

EXECUTIVE LEVEL COURSES - SIGNAL ENGINEERING & TELECOMMUNICATIONS

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.iriset.ac.in> directly or through <http://www.rites.co.in>

1. Initial Course - (Phase – I) - 14 Week (March 2008)

For Whom: Fresh Entrants (Graduate Engineers)

Course Contents

<ul style="list-style-type: none"> ☞ Basic concepts of Signaling and principles of Interlocking ☞ Block Signaling - Part I ☞ Electrical Signaling including relays ☞ Line plant practice ☞ Locking Table and dog charts 	<ul style="list-style-type: none"> ☞ Orthodox and double wire Signaling ☞ Signaling general and safety ☞ Telephone exchanges ☞ Telephone exchanges (Strowger). ☞ Track circuits and power supply arrangements ☞ Train traffic control
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2. Initial Course - (Phase – II) - 15 Week (July 2008)

For Whom: Fresh Entrants (Graduate Engineers) who have undergone Phase I programme.

Course Contents

<ul style="list-style-type: none"> ☞ Axle counters ☞ Block Signaling - Part II ☞ Computer Applications ☞ Data communication ☞ Electrical Signaling circuit practices ☞ Electronic exchanges ☞ Locking Table practices ☞ Microwave communication including digital microwave 	<ul style="list-style-type: none"> ☞ Modern Signaling ☞ Multiplexing & PCM, VHF and mobile communication ☞ Relay interlocking - British system ☞ Relay Interlocking - Siemens's system ☞ Signaling in 25 KB AC electrified area ☞ Stores, Accounts ☞ Tenders estimates
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3. Integration Course (Telecom to Signaling) - 15 Week (June & August, 2008)

For Whom: Engineers/Managers of Telecommunications promoted from Supervisory Cadres of Telecommunications with 2-3 years experience/fresh Graduate Engineers with 1-2 years experience.

Course Contents

<ul style="list-style-type: none"> ☞ Automatic Signaling and Axle Counters ☞ Basic concepts in Signaling and principles of interlocking ☞ Block Signaling and Axle counter ☞ Block Signaling including Intermediate ☞ Block working Signaling general and Safety rules. ☞ Electrical Signaling – Relays 	<ul style="list-style-type: none"> ☞ Equipment and their controls ☞ Mechanical Signaling - Orthodox and double wire Signaling ☞ Modern Signaling ☞ Relay interlocking systems - British & Siemens type ☞ Selection Circuits ☞ Track Circuits
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4. Integration Course (Signaling to Telecom.) - 6 Week (September & November 2008)

For Whom: Engineers/Managers of signaling discipline promoted from Supervisory Cadres of Signaling discipline with 2-3 years experience/fresh Graduate Engineers with 1-2 years experience.

Course Contents

<ul style="list-style-type: none"> ☞ Carrier communication ☞ Control communication: Under ground cable, over head cables ☞ Digital electronics ☞ Electronic Exchanges ☞ Fundamentals in electronics and applied electronic circuits 	<ul style="list-style-type: none"> ☞ Introduction to modern telecom techniques. ☞ Multiplexing and microwave ☞ Optic fiber. ☞ Propagation and antennas ☞ Public communication system ☞ Train traffic control
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5. Professional Course for Sr. Engineers – 3 Week (July 2008)

For Whom: Working S&T Engineers with 5-15 years experience for upgrading technical skills and expose them to technological developments in modern Signaling and telecommunications systems.

Course Contents

<ul style="list-style-type: none"> ☞ Computer aided CTC, joint less track circuit etc., ☞ Computer applications in railways. ☞ Construction management ☞ Developments in Signaling – Solid State interlocking, auxiliary warning system 	<ul style="list-style-type: none"> ☞ Developments in telecommunication – optical fiber, mobile communications, digital microwave, electronic exchanges ☞ Information technology ☞ Man power planning ☞ Reliability and quality control
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SUPERVISORY DEVELOPMENT PROGRAMMES – MECHANICAL ENGINEERING

Some of the courses are given below. However detailed position with regard to all the courses proposed during 2008-09, their contents and schedule can be viewed at <http://www.irimee.ac.in> directly or through <http://www.rites.co.in>

1. Diesel Course (General) - 7 Week (March 2008)

For Whom: Junior Mechanical Supervisors with 1-2 years experience to enhance knowledge of various systems of diesel locomotives.

Course Contents

<ul style="list-style-type: none"> ☞ AAR classification ☞ Combustion process and valve timing diagram ☞ Diesel engine - Assembly, components, design, manufacture, inspection and maintenance ☞ Diesel engine systems - fuel, lube oil, cooling water and charge air ☞ Electrical control components ☞ Electrical rotating machines ☞ Engine governor - GE and Woodward 	<ul style="list-style-type: none"> ☞ Electrical systems - speed control, propulsion control, excitation control, automatic transition regulation and dynamic brake ☞ Expressor and air circuits ☞ Properties and testing of fuel, lube oil and, Cooling water treatment. ☞ Load test and Troubleshooting of locomotives ☞ Latest development in Alco Locomotive ☞ Introduction to GM Locomotives.
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2. Welding Technology – 2 week (June 2008)

For Whom: Supervisors with 1-2 years experience to enhance knowledge about welding.

Course Contents

<ul style="list-style-type: none"> ☞ Fundamental of welding – Process, weld ability, Fluxes, Selection of Electrodes ☞ Electrical aspects ☞ Welding defects – causes & remedies ☞ Problems and solution faced in Shed (yard) ☞ Welding of Safety components – knuckle, draw bar components etc. 	<ul style="list-style-type: none"> ☞ Problems faced during welding <ul style="list-style-type: none"> • Coach manufacturing & corrosion repairs • Wagon – manufacturing & Corrosion repairs • Locos • LHB coach ☞ Ease of welding – Selection, Manufacture & other application ☞ Cost & economy in welding
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3. Carriage & Wagons Comprehensive course 4 weeks (January & November, 2008)

For Whom: Diesel (Mechanical) Supervisors with 1-2 year's experience to enhance their knowledge about C&W.

Course Contents

<ul style="list-style-type: none"> ☞ C&W Open line Management ☞ Coaching stock – Nomenclature and codification ☞ Freight stock 	<ul style="list-style-type: none"> ☞ Train lighting and air conditioning ☞ Brake system ☞ C&W maintenance.
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4. Mandatory Course – Chemists and Metallurgists - 5 Week (August 2008)

For Whom: Chemists & Metallurgists Supervisors.

Course Contents

<ul style="list-style-type: none"> ☞ Failure investigation ☞ Corrosion prevention of Rolling Stock ☞ Failure investigation of rails, rolling stock and other metallurgical components ☞ NDT of Rolling Stock ☞ Ferrous and non-ferrous foundry ☞ Uses of computers 	<ul style="list-style-type: none"> ☞ Heat treatment of castings forging ☞ Rubber, Plastic, components & FRP components ☞ Fuel Lubricants & Bio-Diesel ☞ Environment pollution & their prevention ☞ Mechanical drawing & their significance ☞ Budget & Expenditure
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