

Course overview – PMC Rail International Academy

- **Basic machine information (Plasser & Theurer / MATISA)**
 - Construction of the machine.
 - Technical information.
 - Fields of application.

- **Propulsion technology & power transmission**
 - Propulsion engine.
 - Drive engine.
 - Working drive.

- **Basics about machine technology**
 - Tamping aggregates.
 - Lifting and aligning aggregates.
 - Drive gear.
 - Safety devices.

- **Control systems**
 - Programme control.
 - Structure of addresses.
 - Signal links.
 - Signal surveillance, functionality check.
 - Software for diagnosis.

- **Electrical engineering and electronics**
 - Basics about the e-technology.
 - Measuring technique.
 - Analysis of functionality and defaults.

- **Pneumatic system**
 - Pressure circuits.
 - Brake system.

- **Hydraulic system**
 - Hydraulic circuits.
 - Components of the hydraulic system.
 - Generation of pressure.
 - Distribution of pressure.
 - Power transmission.
 - Installation.

- **Levelling and pendulum system**
 - Geometrical principle.
 - Measuring order.
 - Control system.
 - Description with pictures and videos.
 - Animated 3D visualization (training tools).

- **Aligning system**
 - Geometrical principle.
 - Measuring direction.
 - Control system.
 - Effect of the measuring and input signal.
 - Explanation with pictures, diagrams and videos.

- **MKS/DAS training and further education**
 - MKS/DAS training for beginners according to German legislation RIL 824.8010.
 - MKS/DAS further training according to German legislation RIL 824.8010.
 - DAS adjusting course according to German legislation RIL 046.2552.

- **Track geometry and measuring technology**
 - Basics about the geometrical design of the superstructure.
 - Calculation and display of geometrical parameters.
 - Use of all the planning documents for the superstructure.
 - Basics of the measuring technology for the superstructure.
 - Practical exercises for the measuring of the superstructure on the track and in turnouts.

- **Braking system**
 - Basic introduction (description of the components).
 - Structuring of the systems (braking circuits / working circuit).
 - Pressure generator and pressure regulator.
 - Braking order (mechanical components).
 - Emergency brake / parking brake.
 - Direct braking and indirect braking.
 - Hazard and safety information.
 - Construction of the braking system.
 - Components of the braking system.
 - Ability of being pulled (Plasser & Theurer machines).

- **P-IC 2.0 control unit**
 - Basics about the structure of the P-IC 2.0 control unit.
 - Use of the control unit.
 - Modes of operation of the Controller Area Network-Bus (CAN Bus).
 - P-IC 2.0 / touch panel – hardware, software, documentation.
 - Work instructions.
 - Practical exercises – software installations, diagnosis / search for failures of the programme; calibration of the transducers in the touch panel.

- **ALC training**
 - Type in the wanted geometry.
 - ALC measuring run.
 - Curve laser.
 - Generate lifting and shifting file.
 - Controlling of the ALC computer.

- **Front wagon operator**
 - Operation of the DRP/DAR writer.
 - Working according to the regulation.
 - Simulator training on the front wagon.
 - Basics about the superstructure.

- **Electrician for predefined tasks**
 - Basics of electrical engineering.
 - Hazards and effects of electricity for the human body.
 - Protective measures against direct and indirect touching of electricity.
 - Check of protective measures.
 - Check of equipment.
 - Measures to prevent accidents when working with electrical equipment.
 - Basics of first aid.
 - Responsibilities.
 - Specific requirements for electronic equipment.

- **First aid worker**
 - Basic regulation for first aid.
 - Burn injuries and chemical burns.
 - Open wounds.
 - Fractures and bracers.
 - Cardiopulmonary massage.

- **Brake mechanic training for the check of brakes Br0 – Br3 on special railway vehicles as well as the FIT-course for brake systems**

- **Braking devices**
 - Introduction.
 - Basic requirements.
 - Historical background.

- **Basics about the braking technology**
 - Construction forms of brakes.
 - Physical processes when braking.
 - Mechanism of compressed air braking.
 - Ways of braking.

- **General braking components**
 - Arrangement of the components on the vehicle.
 - Braking shutoff valve.
 - Switching of the braking position.
 - Wear exchange.
 - Mechanical components of the braking system.
 - Manual brake.
 - Braking cylinder.
 - Indication of the braking direction.
 - Line for compressed air and braking transmission.
 - Air shutoff valve.

- **Controlling valve**
 - General tasks.
 - Functions.
 - Assembly.
 - Loosening valve.

- **Additional braking devices on vehicles**
 - Emergency braking devices.
 - Emergency braking bridging.
 - Sliding protection device.

- **Maintenance of braking systems**
 - Regulation for the maintenance of braking systems.
 - Maintenance manuals.
 - Braking revisions.
 - Pressure containers.
 - Measuring and checking devices for the maintenance of brake systems.

- **Perform the braking revision Br1**
 - Perform the braking revision for special railway vehicles Br1.
 - Special regulations.
 - Working and checking procedures.

- **Perform the braking revision Br0**
 - Due dates.
 - Br0 with a defective brake.
 - Br0 after the change of abrasive elements.
 - Br0 after the change of the wheelset.
 - Br0 after the adjustment of the wheel profile or the brake disk in the installed state.
 - Br0 after the change of the boogie or after the lifting of the vehicle.
 - Adjusting and checking work.

- **Br2 and Br3 for special railway vehicle**
 - Basics of the regulations EBO §§ 32 and 33.
 - Classification of the braking revisions.
 - Working and checking procedures.
 - Pneumatic braking components.
 - Checking for sealing of the braking device.
 - Checking of the effect of the braking devices.
 - Checking the KE-controlling valve.
 - Maintain the braking cylinder.

- **Maintenance**
 - Use of the maintenance manual.
 - Regulations for maintenance and maintenance cycles.
 - Central lubrication system.
 - Checking of current state and functionality.

- **General safety and working regulations**
 - Federal and working regulations.
 - Approval and equipping.
 - Correct use of the competences.
 - Instruction of basic provisions.
 - Secure working state.
 - General hazards.
 - Risks and minimization of risks.
 - Fire prevention.