

EXECUTIVE LEVEL COURSES – MECHANICAL 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.irimee.ac.in> directly or through <http://www.rites.co.in>

1. Integrated course on Workshop, Loco & C&W – 11 weeks(July, October 2011 and January 2012)

For Whom: Directly recruited Mechanical Engineers in the Executive Cadre with 2-3 years of experience

Course contents – Diesel Module

<ul style="list-style-type: none"> ✚ AAR classification of locomotives & working principle of diesel engine. ✚ Transmission types with merits and demerits ✚ Locomotive layout ✚ Diesel engine assembly, components, inspection and maintenance ✚ Combustion and valve timing ✚ Bi-metal and Tri-metal bearings. ✚ Diesel engine systems: ✚ Fuel oil ✚ Lube oil ✚ Cooling water ✚ Charge air ✚ Engine governor ✚ Woodward ✚ Principle of Electrical Transmission ✚ DC machines 	<ul style="list-style-type: none"> ✚ Electrical control components ✚ Electrical systems ✚ Starting circuit ✚ Safety devices ✚ Expresor ✚ Brake systems ✚ Bogie and suspension ✚ Load test & fault diagnosis ✚ Trouble shooting ✚ ALCO Modification ✚ Microprocessor controlled locomotives ✚ EMD Loco introduction & system & component wise merit analysis ✚ EMD locomotive system (Mech) ✚ EMD Loco layout & introduction to electrical systems ✚ EMD Loco Electricals & AC-AC transmission.
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General C&W management

<ul style="list-style-type: none"> ✚ Organization structure ✚ Control room working 	<ul style="list-style-type: none"> ✚ Standard infrastructure facilities ✚ Divisional depot store inventory management.
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Coaching technology

<ul style="list-style-type: none">✚ Nomenclature & codification✚ Design & Construction of –✚ ICF &LHB bogie✚ ICF &LHB Sheel✚ Draw & Buffering gear ICF &LHB Sheel.	<ul style="list-style-type: none">✚ Spherical roller bearing & cartridges taper roller bearing.✚ Wheel & axle✚ Control discharge toilet system in LHB Coach.✚ Coach housekeeping✚ Latest development: Crashworthiness, GPRS.
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Course Contents – Coaching maintenance


<ul style="list-style-type: none">✚ Maintenance instruction & activities of coaching stock in Division	<ul style="list-style-type: none">✚ Maintenance instruction & activities of coaching stock in workshop.
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Brake system







<ul style="list-style-type: none">✚ Introduction of brake system in coach and wagon.✚ Brake rigging arrangement in Coach and Wagon✚ Working of distributor valve.✚ Working of SAB brake regulator (Limited class)✚ Working of JSL brake cylinder.✚ Working of wheel side protection in FIAT bogie.	<ul style="list-style-type: none">✚ Analytical approach to evaluate braking force and distance.✚ Brake binding in C & W stock✚ Single car test✚ Rake test✚ DV test bench✚ SAB test bench✚ Maintenance costing
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Electrical Technology in coaches

<ul style="list-style-type: none">✚ Train Lighting✚ Working of distributor valve.✚ Working of SAB brake regulator (Limited class)✚ Working of JSL brake cylinder.✚ Rake test	<ul style="list-style-type: none">✚ Working of wheel slide protection in FIAT bogie.✚ Analytical approach to evaluate braking force and distance.✚ Brake binding in C & W
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	stock  Single car test
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Wagon Technology

 Nomenclature & codification  Design & construction features of CASNUB bogie.  Design & construction features of Center Buffer Coupler	 Precaution in handling tank wagons  Introduction BOBR wagon & its Door operating arrangements  Latest development
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2. Welding Technology – 2 weeks (July 2011 & March 2012)

For Whom: Executive/ Engineers with 1-2 years experience to enhance knowledge about welding.

Course Contents

 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.	 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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3. Special Course on Accident , Disaster Management – 2 Weeks (February, 2011)

For Whom: Mechanical Engineers and senior supervisors with 2-7 years experience for enhancing knowledge for proper analysis of derailments, prevention of accidents and rescue operation at site

Course Contents

<p>General Disaster Management</p> <ul style="list-style-type: none">✚ National Disaster management plan.✚ Disaster management plan in railways✚ IR Safety Performance✚ Safe Driving technique✚ Corporate Safety Plan✚ RSRC Recommendations✚ High level committee recommendations on disaster management over IR. <p>Accident site management</p> <ul style="list-style-type: none">✚ ART & Accident Classification✚ MFD & HRE✚ Accident Inquiry✚ Safety in Crane operations✚ Crane operation at accident sites	<ul style="list-style-type: none">✚ Medical relief✚ Concept of golden hour rule & its practices✚ Management at accident sites <p>Accident Investigation</p> <ul style="list-style-type: none">✚ Rail wheel interaction✚ Derailment investigations with case studies.✚ Permanent way defects causing derailment✚ Loco defects causing derailment✚ Coaching defects causing defects✚ Wagon defects causing derailment <p>Practical demonstrations.</p> <ul style="list-style-type: none">✚ Demonstration of ART Cranes at site
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