



CNHi TRAINING CENTER

Strada Vicinale delle Cascinette 424/56 (gate #6)

GPS: 45°06'54.85 N - 7°43'15.73 E

Turin (I) 10156

tel. +39.011.007.1782/ +39.011.007.6260

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fptind-tscs-technical-training-school@cnhind.com

fptindustrial.com/it-IT/innovation/

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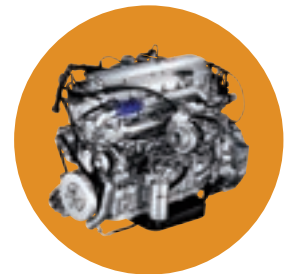
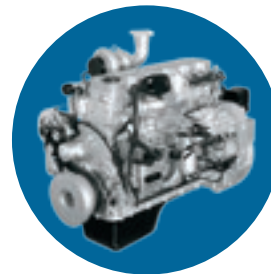
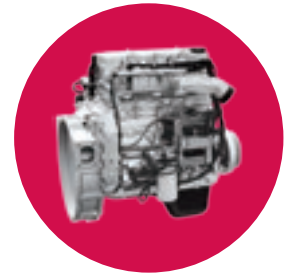
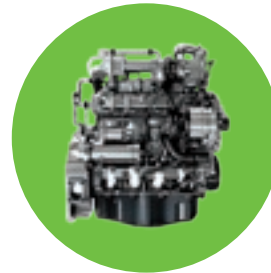
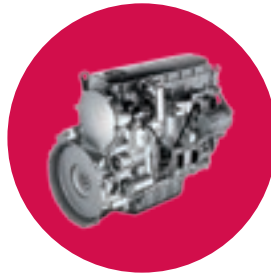
FPT TECHNICAL TRAINING SCHOOL

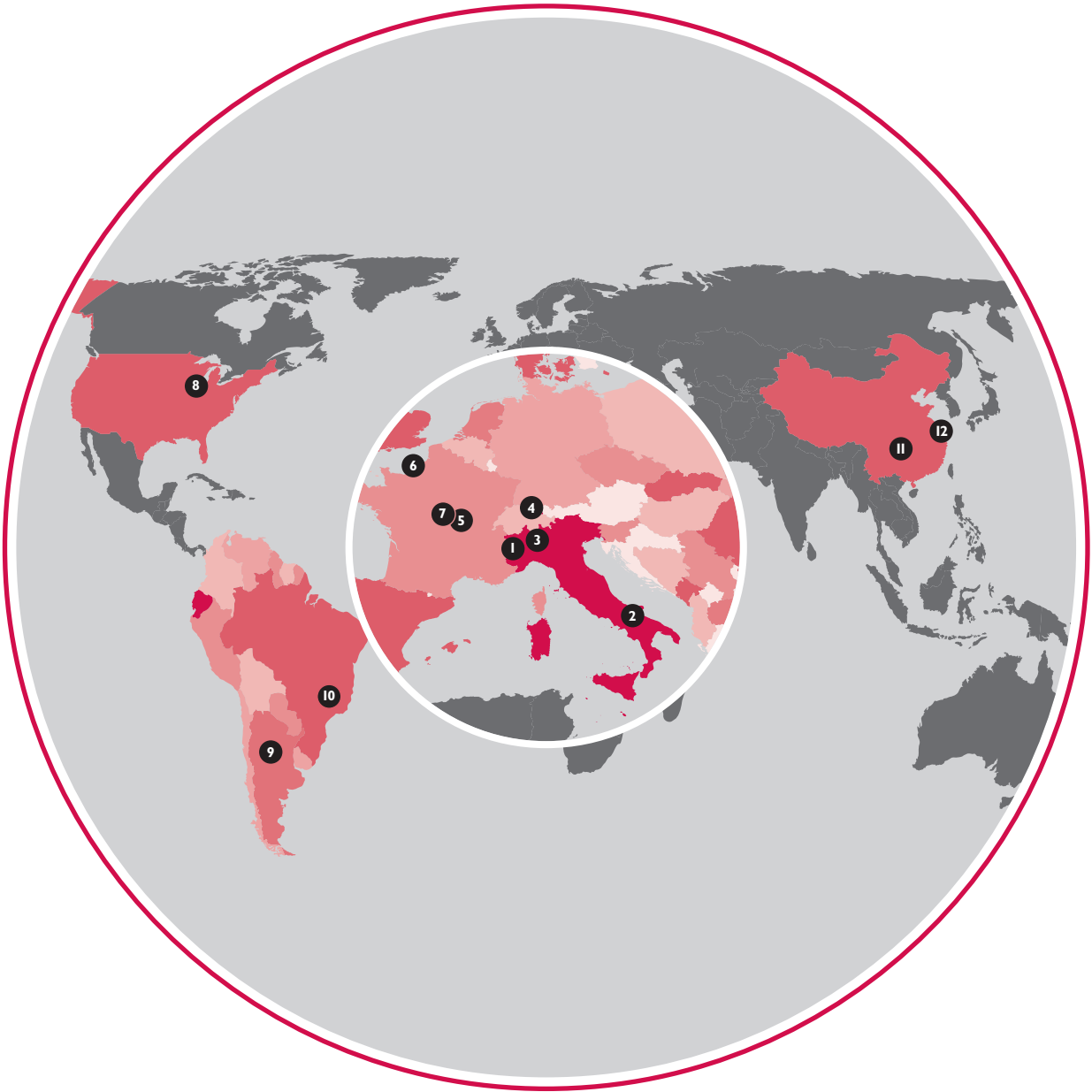
Since it was established, the **FPT Technical Training School** has represented a centre of excellence in terms of product knowledge, developing a host of cutting-edge teaching methods.

The extraordinary experience that the Training School can offer professionals working in repair workshops

has been transformed over time into a rich and diverse training programme which constantly evolves in line with the needs of our customers.

Meeting your requirements promptly and effectively is our number one goal, and is at the core of our work. It is our greatest source of satisfaction.







FPT INDUSTRIAL THROUGHOUT THE WORLD


EMEA	Italy	1	TURIN	NAFTA	United States	8	BURR-RIDGE	
		2	FOGGIA					
		3	PREGNANA MILANESE					
	Switzerland	4	ARBON	LATAM	Argentina	9	CORDOBA	
					Brazil	10	SETE LAGOAS BELO HORIZONTE	
	France	5	BOURBON LANCY	APAC	China	11	CHONGQING 重庆	
		6	FECAMP				12	SHANGHAI-JIADING 上海
		7	GARCHIZY					


FPT Technical Training School in Italy:
CNHi TRAINING CENTER
Strada Vicinale delle Cascinette 424/56 (gate #6)
GPS: 45°06'54.85 N - 7°43'15.73 E
Turin (I) 10156

Total Area: 3,500 m²
Classroom Area: 520 m²
Workshop Area: 1,180 m²

 8 Classrooms

 7 Workshops

 1 Virtual Simulator Room

 1+1 Multimedia and Meeting Room



WAYS TO REGISTER ON THE COURSES

1. ESSENTIAL REQUIREMENTS

Before registering a person to a course, it is essential to assess whether he or she has the requirements necessary to be able to complete it. It is possible that the person in question may have attended the necessary courses in previous years, or accumulated the same knowledge through his/her experience in the field. If the individual does not have the specific skills required to complete the course, he/she must first enrol on one of the courses listed as "basic training".

2. REGISTERING ON THE COURSES

To register for classes, the FPT network (dealers / authorized workshops) is essential to contact the **FPT Technical Training School**. For information, please contact:

CNHi Training Center

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Turin (I) 10156
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fptind-tscs-technical-training-school@cnhind.com
www.fptindustrial.com/it-IT/innovation/
Opening hours: Monday to Friday
from 9.30 to 17.00.

3. CANCELLATION OF A PLACE ON A COURSE OR MOVING TO ANOTHER PROGRAMMED COURSE

Where an individual who has registered on a course cannot attend, he/she may cancel their place, or ask to be moved to another programmed course. This request must be submitted by email, at least 10 days prior to the course commencement date. Failure to follow this procedure will result in the person in question being considered by us as absent, resulting in the course being charged for in full.

4. REGISTRATION FOR MINORS UNDER 18 YEARS

When registering an individual who is under eighteen for a course, the dealer or authorised workshop doing so must send a letter to the relevant Inspectorate of Labour, informing the latter of the presence of a minor at the **FPT Technical Training School** in the period during which the course is due to take place.

A copy of this letter must be sent to the FPT Technical Training School administrative office.

5. REPLACEMENT OF REGISTERED STAFF

All requests to replace an individual who is already registered must be submitted to the Technical Training School administrative office.

In all cases, the requirements in Paragraph 1 must be met.

6. HOTEL BOOKINGS

Costs relating to accommodation and dinner will be at your expense.

7. IN ORDER TO ENSURE THE SMOOTH RUNNING OF THE COURSE, WE ASK THAT YOU ARRIVE TO ALL SESSIONS ON TIME

Any early departures must be justified and agreed upon at the Training School, with the head of the course itself.

8. SAFETY:

All participants are advised to bring the following:



Safety shoes (or overshoes with armoured toecaps)



Safety glasses with protective side shields



Appropriate work clothing

ACCESS TO FPT TECHNICAL TRAINING SCHOOL FACILITIES

LETTER TO SIRIO

All participants are advised to reproduce the letter (provided as a facsimile on the following page) on paper bearing their company's letterhead and signed by their supervisor, listing the electronic devices (laptops, notebooks, tablets, smartphones, cameras, PT-Box, etc.) which will be brought by every technician taking part, and which is necessary for the duration of the individual's stay at the **CNHi Training Center**. Personal mobile phones do not have to be declared on this list.

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For any additional information on the courses, please contact the

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fax +39.011.007.1810
fptind-tscs-technical-training-school@cnhind.com
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from 9.30 to 17.00.

To SIRIO S.c.p.A.
and to whom it may concern

Mr/Ms _____

Employee/associate of the company _____

is authorised by the company in question to carry the following devices, which are required in order to participate in the training course provided by the FPT Technical Training School, from _ _ / / to / / .

QUANTITY	DESCRIPTION	SERIAL NUMBER

The manager

(signature and stamp)

CHECKS TO BE CARRIED OUT BY THE TRAINING MANAGER

BEFORE THE TRAINING COURSE

- Ensure the participant is aware of the type of training course to be provided
- Check the participant's expectations of the training course offered
- Remind the participant to check the following details:
 - *Details of the hotel reserved for him/her*
 - *The provisions set out in the "Safety" section*
 - *The provisions set out in the chapter entitled "Access to the FPT Technical Training School"*
- Reiterate that the training course times must be respected

In order to prevent the risk of accidents, participants are required to attend courses in clothing that is appropriate to the type of activities being carried out, and as such, shorts and sandals should be avoided. Otherwise, the Supervisory Service reserves the right to prevent entry to the facility.

BEFORE THE TRAINING COURSE

- Check the content that will be covered by the training course
- Check the material provided during the training course
- Engage the participant in activities related to the training course
- Ensure that the know-how gained by the participant can be passed on to workshop staff
- Discuss the participant's future professional development with him/her

LOCATION

CNHi TRAINING CENTER

Strada Vicinale delle Cascinette 424/56

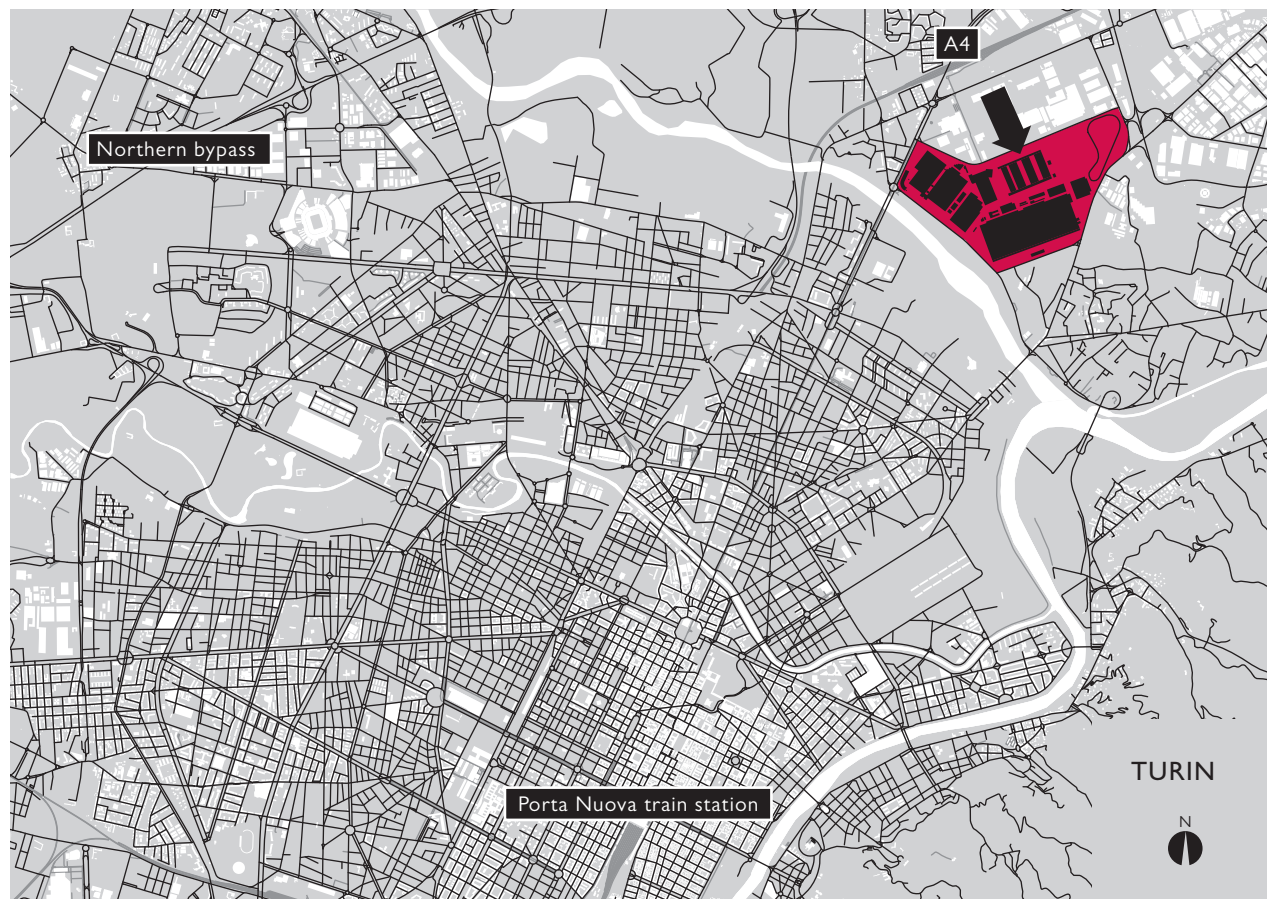
Gate #6

Turin (I) 10156

GPS coordinates

45°06'54.85 N

7°43'15.73 E





AFFILIATED HOTELS

Please get in touch to find out more about the hotels that are affiliated with the **FPT Technical Training School** or to receive further information regarding accommodation options for the duration of the course:

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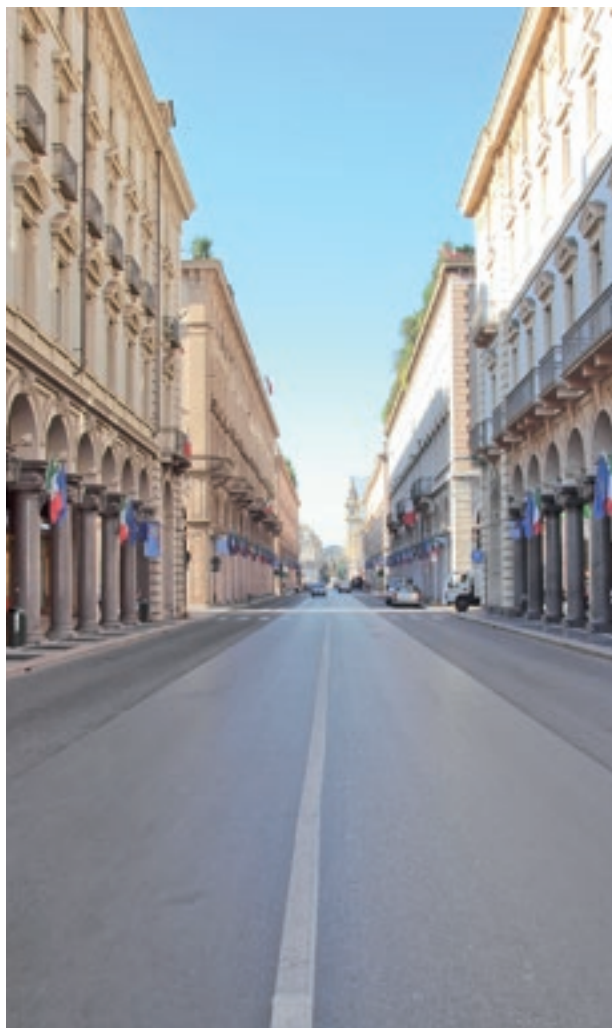
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www.fptindustrial.com/it-IT/innovation/

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THE MISSION OF THE FPT TECHNICAL TRAINING SCHOOL

The aim of the **FPT Technical Training School** is to provide all of its customers (dealers, sub-dealers, Service Points) with the best possible technical training on **FPT Industrial** products, within the field of automotive technology and the control of polluting emissions.

The training proposal also incorporates a number of preparatory courses designed to foster improved product management, with a view to providing our sales and assistance points with 360° knowledge.

Our training programme is completed by three sessions on the specifics of applications for the generation of electricity, engines for marine use, and the various different types of engine fueled by natural gas.

All courses have a "front" formation structure, both in the classroom and in the workshop, with the presence and supervision of a **Technical Trainer**, and support from audio-visual teaching materials and appropriate engines and components.

The following pages contain the training programme offered by the FPT Technical Training School, with a specific technical data sheet for each training course, which specifies the content of each session, the professionals at which the course is aimed, and the prerequisites for each course.

The FPT Technical Training School is at your disposal, to guide you to make the best choice with regard to training for your technical staff with a number of assessment questionnaires designed to highlight your training needs.

Let's start exploring together



START!

FPT_MEC

Mechanical overhaul of engines

FPT_FIS_B

Injection systems (mechanical injection, pump injector and Common Rail) - basic

FPT_EL_B

Electrical engineering - basic

FPT_CAN

CAN networks and IT architecture

FPT_ATS_B

After-treatment systems - basic

FPT_MD_B

Diagnostics methodologies - basic

FPT_FIS_ACP

Injection systems (Common Rail and pump injector) - advanced

FPT_EL_A

Electronics and electrical engineering - advanced

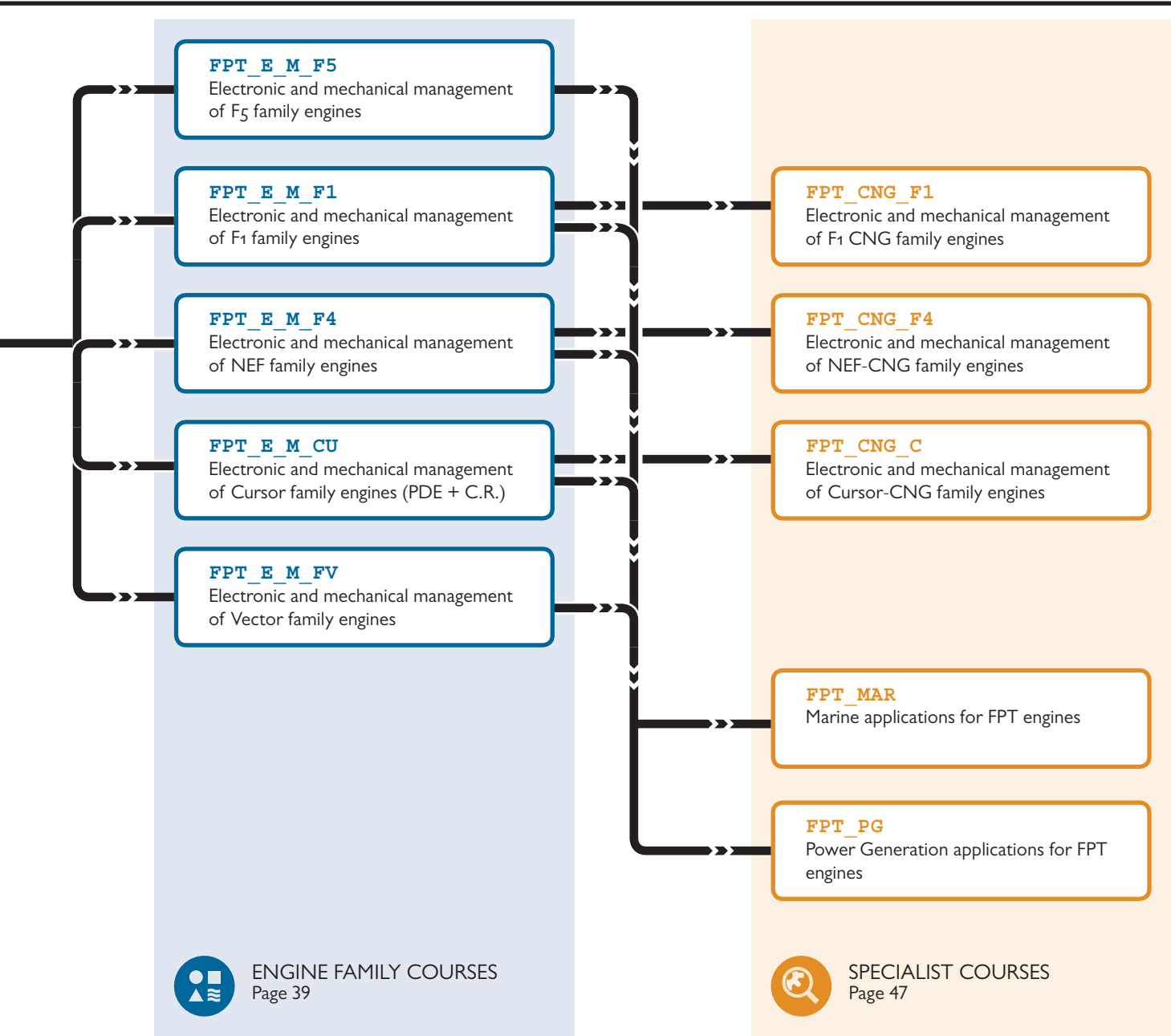
FPT_ATS_A

After-treatment systems - advanced

FPT_MD_A

Diagnostics methodologies - advanced

**BASIC COURSES**
Page 21**ADVANCED COURSES**
Page 31



TYPE	CODE	COURSE TITLE	PAGE
Basic	FPT_MEC	Mechanical overhaul of engines	22
	FPT_FIS_B	Injection systems (mechanical injection, pump injector and Common Rail) - basic	24
	FPT_EL_B	Electrical engineering - basic	25
	FPT_CAN	CAN networks and IT architecture	26
	FPT_ATS_B	After-treatment systems - basic	28
	FPT_MD_B	Diagnostics methodologies - basic	29
Advanced	FPT_FIS_ACP	Injection systems Common Rail and pump injector - advanced	32
	FPT_EL_A	Electronics and electrical engineering - advanced	33
	FPT_ATS_A	After-treatment systems - advanced	34
	FPT_MD_A	Diagnostics methodologies - advanced	36

TYPE	CODE	COURSE TITLE	PAGE
Engine families	FPT_E_M_F1	Electronic and mechanical management of FI family engines	40
	FPT_E_M_F5	Electronic and mechanical management of F5 family engines	41
	FPT_E_M_F4	Electronic and mechanical management of NEF family engines	42
	FPT_E_M_CU	Electronic and mechanical management of Cursor family engines (PDE + Common Rail)	44
	FPT_E_M_FV	Electronic and mechanical management of Vector family engines	45
Specialist	FPT_MAR	Marine applications for FPT engines	48
	FPT_PG	Power Generation applications for FPT engines	52
	FPT_CNG_F1	Electronic and mechanical management of FI CNG family engines	53
	FPT_CNG_F4	Electronic and mechanical management of NEF-CNG family engines	54
	FPT_CNG_C	Electronic and mechanical management of Cursor-CNG family engines	56





BASIC COURSES

This area includes the foundation technical courses which are designed to provide the theoretical and practical knowledge necessary in order to be able to complete subsequent specialist courses.

Before booking onto a course, please analyse the course objectives and content and check that the individuals taking part in the course(s) meet the requirements stipulated on the various course data sheets.

CODE	COURSE TITLE	DAYS
FPT_MEC	Mechanical overhaul of engines	3
FPT_FIS_B	Injection systems (mechanical injection, pump injector and Common Rail) - basic	2
FPT_EL_B	Electrical engineering - basic	2
FPT_CAN	CAN networks and IT architecture	1
FPT_ATS_B	After-treatment systems - basic	1
FPT_MD_B	Diagnostics methodologies - basic	1

FPT_MEC

MECHANICAL OVERHAUL OF ENGINES

**DESCRIPTION**

This module is designed to teach the skills necessary to understand the function of a Diesel-cycle internal combustion engine, to identify all the parts that compose it, and to recognise the special features that distinguish it.

During the course, an overview of the FPT Industrial engine range will be presented, highlighting the different characteristics of each, and their main uses.

OBJECTIVES

- After completing the course, the participant will be able to identify the various components of a Diesel internal combustion engine, and highlight the characteristics of specific parts, and will know how to use the equipment in question correctly
- The engine timing procedures (where required) and main adjustments will be illustrated
- The cooling, lubrication and fuel supply systems will be analysed

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical engineer
Diagnostics staff
Workshop managers

DAYS 3



FPT_FIS_B

INJECTION SYSTEMS - MECHANICAL INJECTION, PUMP INJECTOR AND COMMON RAIL - BASIC

24

DESCRIPTION

This module provides the skills necessary to identify key components, to become familiar with the operation of the injection systems (mechanical, Common Rail and pump injector - PDE), to identify the sensors on the various different systems and to carry out the correct mechanical adjustments.

OBJECTIVES

- During the course, participants will learn the skills necessary to carry out key operations using specialised equipment, and will become familiar with the methodologies to be used to complete specific adjustments (mechanical injection). He/she will also be able to correctly perform diagnostics operations on the electronic engine management system (Common Rail/PDE)
- The key skills necessary in order to carry out basic diagnostics of injection systems will also be taught

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT

Mechanical
engineer
Diagnostics
staff
Workshop
managers

REQUIREMENTS**FPT_MEC****DAYS****2**

ELECTRICAL ENGINEERING BASIC COURSE

FPT_EL_B

DESCRIPTION

The course is designed to teach the participant to understand the basic concepts of electricity, electrical values and Ohm's law.

Participants will be taught how to correctly carry out electrical measurements, and to recognise electrical components such as sensors and actuators.

The correct use of the multimeter for electrical measurements will also be illustrated.

OBJECTIVES

- During the course, the concepts of voltage, current and resistance will be clarified
- The structure of an electric circuit will be illustrated, along with the concepts of grounding and short-circuiting, and series and parallel connections
- Participants will be shown how to use the analogue and digital multimeter
- Electrical measurements will be carried out with the multimeter

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics staff
Workshop managers

DAYS 2

FPT_CAN**CAN NETWORKS AND IT ARCHITECTURE**

26

FEATURES

The course is designed to explain the basics of digital data transmission, and teach participants about the CAN network structure and protocol.

The course will describe the major reference parameters and information exchanged between the CAN nodes in the various phases of operation of the vehicle.

The diagnostics methodologies for CAN networks will also be illustrated.

OBJECTIVES

- To become aware of the characteristics of the various multiplex system functions
- To learn about the functional architecture of the CAN network used by FPT Industrial, as well as the ONE Box and TWO box devices and their applications
- To apply diagnostic methodologies on CAN networks

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

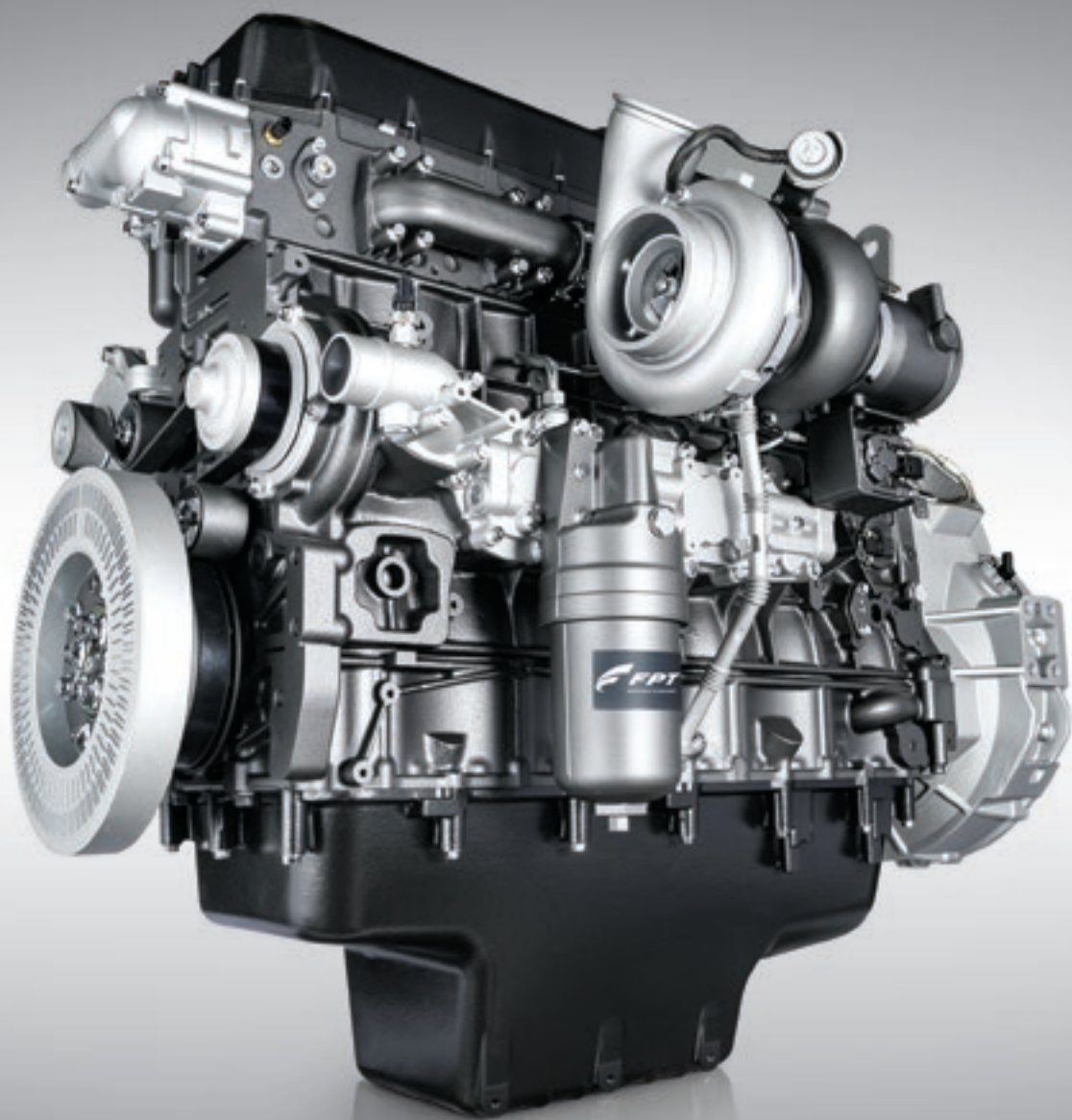
- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics staff
Workshop managers

REQUIREMENTS **FPT_EL_A**

DAYS

|



FPT_ATS_B

AFTER-TREATMENT SYSTEMS - BASIC

28

AIMED AT

Diagnostics
staff
Workshop
managers

REQUIREMENTS FPT_EL_A

DAYS

1

DESCRIPTION

The course is designed to teach the participant about the legal limits of polluting gas emissions, with regard to products and applications.

The participant will be introduced to the systems used to reduce harmful gaseous emissions, and will learn about the various emissions standards (Euro V, Stage IIIb, Tier4a).

The strategies of inducement, derating and recovery will also be illustrated.

OBJECTIVES

- To identify the various components of gaseous emissions: CO, CO₂, HC, NO_x, PM
- To learn about the legal limits for polluting gas emissions for different on-road/off-road applications and for different markets
- To learn about the different strategies used to tackle gaseous emissions and the related pollution-control devices: EGR, DPF, SCR (Euro V, Stage IIIb, Tier4a)
- To learn about the different strategies of inducement, derating and recovery

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

DIAGNOSTICS METHODOLOGIES - BASIC

FPT_MD_B

DESCRIPTION

The various approaches and methods for troubleshooting will be demonstrated to the participant.
The diagnostics procedure will be demonstrated through a methodological process.
Participants will be invited to compile a diagnostics card

OBJECTIVES

- To gain knowledge of diagnostic methodologies through the "problem solving" approach
- To understand how to use the correct diagnostic procedures
- To correctly complete a diagnostics card

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics staff
Workshop managers

REQUIREMENTS FPT_EL_B

DAYS |





ADVANCED COURSES

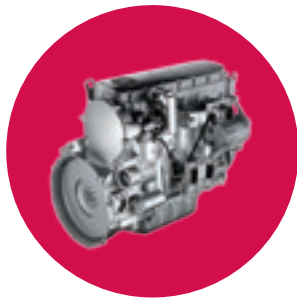
This area includes the technical courses on FPT engines that are focused on the various Industrial, Marine and Power Generation applications.

Before booking onto a course, please analyse the course objectives and content and check that the individuals taking part in the course(s) meet the requirements stipulated on the various course data sheets.

CODE	COURSE TITLE	DAYS
FPT_FIS_ACP	Injection systems Common Rail and pump injector - advanced	2
FPT_EL_A	Electronics and electrical engineering - advanced	2
FPT_ATS_A	After-treatment systems - advanced	2
FPT_MD_A	Diagnostics methodologies - advanced	2

FPT_FIS_ACP

INJECTION SYSTEMS COMMON RAIL AND PUMP INJECTOR - ADVANCED



DESCRIPTION

The participant must know the general principles of operation of the Common Rail and PDE systems.

This module provides the specific skills required in order to correctly perform diagnostics on the electronic fuel injection management systems on engines from the FPT Industrial range.

OBJECTIVES

- During the course, participants will be taught how to correctly perform diagnostics on the various electronic fuel injection control units (EDC), and run diagnostics on engine sensors
- The operating strategies of the EDC control units will also be introduced during this module (recovery, derating, etc.)

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical
Workshop
managers

REQUIREMENTS **FPT_EL_B**
FPT_FIS_B

DAYS 2

ELECTRONICS AND ELECTRICAL ENGINEERING - ADVANCED

FPT_EL_A

DESCRIPTION

The participant will be taught about the different sensors that constitute the injection and after-treatment systems, the construction principles behind these, their operation and the meanings of the signals to their respective terminals, along with related diagnostics.
The operation of the FPT Industrial engine actuators will also be illustrated.

OBJECTIVES

- To be able to recognise and identify the sensors on engines from the FPT Industrial range, and to be capable of distinguishing the operation of each, as well as carrying out measurements, comparing these with the data sheets available and highlighting the plausibility of results
- To gain understanding of the key operational principles of the engine actuators

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics
 staff
 Workshop
 managers

REQUIREMENTS FPT_EL_B

DAYS 2

FPT_ATS_A**AFTER-TREATMENT SYSTEMS - ADVANCED**

34

DESCRIPTION

The course is designed to teach the participant about the legal limits of polluting gas emissions, with regard to products and applications.

The participant will be introduced to the systems used to reduce harmful gaseous emissions, and will learn about the various emissions standards (Euro VI, Stage IV, Tier4b).

The strategies of inducement, derating and recovery will also be illustrated.

OBJECTIVES

- To identify the various components of gaseous emissions: CO, CO₂, HC, NO_x, PM
- To learn about the legal limits for polluting gas emissions for different on-road/off-road applications and for different markets
- To learn about the different strategies used to tackle gaseous emissions and the related pollution-control devices: EGR, DPF, SCR, HleSCR (Euro VI, Stage IV, Tier4b)
- To learn about the different strategies of inducement, derating and recovery

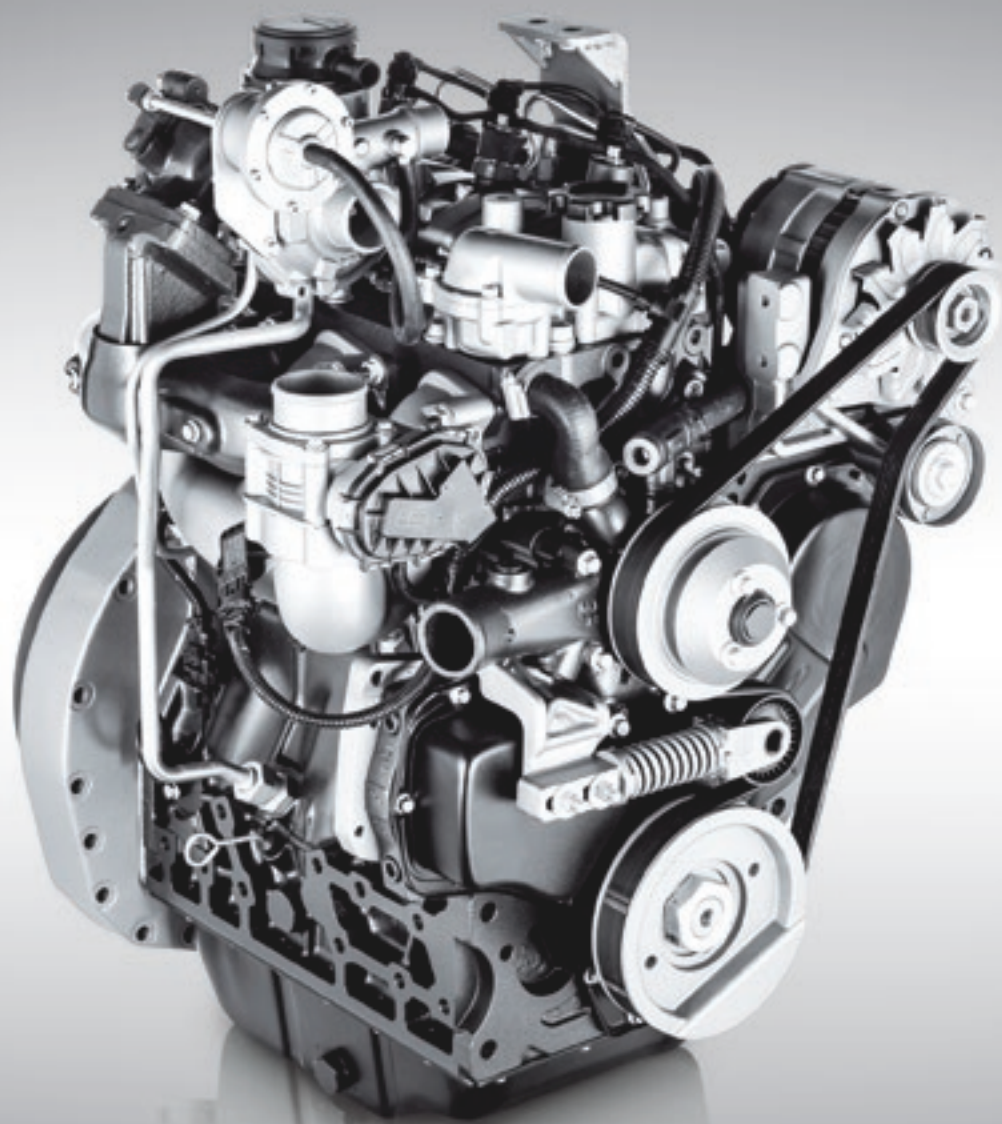
NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics staff
Workshop managers

REQUIREMENTS **FPT_ATS_B**

DAYS 2



FPT_MD_A**DIAGNOSTICS METHODOLOGIES - ADVANCED**

36

DESCRIPTION

The course focuses on the use of the FPT Industrial "PT-Box" diagnostics tool. Participants will be taught the methodologies for specific failure and reaction procedures on the system, as well as how to read parameters and activate the actuators.

The procedures for updating software and accessing teleservices will also be illustrated.

OBJECTIVES

- To be able to use the FPT Industrial diagnostics methodologies correctly on the specific products.
- To correctly identify the key system analysis parameters, through the use of the FPT Industrial "PT-Box" diagnostics tool
- To be able to interpret the values read and their plausibility, and to read charts and parameters
- To learn about the software update procedures and access to teleservices

NECESSARY EQUIPMENT

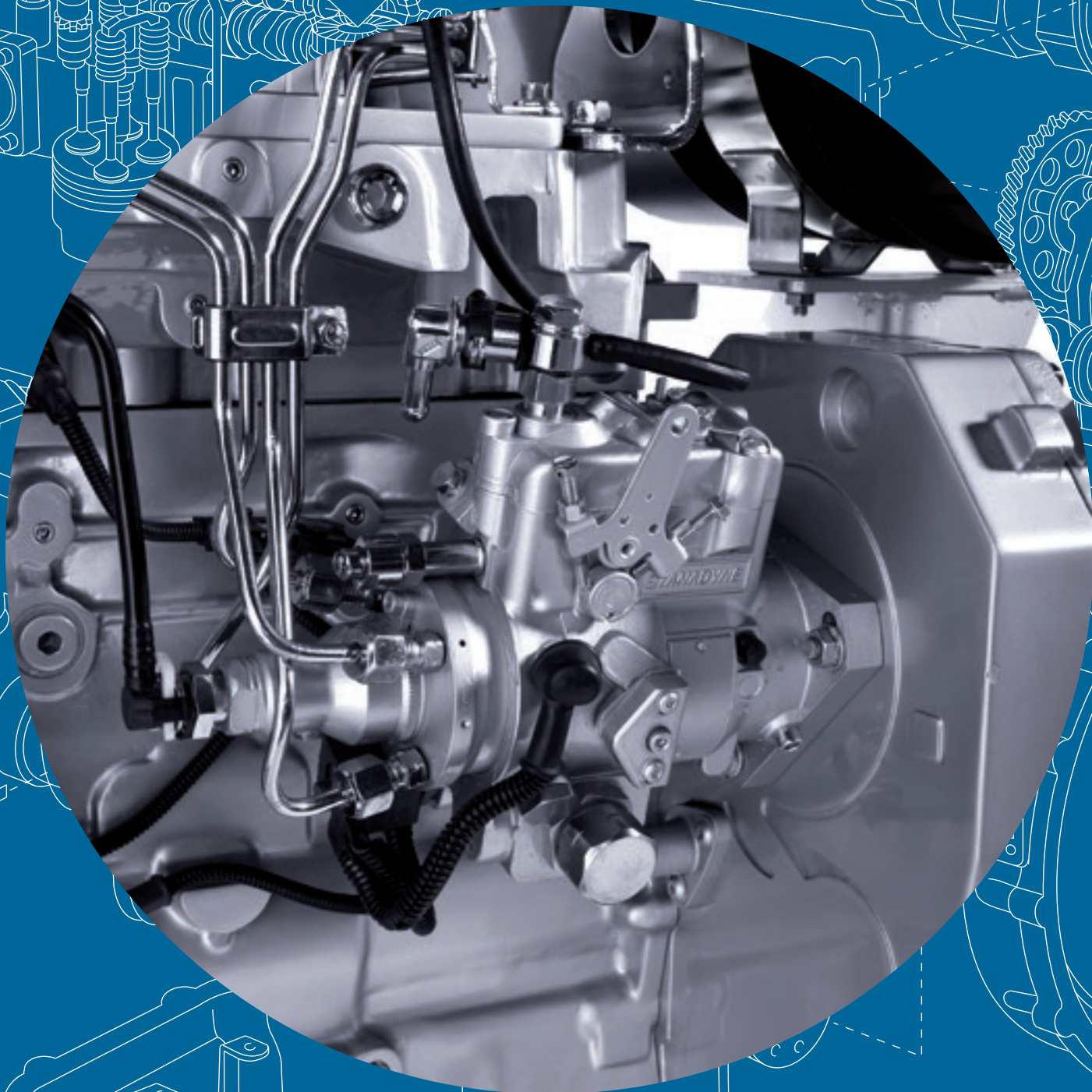
- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Diagnostics staff
Workshop managers

REQUIREMENTS **FPT_MD_B**

DAYS 2







ENGINE FAMILY COURSES

This area includes the technical courses on FPT engines that are focused on the various Industrial, Marine and Power Generation applications.

Before booking onto a course, please analyse the course objectives and content and check that the individuals taking part in the course(s) meet the requirements stipulated on the various course data sheets.

CODE	COURSE TITLE	DAYS
FPT_E_M_F1	Electronic and mechanical management of FI family engines	3
FPT_E_M_F5	Electronic and mechanical management of F5 family engines	3
FPT_E_M_F4	Electronic and mechanical management of NEF family engines	3
FPT_E_M_CU	Electronic and mechanical management of Cursor family engines (PDE + Common Rail)	3
FPT_E_M_FV	Electronic and mechanical management of Vector family engines	3

FPT_E_M_F1

ELECTRONIC AND MECHANICAL MANAGEMENT OF FI FAMILY ENGINES



DESCRIPTION

This module provides the skills required to carry out the correct mechanical adjustments on the engine system.

It teaches participants about the basic support methodologies for Common Rail electronic injection management systems on engines from the F1 family.

OBJECTIVES

- By the end of the course, participants will have learned the skills necessary to carry out key operations using specialised equipment, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on the electronic engine management system
- Participants will also have learned the key construction details and main components of the F1 family of engines, along with timing procedures and the major mechanical adjustments that can be carried out on these engines
- Participants will be able to analyse the Common Rail injection system, as well as the lubrication and cooling systems
- Participants will gain knowledge of exhaust gas treatment systems, of the function of EGR devices, and of emission regulations
- Participants will be aware of the key elements of electronic engine management and of EDC system operating strategies, and will be able to analyse the specific sensors. Participants will learn how to use the specific tools and instruments
- Finally, participants will also learn how to analyse the diagnostics and error codes, using the special FPT Industrial "PT-Box" diagnostics tool

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical
engineer
Workshop
managers

REQUIREMENTS **FPT_MEC**
FPT_FIS_ACP

DAYS 3

ELECTRONIC AND MECHANICAL MANAGEMENT OF F5 FAMILY ENGINES

FPT_E_M_F5

DESCRIPTION

This module provides the skills required to carry out the correct mechanical adjustments on the engine system.

It teaches participants about the basic support methodologies for Common Rail electronic injection management systems on engines from the F5 family.

OBJECTIVES

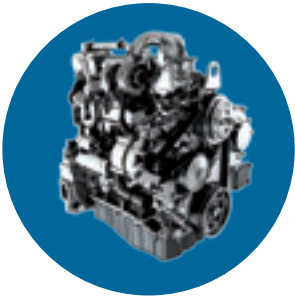
- By the end of the course, participants will have learned the skills necessary to carry out key operations using specialised equipment, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on the electronic engine management system
- Participants will also have learned the key construction details and main components of the F5 family of engines, along with timing procedures and the major mechanical adjustments that can be carried out on these engines
- Participants will be able to analyse the Common Rail injection system, as well as the lubrication and cooling systems
- Participants will gain knowledge of exhaust gas treatment systems, of the function of EGR devices, and of emission regulations
- Participants will be aware of the key elements of electronic engine management and of EDC system operating strategies, and will be able to analyse the specific sensors. Participants will learn how to use the specific tools and instruments
- Finally, participants will also learn how to analyse the diagnostics and error codes, using the special FPT Industrial "PT-Box" diagnostics tool

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing



AIMED AT Mechanical
engineer
Workshop
managers

REQUIREMENTS FPT_MEC
FPT_FIS_ACP

DAYS 3

FPT_E_M_F4

ELECTRONIC AND MECHANICAL MANAGEMENT OF NEF FAMILY ENGINES



DESCRIPTION

This module provides the skills required to carry out the correct mechanical adjustments on the engine system.

It teaches participants about the basic support methodologies for Common Rail electronic injection management systems on engines from the F4 (NEF) family.

OBJECTIVES

- By the end of the course, participants will have learned the skills necessary to carry out key operations using specialised equipment, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on the electronic engine management system
- Participants will also have learned the key construction details and main components of the F4 (NEF) family of engines, along with timing procedures and the major mechanical adjustments that can be carried out on these engines
- Participants will be able to analyse the Common Rail injection system, as well as the lubrication and cooling systems
- Participants will gain knowledge of exhaust gas treatment systems, of the function of EGR devices, and of emission regulations
- Participants will be aware of the key elements of electronic engine management and of EDC system operating strategies, and will be able to analyse the specific sensors. Participants will learn how to use the specific tools and instruments
- Finally, participants will also learn how to analyse the diagnostics and error codes, using the special FPT Industrial "PT-Box" diagnostics tool

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

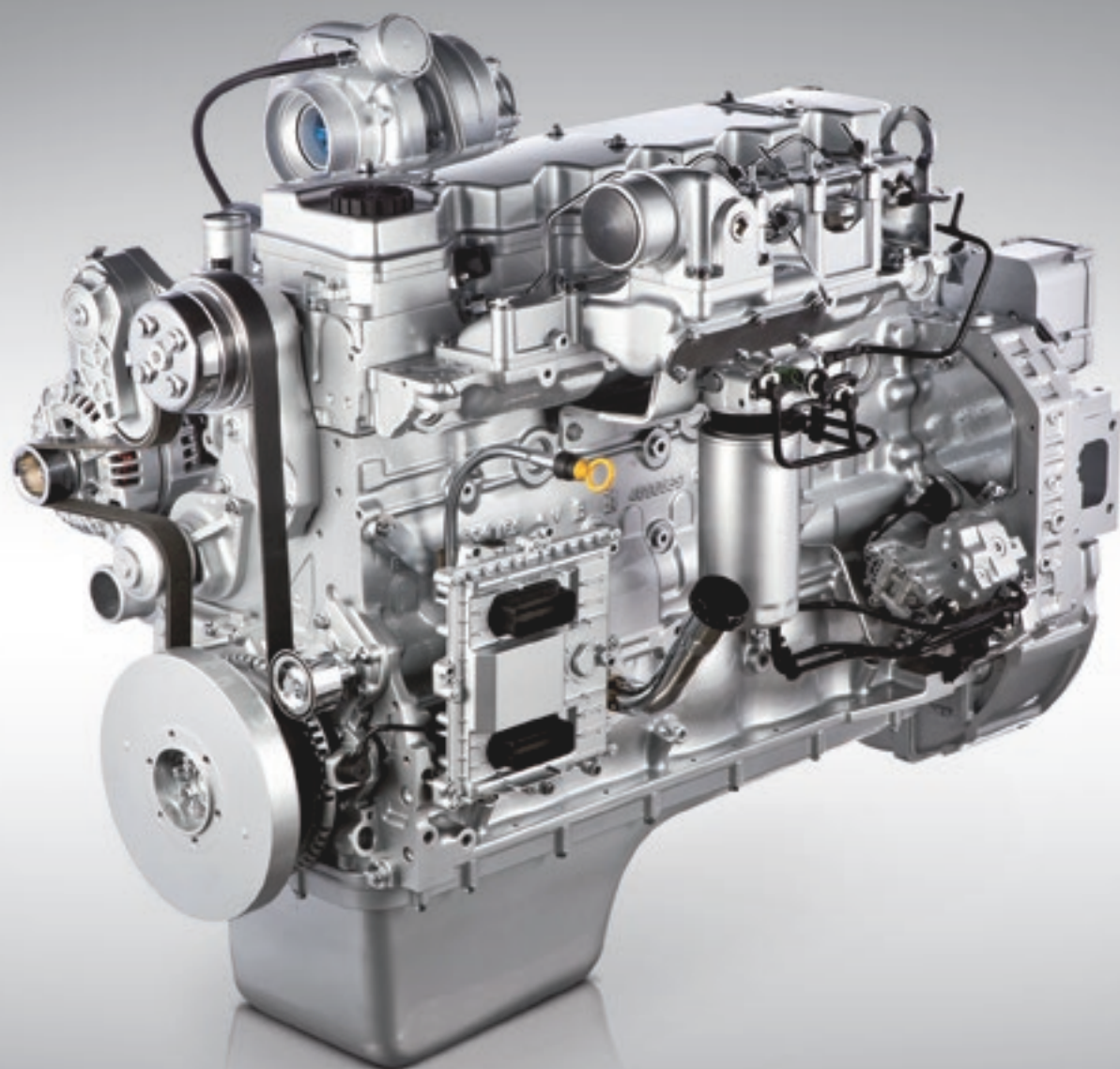
NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical engineer
Workshop managers

REQUIREMENTS **FPT_MEC**
FPT_FIS_ACP

DAYS 3



FPT_E_M_CU

ELECTRONIC AND MECHANICAL MANAGEMENT OF CURSOR FAMILY ENGINES PDE + COMMON RAIL



DESCRIPTION

This module provides the skills required to carry out the correct mechanical adjustments on the engine system.

It teaches participants about the basic support methodologies for Common Rail electronic injection management systems on engines from the Cursor family.

OBJECTIVES

- By the end of the course, participants will have learned the skills necessary to carry out key operations using specialised equipment, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on the electronic engine management system
- Participants will also have learned the key construction details and main components of the Cursor family of engines, both Common Rail and pump injector (PDE) types, along with timing procedures and the major mechanical adjustments that can be carried out on these engines
- Participants will be able to analyse the Common Rail injection system, as well as the lubrication and cooling systems
- Participants will gain knowledge of exhaust gas treatment systems, of the function of EGR devices, and of emission regulations
- Participants will be aware of the key elements of electronic engine management and of EDC system operating strategies, and will be able to analyse the specific sensors. Participants will learn how to use the specific tools and instruments.
- Finally, participants will also learn how to analyse the diagnostics and error codes, using the special FPT Industrial "PT-Box" diagnostics tool

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical engineer
Workshop managers

REQUIREMENTS **FPT_MEC**
FPT_FIS_ACP

DAYS 3

ELECTRONIC AND MECHANICAL MANAGEMENT OF VECTOR FAMILY ENGINES

FPT_E_M_FV

DESCRIPTION

This module provides the skills required to carry out the correct mechanical adjustments on the engine system.

It teaches participants about the basic support methodologies for Common Rail electronic injection management systems on engines from the Vector family.

OBJECTIVES

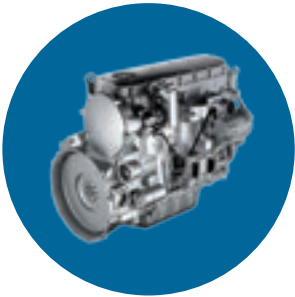
- By the end of the course, participants will have learned the skills necessary to carry out key operations using specialised equipment, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on the electronic engine management system
- Participants will also have learned the key construction details and main components of the Vector family of engines, along with timing procedures and the major mechanical adjustments that can be carried out on these engines
- Participants will be able to analyse the Common Rail injection system, as well as the lubrication and cooling systems
- Participants will gain knowledge of exhaust gas treatment systems, of the function of EGR devices, and of emission regulations
- Participants will be aware of the key elements of electronic engine management and of EDC system operating strategies, and will be able to analyse the specific sensors. Participants will learn how to use the specific tools and instruments
- Finally, participants will also learn how to analyse the diagnostics and error codes, using the special "Vector Diagnostic Tool" and the FPT Industrial "PT-Box"

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing



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AIMED AT Mechanical
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REQUIREMENTS FPT_MEC
FPT_FIS_ACP

DAYS 3





SPECIALIST COURSES

This area includes technical courses on the mechanical and electronic management of FPT engines with CNG fuel system and intended for marine and power generation applications.

Before booking onto a course, please analyse the course objectives and content and check that the individuals taking part in the course(s) meet the requirements stipulated on the various course data sheets.

CODE	COURSE TITLE	DAYS
FPT_MAR	Marine applications for FPT engines	2
FPT_PG	Power Generation applications for FPT engines	2
FPT_CNG_F1	Electronic and mechanical management of FI-CNG family engines	2
FPT_CNG_F4	Electronic and mechanical management of NEF-CNG family engines	2
FPT_CNG_C	Electronic and mechanical management of Cursor-CNG family engines	2

FPT_MAR

MARINE APPLICATIONS FOR FPT ENGINES



DESCRIPTION

This module provides an understanding of the main mechanical differences between an industrial engine and an engine used in marine applications, along with a description of the electrical/electronic components used in the application. It also provides participants with the skills needed to run diagnostics on any problems that occur, either with regard to the application or to the engine (for electronic engines).

By the end of the course, participants will be able to understand the characteristics of an engine to be used in marine applications, and will have become familiar with the methodologies to be used to complete specific adjustments. He/she will also be able to correctly perform diagnostics operations on electronic systems used on FPT marine engines.

OBJECTIVES

- To understand the main differences between a marine engine and an industrial engine, as well as gaining knowledge of specific maintenance activities for marine engines
- To analyse the different application variants (mechanical/electronic engines, analogue/digital control panels)
- To gain knowledge of the electronic management of the various injection systems, and on EDC system operating strategies
- To analyse the hardware components used in the application (cabling, interface boards, special sensors for marine engines).
- To learn how to use first and second generation digital and analogue control panels
- To gain knowledge of CAN-Bus electronic accelerators
- To learn how to use specific equipment and run diagnostic procedures with PT-Box

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AIMED AT Mechanical engineer
Workshop managers

REQUIREMENTS [FPT_E_M_F1](#)
[FPT_E_M_F4](#)
[FPT_E_M_CU](#)
[FPT_E_M_FV](#)

DAYS 2

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing







FPT_PG

POWER GENERATION APPLICATIONS FOR FPT ENGINES



DESCRIPTION

This module teaches participants how to use the Compact MAGE control panel for gensets.

After completing the course the participant will be able to:

- understand the potential for customisation of the application, and the level to which this can be achieved;
- set a genset to run in either manual or automatic mode;
- set the main parameters of the COMPACT MAGE control panel for genset applications;
- diagnose electrical faults in the application or the engine, both through the control panel itself and by using FPT computerised diagnostic tools.

OBJECTIVES

- To describe the composition and applications of a genset
- To learn about the electrical and mechanical characteristics of the engine in question
- To learn about the electrical wiring for the application
- To learn about the interface board for electronically-controlled engines, and to become familiar with the hardware component settings of the application
- To become acquainted with the Compact MAGE control panel: basic settings, use in manual/automatic mode, diagnostics and logbook
- To gain a theoretical/practical introduction to parametrisation

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

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AIMED AT Mechanical engineer
Workshop managers

REQUIREMENTS [FPT_E_M_F1](#)
[FPT_E_M_F4](#)
[FPT_E_M_CU](#)
[FPT_E_M_FV](#)

DAYS 2

ELECTRONIC AND MECHANICAL MANAGEMENT OF FI-CNG FAMILY ENGINES

FPT_CNG_F1

DESCRIPTION

This module provides participants with the skill to correctly perform mechanical maintenance activities and to electronically manage FIC engines powered by natural gas. Participants will be taught how to carry out maintenance procedures on the vehicle by observing the safety procedures which apply due to the presence of a flammable gas, which is stored on board at high pressure. Participants will gain knowledge of the current safety standards. They will learn how to correctly diagnose the system using the electronic diagnostics tools. Finally, participants will learn how to perform mechanical repairs and adjustments by applying the correct methodology, and using specific equipment designed for this purpose.

OBJECTIVES

- To gain knowledge of the Otto cycle in relation to natural gas-powered devices
- To learn the security procedures to be taken when working on the on-board gas storage and supply system
- To become familiar with the current safety standards (CUNA)
- To learn the differences between natural gas engine parts and the Diesel engine parts from which the former is derived
- To carry out key checks and adjustments on the engine
- To become familiar with the electronic power supply, gas injection and ignition management system
- To carry out diagnostic procedures with PT-Box

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing

AIMED AT Mechanical engineer
Workshop managers

REQUIREMENTS [FPT_E_M_F1](#)

DAYS 2

FPT_CNG_F4**ELECTRONIC AND MECHANICAL
MANAGEMENT OF NEF-CNG FAMILY
ENGINES****FEATURES**

This module provides participants with the skill to correctly perform mechanical maintenance activities and to electronically manage F4 (NEF) engines powered by natural gas.

Participants will be taught how to carry out maintenance procedures on the vehicle by observing the safety procedures which apply due to the presence of a flammable gas, which is stored on board at high pressure.

Participants will gain knowledge of the current safety standards.

They will learn how to correctly diagnose the system using the electronic diagnostics tools. Finally, participants will learn how to perform mechanical repairs and adjustments by applying the correct methodology, and using specific equipment designed for this purpose.

OBJECTIVES

- To gain knowledge of the Otto cycle in relation to natural gas-powered devices
- To learn the security procedures to be taken when working on the on-board gas storage and supply system
- To become familiar with the current safety standards (CUNA)
- To learn the differences between natural gas engine parts and the Diesel engine parts from which the former is derived
- To carry out key checks and adjustments on the engine
- To become familiar with the electronic power supply, gas injection and ignition management system
- To carry out diagnostic procedures with PT-Box

METHODOLOGY AND TOOLS

- Classroom-based theory lessons
- Practical exercises on the components and engines provided for educational purposes
- Learning assessment questionnaire

NECESSARY EQUIPMENT

- Safety shoes (or overshoes with armoured toecaps)
- Safety glasses with protective side shields
- Appropriate work clothing


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AIMED AT Mechanical
engineer
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REQUIREMENTS [FPT_E_M_F4](#)

DAYS 2



FPT_CNG_C		ELECTRONIC AND MECHANICAL MANAGEMENT OF CURSOR-CNG FAMILY ENGINES	
		<p>FEATURES</p> <p>This module provides participants with the skill to correctly perform mechanical maintenance activities and to electronically manage Cursor engines powered by natural gas.</p> <p>Participants will be taught how to carry out maintenance procedures on the vehicle by observing the safety procedures which apply due to the presence of a flammable gas, which is stored on board at high pressure.</p> <p>Participants will gain knowledge of the current safety standards.</p> <p>They will learn how to correctly diagnose the system using the electronic diagnostics tools.</p> <p>Finally, participants will learn how to perform mechanical repairs and adjustments by applying the correct methodology, and using specific equipment designed for this purpose.</p> <p>OBJECTIVES</p> <ul style="list-style-type: none">· To gain knowledge of the Otto cycle in relation to natural gas-powered devices· To learn the security procedures to be taken when working on the on-board gas storage and supply system· To become familiar with the current safety standards (CUNA)· To learn the differences between natural gas engine parts and the Diesel engine parts from which the former is derived.· To carry out key checks and adjustments on the engine· To become familiar with the electronic power supply, gas injection and ignition management system· To carry out diagnostic procedures with PT-Box <p>METHODOLOGY AND TOOLS</p> <ul style="list-style-type: none">· Classroom-based theory lessons· Practical exercises on the components and engines provided for educational purposes· Learning assessment questionnaire <p>NECESSARY EQUIPMENT</p> <ul style="list-style-type: none">· Safety shoes (or overshoes with armoured toecaps)· Safety glasses with protective side shields· Appropriate work clothing	
56	AIMED AT	Mechanical engineer Workshop managers	
REQUIREMENTS		FPT_E_M_CU	
DAYS		2	



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