

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 Induction Course - 7 Week (December 2011)

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 of locomotives & working principle of diesel engine ✚ Transmission types with merits and demerits ✚ Basics of electrical & electronics ✚ Locomotive layout ✚ Diesel engine assembly, components, inspection and maintenance ✚ Combustion, valve timing & timing setting ✚ Bi-metal and tri-metal bearings ✚ Diesel engine systems ✚ Fuel oil ✚ Lube oil ✚ Cooling water ✚ Charge air ✚ Testing of lube oil, fuel oil, spectrographic analysis and water treatment ✚ Alternate fuel (bio diesel) ✚ Engine governor ✚ Woodward ✚ GE ✚ Principle of Electrical Transmission ✚ DC machines ✚ Electrical control components ✚ Electrical systems : ✚ Propulsion control ✚ Excitation control ✚ Transition and automatic regulation 	<ul style="list-style-type: none"> ✚ Starting circuit ✚ Safety devices ✚ Expressor/ compressor ✚ Brake systems ✚ Bogie and suspension ✚ Load test & fault diagnosis ✚ Trouble shooting ✚ ALSO Modification ✚ Microprocesor controlled locomotives ✚ GM loco introduction & system & component-wise merit analysis ✚ GM locomotive System (Mech) ✚ GM loco layout & introduction to electrical systems ✚ EMD Electricals & AC-AC transmission ✚ HTSC Bogie ✚ Project presentation ✚ Introduction to Workshop Technology ✚ Material testing, failure prevention, alternative engineering material and energy in IR, Environment and pollution. ✚ Introduction to C&W technology. ✚ Dynamic braking ✚ energy in IR, environment and pollution ✚ Introduction to C&W technology
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1. Welding Technology – 2 weeks (July, November 2011 & March 2012).

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✚ 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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2. Course for Chemists and Metallurgists - 5 Week (April, 2011)

For Whom: Chemists & Metallurgists Supervisors.

Course Contents

<ul style="list-style-type: none">✚ Basic Metallurgy✚ Welding✚ Failure prevention✚ Alt. Engg. Mat & Energy in IR✚ Environment & pollution	<ul style="list-style-type: none">✚ Material Testing✚ Foundry✚ Inter Department matters✚ General matters, TQM, Computer, Study, Exam
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