

EXECUTIVE LEVEL COURSES – CIVIL ENGINEERING

Some of the courses are given below. However detailed position with regard to all the courses proposed during the year, their contents and schedules can be viewed at <http://www.ircen.gov.in> directly or through <http://www.rites.co.in>

1. Integrated Initial Course - 10 Weeks (June, August & December 2011)

For Whom: Engineers/Managers of Civil Engineering discipline promoted from Supervisory position to Executive grade.

Course Contents - Permanent Way

<ul style="list-style-type: none"> ✚ Formation, Ballast ✚ Sleepers and fastenings, Rails and fastenings ✚ Welding Techniques, SWR, LWR (Incl. New SEJ) ✚ Points & Crossing simple layouts ✚ Curves - Theory & Design, Realignment ✚ Inspection & Maintenance of Track including Concrete Sleeper. ✚ Track machines, 3-Tier Mechanized maintenance. ✚ Working Principles of track machines. ✚ Rail & Weld failures, USFD, track stresses 	<ul style="list-style-type: none"> ✚ Testing of Glued Joints ✚ Track standards & policy and renewals ✚ Track monitoring, tolerance & classification ✚ Rail Wheel interaction, Derailment Investigation ✚ Breaches & Diversion, Schedule of Dimension, CRS sanction, rail affecting works. ✚ Monsoon patrolling, Safety, Gang strength ✚ 1 week at IRTMTC regarding working systems and maintenance of track machines. ✚ Safety at worksite.
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Bridges

<ul style="list-style-type: none"> ✚ Type of bridges, components & functions, FRP Sleeper. ✚ River training & protection works ✚ Foundation of bridges - Shallow and deep ✚ Superstructure Steel fabrication & launching ✚ RCC & PSC Track structure on girder bridges 	<ul style="list-style-type: none"> ✚ Inspection of PSC girders, inspection of bridges, Masonry and Concrete, Steel, NDT underwater inspection of substructure. ✚ Temporary arrangements ✚ Repairs and rehabilitation of bridges, treatment of corrosion. ✚ Action before and during monsoon
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Works

<ul style="list-style-type: none"> ✚ Planning of Works, Works Programme ✚ Drawing and Estimates, Measurement ✚ Contracts & Arbitration ✚ Concrete technology ✚ Basics of Soil Mechanics, Earth work ✚ Foundations - Types and design considerations ✚ Construction, Inspection & maintenance of building & structures ✚ Surveying, Water Supply Engineering ✚ Sanitary Engineering 	<ul style="list-style-type: none"> ✚ Land Management, Construction equipment ✚ Exposure on construction equipment, architectural features. ✚ Dismantling of structures particularly arches, canopies & bridges ✚ Waterproofing and finishing materials. ✚ Horticulture & landscaping, basics of architecture for simple layouts of buildings ✚ Stores account ✚ Roof treatment. ✚ Safety during dismantling of old structures.
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2. Senior Professional Course (P. Way) - 3 Week (November 2011)

For Whom: Engineers/Managers of Civil Engineering discipline with 2-3 years experience in P. Way (Track Technology)

Course Contents

<ul style="list-style-type: none"> ✚ Ballast and sub-ballast, formation treatment, Ballast less track ✚ Concrete sleepers for plain track and points & crossings ✚ Curves, Use of computer programme for realignment ✚ Elastic Fastenings ✚ Glued and Insulated joints ✚ Maintenance of concrete sleeper track ✚ Points and crossings, Layouts 	<ul style="list-style-type: none"> ✚ Rail, rail welding, welded track, LWR on bridges ✚ Rail-Wheel Interaction & Derailment Investigation ✚ Track Monitoring, track tolerances, TMS, High speeds ✚ Track stresses, track standards and criteria for track renewals ✚ USFD, Rail & weld failures and remedial measures ✚ Yard layouts, Ballast less track
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3. Senior Course for Project Planning Management Consultants - 2 Week (July, 2011)

For Whom: Engineers/ Managers of Civil Discipline with 5-6 years experience in executive cadres

Course Contents - Track

<ul style="list-style-type: none"> # Basics of Railway Engineering # Specifications of Rails # Specifications of PSC sleepers & fastenings including manufacturing of PSC sleeper # Handling of rails & sleepers # Specifications and Testing of Ballast # Specifications of Railway formation # Butt welding 	<ul style="list-style-type: none"> # Welding of Rails including demo of thermit weld & Flast Butt welding. # Ultrasonic Flaw Detection of rail & Weld including Demo # Pts & Crossings and layouts # Short/ long welded rails. # Mechanized track linking # Mechanized track maintenance # Quality control of track & Track Tolerances
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Bridges

<ul style="list-style-type: none"> # Components of Bridges # Bridge bearings # Provision of Railway Bridge Codes as regards Construction. # Construction & Maintenance of Steel Bridges including FOB. # FOB. # Practical aspects of PSC Construction of Concrete Bridges 	<ul style="list-style-type: none"> # Substructure & Foundation of Bridges including piling & well foundations. # Launching of girders # Concrete technology # Quality control and durability of concrete structures including formwork & enabling structures.
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Miscellaneous

<ul style="list-style-type: none"> # Worksite Safety (Protection of track) # Safety during construction 	<ul style="list-style-type: none"> # CRS Sanction.
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