depot, Indenting of store materials, Issue and receipt of materials, Disposal of surplus stores, Stock verification, Over hauling of store accounts, RMC notes, Issue note, Credit note, Issue of material to departmental labour and contractor, Various store accounts maintained SSE/SE/JE/Works, Red issue notes, Engineering plant reserve, Powers of store officers, Indemnity bond, Demurrage, Wharf age, Gate pass, Numerical & priced ledger, Stock items, Non stock items, Ordinary stores, Emergency stores, Special stores, Surplus Stores, Inventory control.

CE/ : RAJBHASHA:

Directives for implementation of RAJBHASHA, Use of RAJBHASHA in day to day working.

CE-22

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: JE-II/WORKS

STAGE: INDUCTION (PH-I)

NAME-----

P.F. NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 03 MONTHS

S/NO. MOD NO. DESCRIPTION DAYS CERTIFICATION

(72)

1. CE/851 IR WORKS MANUAL 15
2. CE/852 ENGINEERING CODE 15
3. CE/855 SCHEDULE OF DIMENSIONS 02
4. CE/857 WATER SUPPLY 05

5. CE/858 SANITATION 05
6. CE/859 NEW BUILDING MATERIALS 05
7. CE/860 STANDARD SPECIFICATION FOR MATERIALS AND WORKS 15
8. CE/861 SCHEDULE OF RATES AND 05 ANALYSIS OF RATES
9. CE/ CARE & COSTODY OF SURVEY EQUIPMENT 01
10. CE/ COMPUTER & IT'S USAGE 04

APP. JE-II/WORKS,(PHASE-I):

PAPER-I:

CE/851: I.R.WORKS MANUAL:

7. Duties of JE/SE/Works - A brief idea about duties of JE/SE/Works (Ch.I)
2. Inspection & maintenance of building and structure other than bridges, siting of building. Building register, Water supply & sanitary arrangements at station & colony. Various colour schemes. Maintenance of Building, Directed maintenance, Periodical renovation works, Petty repair book, Inspection schedule for building and structure. (Ch.II)
3. Maintenance of sanitary and hygienic conditions in station, yards and colony, Sanitation committee, Colony care committee and their inspection, Area housing committee. (Ch.III).
4. Station & Yards - Platform and equipment thereon, Indication boards and their colour scheme (Ch.IV)
5. Water supply: Sampling, Capacity of sources and Cleaning of storage tanks, Pipeline, Valves and meters, Distribution of water, Service pipes from mains, Responsibility of Engg. Staff, Calculating BHP of pump (Ch.V)
6. Drainage and Sewerage, Sewer lines and their maintenance, Surface drainage, Laying of sewer line pipes, Sanitary arrangements at station and colonies. (Ch.VI)
7. Garden and Plantation - Planting and care of young trees, Garden in Officer's Bungalow & Sr. Subordinates quarters, Maintenance, incidence of service, Provision of lawns and hedges in bungalow. (Ch.VII)
8. Acquisition, Management & disposal of land incl. policy letters, Acquisition of land, Demarcation and custody of land, Land boundary, Land records, Verification of land boundaries, Leasing & licensing, Policy letters. (Ch.VIII)
12. Preparation of plans: Plans for other departments, Size of drawings, Title & numbering of drawings, Scale of drawings, Details on drawings, Symbols & colours on drawings, Standard drawings, Plans issued by the Chief Engineer's office, Plans in Division/Dy. Chief Engineer's, Assistant Engineer's and Section Engineer's office, Completion drawings, Care & filling of Tracing. (Ch.IX)
10. Storage and use of Explosives, Storage of explosive, Use of explosive, Destruction of explosives. (Ch.X)
7. Police Jurisdiction: Cognizable and non-cognizable offence, Prevention of trespass, Disposal of human bodies found run over, Disposal of cattle found on the line. (Ch.XI)

CE/852: ENGINEERING CODE:

1. Organization and Administration - Engineering organization and administration at Head Quarter, Divisional office, Sub-divisional office, Construction office (Ch.I)
2. Modes of investigation of Railway projects - Techno economic surveys, Categories of lines. (Ch.II)
3. Engineering Surveys - Classification of survey, reconnaissance survey, Preliminary Survey, Final location survey, Drainage, survey reports. (Ch.IV & V)
4. Investment planning and Works Budget - Preparation of preliminary works programme Final works programme, Works Budget, Demand for grants (Ch.VI)
5. Estimates: Kinds of estimates, Abstract estimates, Detailed estimates, Supplementary estimate and Revised estimates, Project abstract estimate, Construction estimates, Completion estimates, Estimate for railway project, Estimate of open line works, Estimate of deposit works, Checking of estimate and currency of sanction. (Ch.VII)
6. Rules for acquisition of land, Acquisition of land, Responsibilities of Administration, Classification of Railway land, Land plans and schedules, Application for acquisition, Procedure for acquisition of land, Custody of land, Management of land, Lease and licensing, Policy letters regarding land, Demarcation of land (Ch.VIII, IX, X)
7. Execution of works - Urgency certificates, Material modification, Agencies for executing works, General instruction regarding execution of works, Execution of Deposit works, Departmental charges (Ch.XI)
8. Contract for works - Definition of contract, Works contracts, Forms of work contracts, Tender system, Classes of tender, List of approved contractor, General principles for contract agreement, General and special conditions of contract, Earnest money and security deposit, Standing earnest money, Tender committee, Delayed and late tenders, Contract agreement, Advance to contractors, Liquidated damages. (Ch.XII)
9. Initial records - Muster sheet, Register of wages, Payment to supplier and contractors, Measurement book, Powers of recording measurements, Standard measurement, Measurement of ballast, Petty contract bill, On Account bill, Final bill, Hand receipts, Preparation of contract bill, Pay-order, Checking of Initial records. (Ch.XIII)
10. Initial accounts of revenue and works expenditure, Imprest stores, Store returns, Daybook, Half yearly review of imprest & surplus stores, Departmental stock verification, Charged off stores, Stores obtained for specific purpose, Register of works, T&P, adjustment memo, Adjustment bills, Ballast train returns, Revenue allocation registers, Departmental registers, Accounts of contractors. (Ch.XIV)
11. Expenditure and budgetary control, Responsibilities with regard to expenditure, Budgetary control, Budgetary reviews and exchequer control. (Ch.XV)
12. Commissioning of Railway Project Commissioning of new lines, Opening for

goods traffic. Opening for passenger traffic, Handing over of new lines for opening. (Ch.XVI)

13. Completion of railway projects - Completion estimates, Completion reports, Completion statements. (Ch.XVII)

7. Miscellaneous works, Works required for defence purposes, Works required to meet the requirement of the civil and defence department/Ministries, Road cum rail bridges and public footpaths over rail bridges, Works for civil departments/ Ministries level crossing over and under bridges, Assisted sidings, Deposit works. (Ch.XVIII)

15. Building and rent: Staff quarters rent, Various charges, Rest Houses, Military building on railway land, Service buildings, Recovery of charges for maintenance of lawn in staff quarters & bungalows, Rent rolls, List of buildings. (Ch.XIX)

PAPER-II:

CE/855: SCHEDULE OF DIMENSIONS:

1. Introduction

2. Standard Dimensions – Standard dimensions connected with Works: General, Station, yards, workshop machinery, All dimensions connected with works. (Schedule I)

3. Recommended dimensions – Recommended dimensions connected with Works: General, Station, Yards, Workshops and station machinery, Relevant dimension connected with works. (Schedule II)

4. List of infringements only understanding of Schedule III.

5. Correction slips.

CE/857: WATER SUPPLY:

Chief Engineer's Circulars on Water Supply, Tube wells, Site selection for tube well, Sinking of tube well, Verticality test, Yield test of tube well, Treatment of water, Sedimentation, Filtration, Chlorination, Super Chlorination, Break point chlorination, Overhead tanks, Distribution network, Laying of pipe lines, Management of water supply, Various valves and meter, Pipe line Fitting, IS code for various water supply fittings.

CE/858: SANITATION:

Sewer line: Their maintenance & construction, Open drains: Construction and Maintenance, Septic tank, Soak pit, Bio-latrines, Standard specification for various sanitary fittings.

CE/859: NEW BUILDING MATERIALS:

Light weight concrete, Decorative surface and laminates, PVC pipes, Bitumastic sheet, Hard and soft boards, Particle boards, Wooden doors & windows, Substitutes such as plastic doors/windows, PTMT fittings, FRP water tanks.

CE/860: STANDARD SPECIFICATION FOR MATERIALS AND WORKS:

Introduction of all the chapters.

CE/861: SCHEDULE OF RATES AND ANALYSIS OF RATES:

Introduction to schedule of rates, Authority to issue correction slips, Thorough

study and use of SOR, Recovery of water charges, Preparation of estimates & bill as per SOR, Schedule and non-schedule items, Rates & their analysis.

CE/ : CARE & COSTODY OF SURVEY EQUIPMENT:

Handling of instruments, Transport & protection from sun, Upkeep of instruments, Permanent adjustments, Repairs & periodical overhaul, Numbering & allotment of instruments, Register of instruments & its valuation.

CE/ : COMPUTER & THEIR USES:

Various languages suitable for civil engineering applications, Windows – 2000, M.S. Office, Use of Internet, E-mail, Latest advancement in Information Technology.

CE-23

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: JE-II/WORKS

STAGE: INDUCTION (PH-II)

NAME-----

PF NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 03 MONTHS

MOD NO. DESCRIPTION DAYS CERTIFICATION

(72)

CE/862 P.WAY 14

CE/863 LABOUR MANAGEMENT 10

CE/ FINANCIAL CODE 04

CE/ FINANCIAL POWER 01

CE/866 BRIDGES 14

CE/865 SOIL MECHANICS 10

CE/ STORE ACCOUNTS 10

CE/867 TRANSPORTATION AND G & SR 05

CE/868 ACCIDENT MANUAL 02

CE/ RAJ BHASHA 02

APP. JE-II/WORKS (PHASE-II):

CE/862: P.WAY:

Parts of permanent way and Functions, Brief idea of standard sleepers in use, Standard fittings and fastenings and their use, Typical sketches for formation in embankment and cutting for single line and double line for BG, MG and NG, Ballast sections for ordinary and welded rails, Specification for stone ballast and measurement, Track on bridge, Timber dimensions, Spacing and use of hook bolts, **Breaches, Type, prevention of breaches, Welded rails**, Theory and reason in brief for special maintenance precaution, Brief idea of organisation of permanent way gangs and their duties, **Drainage of yard and track**, Important terms of turnouts with sketch, Brief idea of X-overs, Scissors X-overs, Diamond Crossing with or without slips, Gathering lines, Hump, Important

terms of a curve, Relation between radius, Degree of curve, Versine and chord length and formula for off set, Brief idea of types of curves, Laying of simple circular curve by tangential off set method, Long chord off set method, Quartering of versine method, Chord deflection method and theodolite method, Transition curve, Necessity, Shape, Length and laying of transition curve, Super elevation, Cant deficiency, Cant excess, Rate of change of Cant/Cant deficiency, Cant gradients and their maximum limits, Maximum permissible speed on curves, Maximum sanctioned speed, Formula for SE in metric unit and designing of speed on simple curves with transition, Curves, gradients, Ruling gradient, Pusher gradient, Momentum gradient and grade compensation, Diversion, Types, formula for length of diversion and designing of diversion, Extra clearance on curves, Track on bridges, Bridge timber, Temporary and semi-permanent diversion, **Breaches, Action during accident and breaches, Pre-monsoon precautionary measures, Special attention to vulnerable locations, Engineering restriction and breaches, Short duration work, Long duration works, Protection of line, Engineering fixed signal & indicator, Working of light Trollys, Motor Trollys and Material lorries, Rules of working with light Trollys, Motor Trollys and material lorries, Engineering works in electrified area, Rules for working in electrified section, Precaution while working in electrified section.**

CE/863: LABOUR MANAGEMENT:

Railway service conduct rules, Leave rules, Pass rules, Medical assistance rules, Pension Scheme, Staff benefit fund, Discipline and Appeal rules, Hours of employment regulation act, Workman's Compensation Act, Payment of Wages Act, Minimum wages Act, Pay sheet, Trade Test, Establishment records in SSE/SE/JE/Work's office, Provident fund, PNM, JCM, PREM.

CE/865: SOIL MECHANICS:

Terms used in soil mechanics, Properties of soil, Classification of soil, Identification of soil, Compaction & Quality control in earth work, Rehabilitation of weak formation, Soil exploration, Foundation, Bearing capacity.

CE/866: BRIDGE:

Bridge Terminology, Classification of bridges, Inspection and maintenance of bridges including replacement of bed block and painting, Schedule of Inspection by SSE/SE/JE/Works/Bridge/ADEN, Bridge Inspection Register, Detailed Inspection of bridges, Distressed Bridges, Numerical Rating System, Precautions while working on bridges, Types of bearings and their maintenance, Rivers and Floods - Flood records, Classification of Rivers, River training works, Such as Guide bunds, Marginal bunds, Groynes & spurs closure bunds, Assisted cut-off, Temporary arrangement, Sleeper crib, CC crib, Rail cluster, Inspection and maintenance of tunnels, Schedule of inspection, Detailed inspection of tunnel and inspection register, Correction slips and CE circulars.

CE/867: TRANSPORTATION:

G&SR - Important definitions, Fouling mark, Adequate distances, Competent authority, Authority to proceed, Block Back, Block forward, Facing points &

Trailing points, Material Train, Isolation, Line Clear, Main line, Obstruction, Running line, Station, Station Limit, Block section, Track circuit, Train, Interlocking, Mixed train, C.R.S.

CLASSIFICATION OF STATIONS: Block station (A, B, C & special class), Non-Block station (D, K & Flag), Layouts of A, B & C class stations.

SIGNALS & THEIR ASPECTS: Fixed signals, Detonators, Flare signals.

SPEEDS: Maximum sanctioned speed, Booked speed.

SYSTEM OF WORKING: Various systems, Essentials of absolute block system & automatic block system, Essential conditions of granting line clear.

CE/868: ACCIDENT MANUAL:

Definition and general instructions, Classification of accidents, Restoration of accidents, Action taken in case of serious accidents, Examination of evidence and preservation of clues, Duties of Engineering officials dealing with serious accidents, accident enquiries.

CE/ : FINANCIAL CODE:

1. Financial organization - Railway financial organization, Canons of financial proprieties (Ch.1)
2. Railway budget - Preparation of railway budget, Submission and compilation, Demand for grant, Appropriation bill, Voted expenditure, Charged expenditure, Re-appropriation, Contingency fund, Consolidated fund of India, Works demand (Ch.III)
3. Parliamentary financial control - Appropriation accounts, Public accounts committee, Civil grants (Ch.IV)
4. Allocation of expenditure - Capital, Development fund, Depreciation reserve fund, Open line work revenue, Capital Fund and Revenue Fund. (Ch.VII)
5. Classification of expenditure concerning to civil engineering (Vol.II)

CE/ : FINANCIAL POWERS:

Financial powers of Division & Head Qrs. Engg. Officers.

CE/ : STORE ACCOUNTS:

Store organisation on Railways, Working on store departments, Price list, classification of stores depot, Indenting of store materials, Issue and receipt of materials, Disposal of surplus stores, Stock verification, Over hauling of store accounts, RMC notes, Issue note, Credit note, Issue of material to departmental labour and contractor, Various store accounts maintained by SSE/SE/JE/ Works, Red issue notes, Engineering plant reserve, Powers of store officers, Indemnity bond, Demurrage, Wharf age, Gate pass, Numerical & priced ledger, Stock items, Non stock items, Ordinary stores, Emergency stores, Special stores, Surplus Stores, Inventory control.

CE/ : RAJBHASHA:

Directives for implementation of RAJBHASHA, Use of RAJBHASHA in day to day working.

CE-18

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORK

DESIGNATION: WORKS SUPERVISOR (SOM)

STAGE: INDUCTION – PHASE -1

NAME-----

PF No.-----

DATE OF BIRTH-----

QUALIFICATION-----

DURATION: 02 MONTHS

MOD No. DESCRIPTION DAYS CERTIFICATION

(48)

CE/801 WORKS MANUAL 12

CE/802 ENGINEERING CODE 11

CE/803 SOR 5

CE/804 SCHEDULE OF DIMENSIONS 5

CE/ SPECIFICATION 15

APP. WORKS SUPERVISOR(SOM)/(PHASE-I):

CE/801: WORKS MANUAL:

9. Duties of Works Supervisor (SOM) - A brief idea about duties of Works Supervisor (SOM) (Ch.III)
2. Inspection & maintenance of building and structure other than bridges, Siting of building, Building register, Water supply & sanitary arrangements at station & colony, Various colour schemes, Maintenance of Building Directed maintenance, Periodical renovation works, Petty repair book, Inspection schedule for building and structure. (Ch.II)
3. Maintenance of sanitary and hygienic conditions in station, Yards and colony, Sanitation committee, Colony care committee and their inspection, Area housing committee. (Ch.III)
4. Station & Yards - Platform and equipment thereon, Indication boards and their colour scheme. (Ch.IV)
5. Water supply: Sampling, Capacity of sources, Cleaning of storage tanks, Pipe line, Valves and meters, Distribution of water, Service pipes from mains, Responsibility of Engg. Staff, Calculating BHP of pump (Ch.V)
6. Drainage and Sewerage, Sewer lines and their maintenance, Surface drainage, Laying of sewer line pipes, Sanitary arrangements at station and colonies. (Ch.VI)
7. Garden and Plantation - Planting and care of young trees, Garden in Officer's Bungalow & Sr. Subordinates quarters, Maintenance, Incidence of service, Provision of lawns and hedges in bungalow. (Ch.VII)
7. Acquisition, Management & disposal of land, Incl. policy letter, Acquisition of land, Demarcation and custody of land, Land boundary, Land records, Verification of land boundaries, Leasing & licensing, Policy letters. (Ch.VIII)
8. Preparation of plans: Plans for other departments, Size of drawings, Title & numbering of drawings, Scale of drawings, Details on drawings, Symbols & colours on drawings, Standard drawings Plans issued by the Chief Engineer's office, Plans in Division/Dy. Chief Engineer's, Assistant Engineer's and Section Engineer's office, Completion drawings, Care & filling of Tracing. (Ch.IX)

9. Storage and use of Explosives, Storage of explosive, Use of explosive, Destruction of explosives (Ch.X).
10. Police Jurisdiction: Cognizable and non-cognizable offence, Prevention of trespass, Disposal of human bodies found run over, Disposal of cattle found on the line. (Ch.XI)

CE/802: ENGINEERING CODE:

1. Organisation and Administration - Engineering Organisation and administration at Head Quarter, Divisional office, Sub-divisional office, Construction office. (Ch.1)
2. Modes of investigation of Railway projects-Techno-economic surveys, Categories of lines (Ch.II).
13. Engineering surveys- Classification of survey, Reconnaissance survey, Preliminary survey, Final location survey, Drainage, Survey reports. (Ch.IV & V)
4. Investment planning and Works Budget - Preparation of preliminary works programme, Final works programme, Works Budget, Demand for grants (Ch.VI)
5. Estimates - Kinds of estimates, Abstract estimates, Detailed estimate, Supplementary estimate and Revised estimates, Project Abstract estimate, Construction estimates, Completion estimates, Estimate for Railway project, Estimate of Open line works, Estimate of Deposit works, Checking of estimate, Currency of sanction. (Ch.VII)
6. Rules for acquisition of land, Procedure for acquisition and management, Acquisition of land, Responsibilities of Administration, Classification of Railway land, Land plans and schedules, Application for acquisition, Procedure for acquisition of land, Custody of land, Management of land, leasing and licensing, Policy letters regarding land, Demarcation of land. (Ch.VIII, IX, X)
7. Execution of works - Urgency certificates, Material modification, Agencies for executing works, General instruction regarding execution of works, Execution of Deposit Works, Departmental charges. (Ch.XI).
8. Contract for works - Definition of contract, Works contract, Forms of work contracts, Tender system, Classes of tender, List of approved contractor, General principle for contract agreement, General and special condition of contract, Earnest money and security deposit, Standing earnest money, Tender committee, Delayed and Late tenders and Contract agreement, Advance to contractors, Liquidated damages. (Ch.XII)
9. Initial records - Muster sheet, Register of wages, Payment to supplier and contractors, Measurement book, Powers of recording measurements, Standard measurement, Measurement of ballast, Petty contract bill, On Account bill, Final bill, Hand receipt, Preparation of contract bill, Pay-order, Checking of initial records. (Ch.XIII)
10. Initial accounts of revenue and works expenditure – Imprest, Stores, Store returns, Day book, Half yearly review of imprest and surplus stores, Departmental stock verification, Charged off stores, Stores obtained for specific purpose, Register of Works, T&P Adjustment memo, Adjustment

Bills, Ballast train returns, Revenue allocation registers, Departmental register, Accounts of contractors. (Ch.XIV)

11. Expenditure and budgetary control - Responsibilities with regard to expenditure, Budgetary control, Budgetary reviews and exchequer control. (Ch.XV)

12. Commissioning of Railway Project Commissioning of new lines, Opening for goods traffic, Opening for passenger traffic, Handing over of new lines for Opening. (Ch.XVI)

13. Completion of railway projects - Completion estimates completion reports, Completion statements. (Ch.XVII)

14. Miscellaneous works, Works required for defence purposes, Works required to meet the requirement of the civil and defence department/Ministries, Road cum rail bridges and public footpaths, Over Rail Bridge, Works for civil department/Ministries, Level crossing over and under bridges, Assisted sidings, Deposit works. (Ch.XVIII)

15. Building and rent: Staff quarters rent, Various charges, Rest Houses, Military building on railway land, Service buildings, Recovery of charges for maintenance of lawn in staff quarters & bungalows, Rent rolls, List of buildings. (Ch.XIX)

CE/803: SCHEDULE OF RATES:

Introduction to schedule of rates, Authority to issue correction slips, Thorough study and use of SOR, Recovery of water charges, Preparation of estimates & bills as per SOR, Schedule and non-schedule items, Rates & their analysis.

CE/804: SCHEDULE OF DIMENSIONS:

1. Introduction

7. Standard Dimensions - General, Station, Yards, Workshop machinery, Rolling stocks, All dimensions connected with works.

3. Recommended dimensions, General, Station, Yards, Workshop and station machinery relevant dimension connected with works.

4. List of infringements only understanding of Schedule III.

CE/ : SPECIFICATION:

Introduction of all chapters.

CE-19

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORK

DESIGNATION: WORKS SUPERVISOR (SOM)

STAGE: INDUCTION (PHASE II)

NAME-----

PF NO.-----

DATE OF BIRTH-----

QUALIFICATION-----

DURATION: 02 MONTHS

MOD NO. DESCRIPTION DAYS CERTIFICATION (48)

CE/805 G & SR 5

CE/806 P.WAY MANUAL 5

CE/807 WATER SUPPLY 5

CE/808 SANITATION 5

CE/809 TENDER & CONTRACTS 5

CE/810 LABOUR MANAGEMENT 8

CE/811 BRIDGES 8

CE/812 ACCIDENT MANUAL 7

APP. WORKS SUPERVISOR(SOM),PHASE-II:

CE/805: GENERAL AND SUBSIDIARY RULES:

General rules applying to Railway employee, Protection of lines in case of emergency, Various signals, Rules of working Trolley and lorries, etc.

CE/806: P.WAY MANUAL:

Action during accident and breaches, Pre monsoon precautionary measures, Special attention to vulnerable sections (Ch.XIV), Engineering restriction and breaches: Short duration work, Long duration works, Protection of line, Temporary Engineering fixed signals & indicators (Ch.XV), Working of light, Trolleys, Motor trolleys and Material Lorries, Rules of working with light trolleys, Motor trolleys, Material lorries (Ch.XVIII), Engineering works in electrified area, Rules for working in electrification, Precaution while working in electrified section (Ch.XX)

CE/807: WATER SUPPLY:

Based on CE circular of water supply, Quality of water & source, Tube wells, Site selection for tube well, Sinking of tube well, Vertically test, Yield test of tube well, Tube well failure and remedies, Treatment of water, Sedimentation, Filtration, Chlorination, Super chlorination, Break point chlorination, Over head tanks, Cleaning & maintenance of over head tank, Distribution of net work, Pumps, Laying of pipe lines, Management of water supply, Various valves and meter fitting to pipe lines, IS for various water supply fittings.

CE/808: SANITATION:

Sewer lines and their maintenance and construction, Open drains, Construction & maintenance of: Septic tank, Soak pit, Scale of providing sanitary fittings, Bio latrines, Standard specification for various sanitary fittings.

CE/810: LABOUR MANAGEMENT:

Railway service conduct rules, Leave rules, Pass rules, Medical assistance rule, Pension Scheme, Staff benefit fund, Discipline and Appeal rules, Hours of employment Regulation act, Workman's Compensation Act, Payment of Wages Act, Minimum wages Act, Pay sheet, Trade Test, Establishment records in SSE/SE/JE/Works office.

CE/811: BRIDGES:

Inspection & maintenance of bridge, Classification of Bridges, Rebuilding of bridges, Temporary arrangements sleeper cribs, CC cribs, Rail clusters, Changing of bed blocks, Painting of bridges, Repair to bridges, Precaution while working on bridges, Maintenance of bearing and girder seating.

CE/812: ACCIDENT MANUAL:

Definition and general instructions, Classification of accidents, Restoration

of accidents, Action taken in case of serious accidents, Examination of evidence and preservation of clues, Duties of Engineering officials dealing with serious accidents.

B. PROMOTION:

CE-25

DEPARTMENT: CIVIL ENGINEERING
ACTIVITY CENTRE – WORKS

DESIGNATION - JE-II/WORKS

STAGE: PROMOTIONAL

NAME-----

PF NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 02 MONTHS

MOD NO. DESCRIPTION DAYS CERTIFICATION (48)

CE/ WORKS MANUAL 05

CE/ ENGG. CODE 06

CE/ SPECIFICATION 06

CE/904 NEW BUILDING MATERIALS 02

CE/906 FINANCIAL CODE 01

CE/908 ESTIMATING & DRAWING 03

CE/902 P. WAY 07

CE/903 TRANSPORTATION 04

CE/ BRIDGE 04

CE/905 STORE ACCOUNTS 03

CE/907 SOIL MECHANICS 04

CE/ WATER SUPPLY 03

92

**PROMOTION COURSE FROM WORKS SUPERVISOR(SOM)
TO JE-II/WORKS:**

PAPER-I:

CE/ : WORKS MANUAL:

Introduction to all chapters.

CE/ : ENGINEERING CODE:

Surveys, Estimates, Engineering stores, Tenders & contracts.

CE/ : SPECIFICATIONS:

Introduction to all chapters.

CE/904: NEW BUILDING MATERIALS:

Light weight concrete, paints, decorative surface and laminates, PVC pipes, Bitumastic sheets, Hard and soft boards, Particle boards, Plastic doors, FRP tanks.

CE/906: FINANCIAL CODE:

Canons of financial proprieties, Budget, Allocation of expenditure - Development fund, Depreciation reserve fund, Open line works revenue, Capital fund and revenue fund. (Ch.VII)

CE/908: ESTIMATING & DRAWING:

Preparation of drawing of various structures and estimation of their quantities and layouts.

PAPER-II:

CE/902: P.WAY:

Parts of Permanent Way and Functions, Brief idea of standard sleepers in use Standard fittings and fastenings and their use Typical sketches for formation in embankment and cutting for single line and double line for BG, MG and NG, Ballast sections for ordinary and welded rails, specification for stone ballast and measurement, Track on bridge, Timber dimensions, Spacing and use of hook bolts, **Breaches-type, Prevention of breaches, Welded rails**, Theory and reason in brief for special maintenance precautions, Brief idea of organisation of permanent way gangs and their duties, **Drainage of yard and track**, Important terms of turnouts with sketch, Brief idea of X-overs, Scissors X-overs, Diamond Xing with or without slips, gathering lines, Important terms of a curve, Relation between radius, Degree of curve, Versine and chord length and formula for off set, Brief idea of types of curve, Laying of simple circular curves by tangential off set method, Long chord method, Quartering of versine method, Chord deflection method and theodolite method, Transition curve, necessity, Shape, Length and laying of transition curves, Super elevation, Cant deficiency, Cant excess, Rate of change of cant/cant deficiency, Cant gradients and their maximum limits, Maximum permissible speed on curves, Maximum sanctioned speed, Formula for SE in metric unit and designing of speed on simple curves with transition, Curves, gradients, Ruling gradient, Pusher gradient, Momentum gradient and grade compensation, Diversions, Types, formula for length of diversion and designing of diversion, Extra clearance on curves, **Short & long duration works, Protection of track, Engg. Indicators, Working of Push trolley, Motor trolley, Dip lorry & rail dolly.**

CE/903: TRANSPORTATION:

Important definitions, General rules applying to railway servants, Signals, General provisions, Description of fixed signals, Hand signals, Detonating signals, Fusee signals, Defective fixed signals, Rule for passing defective signals, Various systems of working, Essentials of absolute block system, Essentials of automatic block system, Classification of stations, Simple layouts and condition for granting permission to approach.

CE/ : BRIDGE:

Terminology, Classification of bridge, Maintenance & inspection of bridge, Distressed bridge & its rehabilitation.

CE/905: STORE ACCOUNTS:

Store Organisation on Railways, Working on store departments, Price list classification of stores depot, Indenting of store materials, Issue and receipt of materials, Disposal of surplus stores, Stock verification, Overhauling of store accounts, Issue Note, RMC notes, Credit note, Issue of material to departmental labour and contractor, Various store accounts maintained by SSE/SE/JE/Works, Red issue note, Engineering plant, Reserve, Powers of

store officers for purchase, Indemnity bond, Gate pass, Wharphage, Demurrage.

CE/907: SOIL MECHANICS:

Terms used in soil mechanics, Properties of soil, Index properties, Classification of soil, Identification of soils, Compaction and quality control in earth work, Rehabilitation of weak formation, Soil exploration, Foundation, Bearing capacity.

CE/---- WATER SUPPLY:

CE circulars on water supply, Quality of water & source Tube wells, Site selection for tube well, Sinking of tube well, Verticality test, Yield test of tube well, Tube well failure and remedies, Treatment of water, Sedimentation, Filtration, Chlorination, Super chlorination, Break point chlorination, Over head tanks, Cleaning & maintenance of over head tank, Distribution net work, Pumps, Laying of pipe lines, Management of water supply various valves and meter fitting to pipe lines, BIS for various water supply fittings.

CE-20

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: WORKS SUPERVISOR (SOM)

STAGE: PROMOTIONAL

NAME-----

PF NO-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION – 03 MONTHS

MOD NO. DESCRIPTION DAYS CERTIFICATION (72)

CE/813 G & SR 1

CE/814 SCHEDULE OF DIMENSIONS 5

CE/815 IRWM 17

CE/ P.WAY MANUAL 2

CE/ BRIDGE 3

CE/ ENGINEERING CODE 5

CE/818 SANITARY & WATER SUPPLY 8

CE/819 SURVEY PRACTICAL 6

CE/820 SKETCHING & ESTIMATING 5

CE/821 SPECIFICATION & SOR 20

PROMOTION COURSE FROM ARTISAN TO WORKS

SUPERVISOR (SOM):

CE/813: GENERAL AND SUBSIDIARY RULES:

General rules applying to Railway employee, Protection of lines in case of emergency, Various signals.

CE/814: SCHEDULE OF DIMENSIONS:

Introduction to schedule of dimensions and all relevant dimensions connected with works, Explanation with sketches, Standard Dimension,

Recommended dimensions.

CE/815: INDIAN RAILWAY WORKS MANUAL:

Introduction to all chapters.

CE/ : P.WAY MANUAL:

Protection of track, Engineering indicators, Trolley, Motor trolley, Lorry working, Action during Accident and breaches.

CE/ : BRIDGE:

Introduction, Classification and inspection of bridge & tunnel.

CE/ : ENGINEERING CODE:

Survey, Estimates, Initial records.

CE/818: SANITARY AND WATER SUPPLY:

(g) SANITARY:

Various types of sanitary fittings and their scales, Different types of traps and their functions, Surface drains alignment and construction, Sewer lines, their maintenance and construction, Manholes, Septic tanks, Soak pits, Biolatrines.

(b) WATER SUPPLY:

Requirement of water for various purpose and drinking purpose, Quality of water supplies, Filtration, Dis-infection, Chlorination, Superchlorination and break point chlorination, Aqua type chlorinators, Gas chlorinators, Maintenance of over head tanks and pipe lines, Distribution and management of water supply, Various types of sources, Tube wells, Selection of site for tube well, Laying of pipelines, Various test for pipelines, Various types of fittings in water supply and their standards.

CE/819: SURVEY PRACTICAL:

Chain survey, Various types of chains, Commonly used chain in Railway, Tapes and Compass survey.

CE/820: SKETCHING AND ESTIMATING:

Estimating quantity of material required for construction, Preparation of estimate as per SOR.

CE/821: SPECIFICATION & SCHEDULE OF RATES:

Detailed study of standard specification and schedule of rates, All chapters of standard specification with good knowledge of general items in works, Schedule of Rates – Introduction, Information available, Authority to change or correct the items, How to use schedule of rates, Recovery of water charges, etc.

C. REFRESHER:

CE-24

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY: WORKS

DESIGNATION: SSE/SE/JE/WORKS

STAGE: REFRESHER

NAME-----

PF NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION -----

DURATION: 12 WORKING DAYS

MOD NO. DESCRIPTION DAYS CERTIFICATION (12)

CE/884 SCHEDULE OF DIMENSIONS

CE/885 I. R. W MANUAL

CE/886 INDIAN RAILWAYS CODE FOR THE
ENGINEERING DEPARTMENT

CE/887 NEW BUILDING MATERIALS

CE/888 GCC REGULATIONS AND INSTRUCTIONS

FOR TENDERS AND STANDARD FORMS

OF CONTRACT INCLUDING CE

CIRCULARS POLICY LETTERS ISSUED

CONCERNING TO TENDERS AND

CONTRACTS. FINANCIAL POWERS OF

ENGINEERING OFFICERS.

CE/889 STANDARD SPECIFICATIONS FOR

MATERIALS & WORKS, SOR, ANALYSIS

OF RATES

CE/890 GENERAL AND SUBSIDIARY RULES

CE/891 BRIDGE

CE/892 ECONOMY IN CONSTRUCTION AND

MAINTENANCE OF BUILDINGS USE OF

TOR STEEL, DIRECTED MAINTENANCE,

ALL CIRCULARS FOR WORKS, BRIDGES

CE/893 WATER SUPPLY AND SEWERAGE

SYSTEMS

CE/894 EARTHWORK

CE/895 STORES

CE/896 IDENTIFICATION OF TIMBRES USED

IN BUILDING WORK

CE/897 LABOUR MANAGEMENT

CE/898 MANAGEMENT DEVELOPMENT

PROGRAMME

CE/---- P. WAY

CE/899 STUDY TOUR TO MAJOR RAILWAY

STATIONS AND TO SITE OF A

CONSTRUCTION WORK

CE/900 CONCEPT OF WORKING ON P.C.

CE/---- RAJBHASHA

CE/901 WRITTEN EXAMINATION WITH

OBJECTIVE TYPE QUESTIONS.

SSE/SE/JE/WORKS/ REFRESHER:

CE/884: SCHEDULE OF DIMENSIONS:

Schedule - I Chapter I - Item No. 1, 2, 5 to 15

Chapter II - Item No. 1 to 11

Chapter III - Item No. 1 to 16

Chapter IV (A) - Item No. 9 to 11, 23 to 28

Chapter IV (B) - Item No. 8 to 10

Chapter V - Item No. 1 to 5

Schedule - II Chapter IR - 1 to 8, 13R, 16R

Chapter IIR -1 to 6

Chapter IIIR-1 to 6

Schedule - III Understanding of this Schedule.

CE/885: I.R.WORKS MANUAL:

Introduction to all chapters & correction slips/policy letters issued up-to-date.

**CE/886: INDIAN RAILWAYS CODE FOR THE
ENGINEERING DEPARTMENT:**

Chapter IV, V, VII, VIII, IX, X, XI, XII, XIII, XIV, XVII, XVIII, XIX.

CE/887: NEW BUILDING MATERIALS:

vii) Light weight concrete

viii) Plastic Finishes

ix) Various types of paints, Their selection, Chemistry and method of application.

x) Use of decorative surface laminates, Hard and soft board, Particleboards.

xi) Use of polythene and concrete pipes for water supply.

xii) Plastic doors/windows, PTMT fittings, Pre fabricated polyethylene & FRP water tanks.

CE/888: TENDER & CONTRACT:

General conditions of Contract Regulations, Instructions for Tenderers and Standard forms of contract including C.E.Circulars & Policy letters issued concerning to tenders and contracts, Financial powers of Engg. Officers.

CE/889: STANDARD SPECIFICATIONS, SOR & AOR:

Standard specifications for works, Schedule of Rates, Analysis of Rates.

CE/890: G & SR:

General and Subsidiary Rules.

CE/891: BRIDGE:

Classification, Maintenance & inspection of bridge, Temporary arrangements for laying R.C.C. bed blocks.

CE/892:

Economy in construction and maintenance of buildings, Use of TOR Steel, Directed maintenance, All Circulars for Works, Bridges.

CE/893 WATER SUPPLY AND SEWERAGE SYSTEMS:

i) All C. E. Circulars on water supply

ii) All Joint Engg. and Medical circulars on water supply.

iii) Policy letters issued by C.E. on water supply

iv) Requirement of Water

v) Chlorination and Super Chlorination, filtration

vi) Management of water supply in colonies.

vii) Sanitary fittings and traps - Scale of providing fittings.

CE/894 EARTH WORK:

- vii) Soil suitable for banks
- viii) Mechanical compaction of banks.
- ix) Special precautions for banks in black cotton soil.
- x) Measurement for lead, lift and calculation of cubical contents.

CE/895: STORES:

Indenting, Custody and inventory control, Indenting for cement and steel, Disposal of scrap, Write off of stores, Stock verification and Stock sheet.

CE/896: IDENTIFICATION OF TIMBERS USED IN BUILDING WORK:

CE/897: LABOUR MANAGEMENT:

- vii) Minimum Wages Act.
- viii) Hours of employment Regulations Act.
- ix) Payment of Wages Act.
- x) Leave rules, Pass rules.
- xi) D&A Rules.
- xii) Workmen’s Compensation Act.

CE/898: Management Development Programme.

CE/----: P. WAY:

Protection of track, Engg. Indicators, Short and long duration work, Trolley, Motor trolley, Diplorry, Rail dolly working.

CE/899: Study Tour to major railway station/site of construction Work.

CE/900: Concept of working on P.C.

CE/----: RAJBHASHA

CE/901: Written examination with objective type questions.

CE-21

DEPARTMENT: CIVIL ENGINEERING

ACTIVITY CENTRE: WORKS

DESIGNATION: WORKS SUPERVISOR (SOM)

STAGE: REFRESHER

NAME-----

PF NO.-----

DATE OF BIRTH-----

ACADEMIC QUALIFICATION-----

DURATION: 12 WORKING DAYS

MOD NO. DESCRIPTION DAYS CERTIFICATION

(12)

CE-822 SOD

CE/823 I. R. Works & P.WAY MANUAL “

CE/824 STANDARD SPECIFICATIONS “

CE/825 ESTIMATING “

CE/826 WATER SUPPLY AND SANITARY “

ENGINEERING

CE/---- SOR & AWARENESS OF CORRECTION

SLIPS ISSUED “

CE/---- ESTABLISHMENT “
CE/---- BRIDGE “
CE/ ENGINEERING CODE “
CE/827 CE CIRCULARS “
CE/ CONCEPT OF WORKING ON PC
CE/828 STUDY TOUR “
CE/829 WRITTEN EXAMINATION “

**WORKS SUPERVISOR (SOM)/ REFRESHER:
CE/822: SCHEDULE OF DIMENSIONS:**

Schedule I:

Chapter I - S.No. 1, 2, 5 to 11, 13 to 15.
Chapter II - S.No. 1 to 11.
Chapter III - S.No.1 to 6.
Chapter IV-A - S.No.9 to 11, 23 to 28, 35 to 37.
Chapter IV-B - S.No.8 to 10.

Schedule II:

Chapter IR - S.No. 1 to 6, 16.
Chapter 2R - S.No. 1 to 6.
Chapter 3R - S.No. 1 to 6.

Schedule III:

Under standing of this schedule.

CE/823: I.R.WORKS MANUAL & P.WAY MANUAL:

(a) WORKS MANUAL:

Introduction to all chapters and correction slips/policy letters issued up date.

(b) P.WAY MANUAL:

Protection, Working of trolley, Motor trolley & Lorry.

CE/824: STANDARD SPECIFICATIONS:

Introduction to All chapters.

CE/825: ESTIMATING:

Estimating building materials for concrete, Masonry, Flooring, Finishing and Painting.

CE/826: WATER SUPPLY & SANITARY ENGINEERING:

WATER SUPPLY:

Water supply and sanitary Engineering: Source of water supply, Filtration, Chlorination, Cleaning of overhead tanks, Super-chlorination, Test for residual chlorine.

SANITARY ENGINEERING:

Drainage, Sewer lines, Open drains, manhole, Septic tank, Soak pit.

CE/----: SOR & AWARENESS OF CORRECTION SLIPS ISSUED:

CE/----: ESTABLISHMENTS:

Leave & pass rules, D&AR.

CE/----: BRIDGE:

Important terms, Classification of bridge, Inspection & maintenance of bridge.

CE/----: INDIAN RAILWAYS CODE FOR THE ENGINEERING DEPARTMENT:

Estimates, Surveys & Initial records.

CE/827: CE CIRCULARS:

All CEs Circulars on Works, Bridges and Water Supply.

CE/----: CONCEPT OF WORKING ON PC:

CE/828: STUDY TOUR:

Study tour to major railway station/site of construction work.

CE/829: WRITTEN EXAMINATION:

Written examination with objective type questions.

ANNEXURES

SCHEDULE OF FIELD TRAINING FOR APPRENTICES

TOTAL - 08 Weeks

13. APP. SE/WORKS/PHASE.I: DURATION – 03 MONTHS

SL.

No.

AUTHORITY WHERE FIELD TRAINING IS TO BE DONE

DURATION

IN WEEKS

1. With JE-II Works (Sec.) 02
2. With SSE/SE/Works (Spl.) 02

3. With SSE/SE/Works (I/C) 02
4. With SSE/SE/Bridge 01
5. With ADEN & DRM office 01
6. With SSE/SE/Works on Major Construction
(like washable apron & Washing line)
02
7. With SSE/SE/P.Way on Major Track
Renewal & preparation of Accidents plan
01
8. Rebuilding Bridges & Replacement of slab &
greasing oiling of Bridge Girder
01

TOTAL – 12 Weeks

14. APP. SE/WORKS/PHASE.II: DURATION – 02½ MONTHS

SL.

No.

AUTHORITY WHERE FIELD

TRAINING IS TO BE DONE

DURATION

IN WEEKS

1. With SSE/SE/Works (I/C) 02
2. With JE-II/Works (Sec.) 02
3. With SSE/SE/Works (Spl.) 02
4. With ADEN office 01
5. With SSE/SE/Bridge 01
6. With SSE/SE/Works (Construction) 01
7. With SSE/SE/Works (Survey) 01

TOTAL – 10 Weeks

15. APP. JE-II/WORKS/ PHASE.I: DURATION – 03 MONTHS

SL.

No.

AUTHORITY WHERE FIELD

TRAINING IS TO BE DONE

DURATION

IN WEEKS

1. With SSE/SE/Works (I/C) 02
2. With JE-II/Works (Sec.) 03
3. With SSE/SE/Works (Spl.) 02
4. With SSE/SE/Bridge 01
5. With SSE/SE/Works (Construction) 02
6. With SSE/SE/P.Way (Maintenance) 01
7. With ADEN & SSE/SE office 01

TOTAL - 12 Weeks

16. APP. JE-II/WORKS/ PHASE.II DURATION – 03 MONTHS

SL.

No.

**AUTHORITY WHERE FIELD
TRAINING IS TO BE DONE
DURATION
IN WEEKS**

1. With SSE/SE/Works (I/C) 02
2. With JE-II/Works (Sec.) 03
3. With SSE/SE/Works (Spl.) 02
4. With ADEN office 01
5. With SSE/SE/Bridge 01
6. With SSE/SE/Works (Construction) 01
7. With SSE/SE/Works/Office/Stores 01
8. With SSE/SE/P.Way (Maintenance) 01

TOTAL – 12 Weeks

17. APP. SOM/PHASE.I: DURATION - 02 MONTHS

SL.

No.

**AUTHORITY WHERE FIELD
TRAINING IS TO BE DONE
DURATION
IN WEEKS**

1. With JE-II/Works (Sec.) 02
2. With SSE/SE/Works (Spl.) 01
3. With SSE/SE/Works (I/C) 01
4. With SSE/SE/Bridge 01
5. With SSE/SE/Works (Construction) 01
6. With SSE/SE/P.Way (Maintenance) 01
7. With ADEN & SSE/SE/Works Office 01

TOTAL - 08 Weeks

18. APP. SOM/PHASE.II DURATION - 02 MONTHS

SL.

No.

**AUTHORITY WHERE FIELD
TRAINING IS TO BE DONE
DURATION
IN WEEKS**

1. With SSE/SE/Works (I/C) 01
2. With JE-II/Works (Sec.) 02
3. With SSE/SE/Works (Spl.) 01
4. With ADEN Office ½
5. With SSE/SE/Bridge ½
6. With SSE/SE/Works (Land) 01
7. With SSE/SE/Works/Office/Stores 01
8. With SSE/SE/P.Way (Maintenance) 01

TOTAL - 08 Weeks