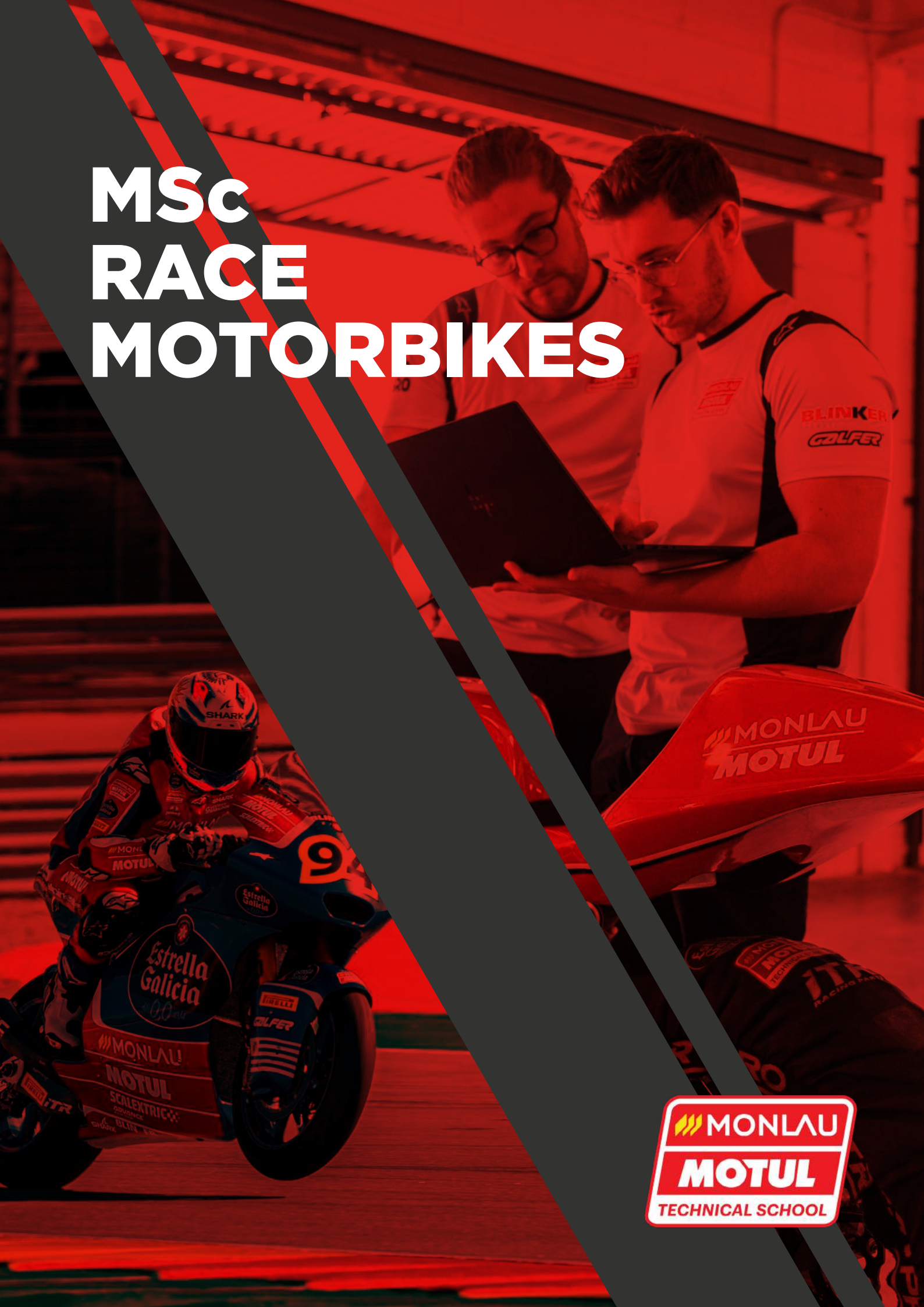
MSc RACE MOTORBIKES



MONLAU MOTUL TECHNICAL SCHOOL


MONLAU
MOTUL
TECHNICAL SCHOOL

MONLAU MOTUL TECHNICAL SCHOOL



Jaime Serrano
General Director

Monlau Motul Technical School was founded in 1997 as part of the Monlau educational group, which has more than 35 years of experience in education.

We are Spain's pioneering school in specialised technical training for professional motorsport. Today, we have more than 370 students enrolled in our programmes, including Racing Mechanics for Cars and Motorcycles and the Master's Programme in Motorsport Engineering.

In 2010, we launched our first Master's Programme in Motorsport Engineering, bringing together an outstanding team of highly qualified instructors specialising in different areas of motorsport engineering. Our teaching staff consists of active professionals working in leading national and international racing championships.

Through this approach, Monlau Motul Technical School has established itself as a leading institution in the training of motorsport technicians and engineers, covering both car and motorcycle racing. Our comprehensive educational structure prepares professionals for the different roles within the motorsport industry.

Throughout every racing season, one of our greatest sources of pride is meeting former students, whom we first welcomed into our classrooms, now working as professional racing mechanics and engineers in the paddocks of major circuits around the world.

For us, as an educational institution, there is no greater satisfaction than seeing our students turn their passion for motorsport into successful professional careers.

MONLAU
MOTUL
TECHNICAL SCHOOL

MSc RACE MOTORBIKES





Professional motorcycle racing is a highly demanding industry that requires total commitment from everyone involved, both inside and outside the pit box. Just as professional riders constantly train and develop their skills to compete successfully in championships, engineers and technicians must follow the same approach, applying the same level of preparation, working methods and technical knowledge.

OBJETIVE

We will give you an insight into the day-to-day experience of a motorsport engineer. You will step inside a professional racing pit box, become familiar with its technical language and gain a deeper understanding of motorcycle racing.

HIGH-LEVEL TRAINING

Learn from a team of experienced instructors and active motorsport professionals who work at racetracks and compete in national and international championships.

MSc RACE MOTORBIKES

ADMISSION REQUIREMENTS

1. Be passionate about motorsport.

2. Choose your preferred MSc programme, click “Enrol”, complete the registration process and we will send you your login credentials.

3. Log in with your student account and enjoy a new learning experience that will help you take your motorsport career to the next level.

NO FIXED SCHEDULES

Learn at your own pace. Organise your schedule and enjoy the different modules included in your chosen MSc programme.



MSc RACE MOTORBIKES

CURRICULUM

1. MOTORSPORT INTRODUCTION AND RACING TEAM

In this introductory module, you will explore the fascinating history of motorsport, from its origins to the present day. We will also examine the different FIM organisations and racing categories, both past and present, as well as the evolution of sporting regulations. This module will provide essential background knowledge and help you develop a deeper understanding of the exciting world of motorsport.

You will also discover how modern motorsport teams are structured and organised, gaining insight into the environment you could one day be part of. This module will help you understand the roles, responsibilities and daily tasks of the key members of a professional racing team.

2. PARTS LIST: RACE MOTORBIKES

In this module, we will explore the different components of a racing motorcycle, specifically a Moto3 bike. This module will serve as a technical guide to help you identify each component and understand its main function.

3. RACE MOTORBIKES DYNAMICS

In motorsport, understanding and interpreting a rider's feedback about the motorcycle is essential. Building rider confidence is a key factor in achieving optimal performance. In this module, we will explore the different aspects of motorcycle setup and understand how each adjustment physically affects the bike's handling, dynamics and on-track behaviour.





4. RACE MOTORBIKES DATA ACQUISITION

Racing motorcycles are equipped with a range of electronic components that allow us to collect objective data on what happens on the track. In this module, we will explore which parameters can be monitored and learn how to use 2D, one of the most widely used data acquisition software systems in motorsport. We will also analyse practical examples to develop the skills needed to read and interpret racing data.

5. RACE BRAKES

Achieving the fastest lap time is not just about speed and power. Braking performance can make a crucial difference during a race. In this module, we will explore the components of a racing braking system, the most common issues that may arise and how to solve them. We will also learn how to calculate optimal braking performance.

6. RACE SHOCK ABSORBERS

Suspension components play a crucial role in vehicle dynamics and, consequently, on-track performance. In this module, we will examine the different components and types of shock absorbers to gain a better understanding of how they affect vehicle behaviour and performance.

7. RACE MOTORBIKES ENGINE

In one-make racing championships, where all competitors use the same motorcycles, engine condition and preparation can make a significant difference. In this module, we will study a real-world example of engine preparation, identifying the key aspects involved in improving engine performance.

8. RACE FUELS AND LUBRICANTS

Using the right lubricant and ensuring optimal fuel conditions can significantly impact the overall performance of a racing vehicle. In this module, we will explore the different types of lubricants available, their properties and how to choose the most suitable option to maximise the performance of our racing vehicle.

9. MOTORSPORT AERODYNAMICS

This module builds on the concepts covered in the aerodynamics section. We will focus on aerodynamic maps and explore a practical calculation example to achieve optimal aerodynamic balance.

10. POWERTRAIN RACE MOTORBIKES

From the engine to the wheels, several components play a crucial role in determining a vehicle's speed and acceleration. In this module, we will explore the different components of the transmission system and identify the key factors involved in selecting the optimal gear ratios for racing performance.

11. MOTORSPORT MATERIALS

In motorsport, a wide range of materials are used to manufacture vehicle components. Choosing the right material for each application is essential to achieving optimal performance. In this module, we will explore the properties of different materials and understand the advantages they offer in motorsport applications.



MSc RACE MOTORBIKES

12. ANSYS

Using Finite Element Analysis (FEA), ANSYS Structural provides a method for predicting the behaviour and performance of complex components made from a wide range of materials.

The high structural demands and lightweight requirements of racing vehicles call for precise analysis, including accurate geometry definition and meshing, realistic stress and load conditions, and thorough post-processing.

Review fundamental concepts of fluid mechanics. Understand the steps involved in fluid flow simulations, interpret the results and recognise their limitations. Become familiar with the ANSYS Fluent simulation software.

Topics covered:
- ANSYS DesignModeler.
- ANSYS Meshing.
- ANSYS Fluent.
- Models & Formulation.
- Cell Zones & Boundary Conditions.
- Solver Settings.
- Post-processing.
- ANSYS CFD-Post.

13. PTC CREO

3D solid modelling using all available tools.

Assemblies, static assemblies and dynamic assemblies; dynamic motion analysis using Pro/MECHANISM; structural and thermal simulation.

Surface modelling.

14. MATLAB FUNDAMENTALS & SIMULINK

-Creación de un modelo reutilizable Understand MATLAB software and its working environment. Gain a basic understanding of MATLAB programming, including the use of functions and script files.

Creating and modifying Simulink models and performing dynamic system simulations.

Modelling continuous-time, discrete-time and hybrid systems.

Adjusting solver settings to optimise simulation performance and speed.

Building hierarchical structures within Simulink models.




MOTORRAD
HONDA
26
PHOENIX

SPONSORS:


MOTUL


Estrella Galicia
0,0


BLINKER
PROFESSIONAL COMPONENTS


SCALEXTRIC


GALFER


CABREIROÁ


alpinestars


GESTORIA
GABALDON


SHARK


ITR


GSB


Beta


CUPRA
RACING


HRC
Honda RACING


HONDA


SC
PROJECT


PB
Pro-Bolt


SINCE 1952
SPRINT
FILTER


Wintym


2D


RACC
Mobility
Club


AK
AL KAMEL
SYSTEMS


HURLY


FIA
MEMBER OF FIA


rfme

Monlau Motul Technical School
Potosí, 38
08030 Barcelona

Phone. 93 274 40 75

info@monlau-motorsport.com

www.monlau-motorsport.com
www.monlaumotorsportacademy.com