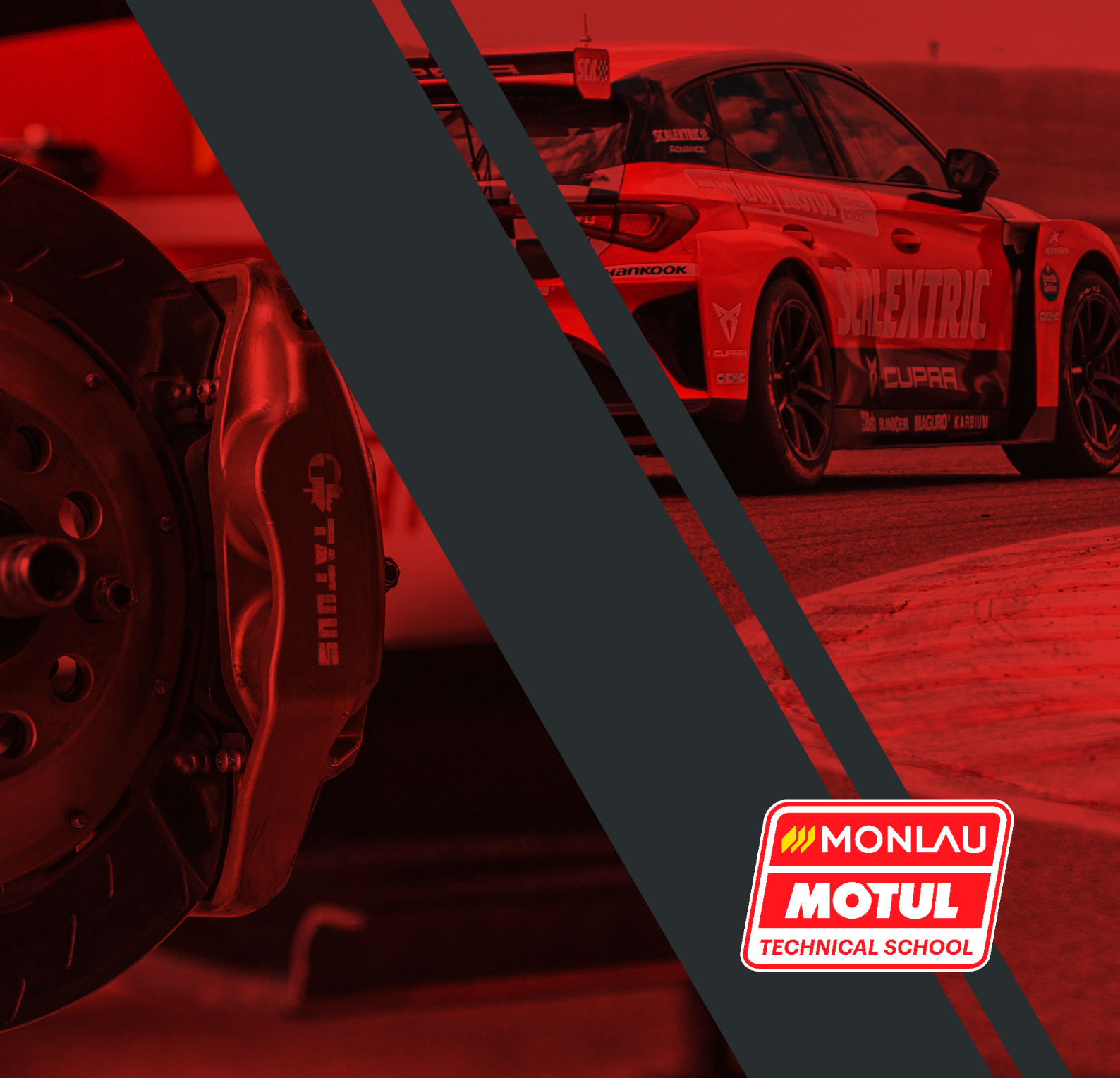
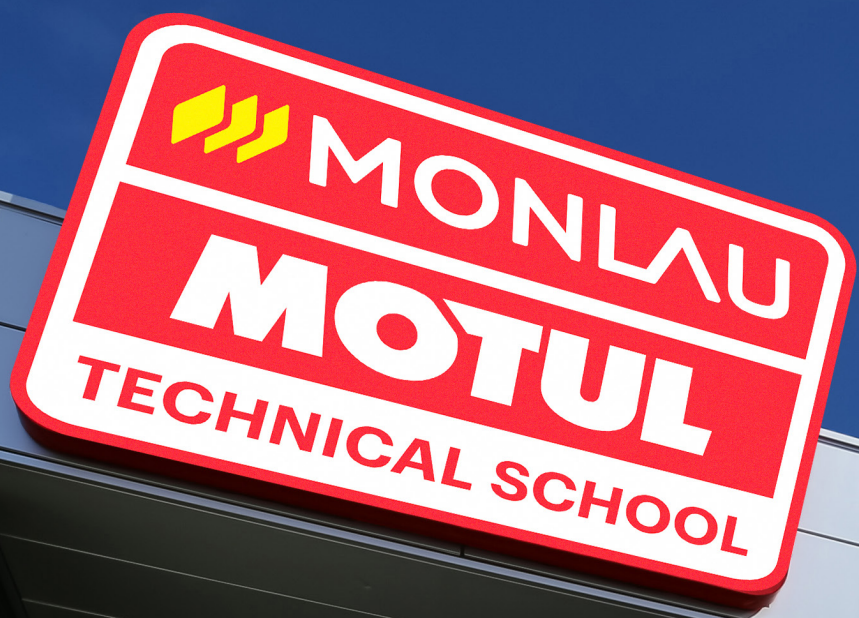


ENGINEERING MSc RACE CAR





MONLAU

MOTUL

TECHNICAL SCHOOL

MONLAU MOTUL TECHNICAL SCHOOL



Jaime Serrano
Managing Director

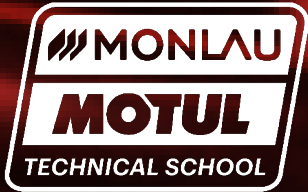
With more than 20 years of experience teaching cars and motorbikes racing techniques, from **Monlau Motul Technical School** we launched in 2010 the first Motorsport Engineering Master with a brilliant staff of active professors in the most important international FIA and FIM championships , all of them specialized in the different Master modules.

During these years we have established our Master as a reference in motorsport.

Year after year, we have improved the Master up to the optimal condition to give our students the warranty and the knowledge required to open the door to their future in the world of motorsport.

In 2016 we launched Motorsport Online Engineering Master with the same enthusiasm that we had before but with successful experience in the academic world.

With the same standard basis that we succeed in the On Campus Master, we introduce the digital version for those engineers who love motorsport and due to different reasons cannot move to Barcelona to study their passion: The world of motorsport. We now offer the chance to get a motorsport racing degree anywhere in the world. No matter where you are because you will have the same theoretical and practical lessons as On Campus Master students.



ENGINEERING MSC RACE CAR



Motorsport is a very demanding sector that requires a total commitment from everyone involved inside and outside the pit-garage philosophy. Just as professional riders and drivers are constantly preparing and training to be able to participate in a Championships successfully, engineers and technicians also have to act in the same way and in parallel, with the same method of work and knowledge.

MAIN GOAL

We will teach you the experience that a specialized Motorsport engineer has in their professional daily routine. You will get into a real pit-garage experience and you will learn its language and the Motorsport's interpretation.

A HIGH LEVEL TRAINING

A teacher's staff who all are active duty Motorsport technicians, with a huge field experience, developing their professional lives on track and taking part in many National and International Championships.

ENGINEERING MSC RACE CAR

STUDENT REQUIREMENTS

1. Be passionate about motorsport.
2. Choose the msc option that you prefer, sign up, complete the registration process and we will send you the access code.
3. Enter with your student username and enjoy a new training experience that will be of great help for you.



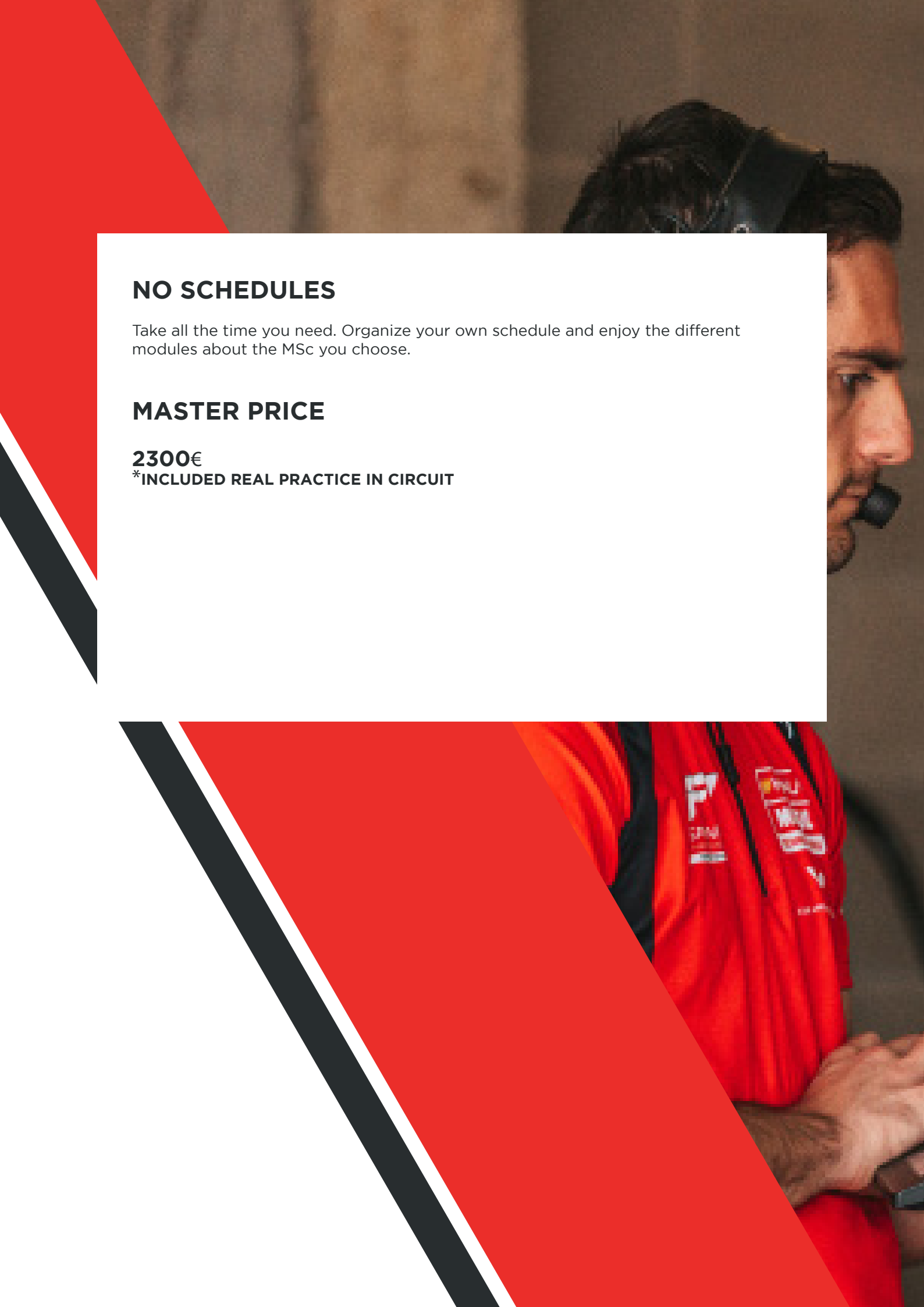
NO SCHEDULES

Take all the time you need. Organize your own schedule and enjoy the different modules about the MSc you choose.

MASTER PRICE

2300€

***INCLUDED REAL PRACTICE IN CIRCUIT**



ENGINEERING MSC RACE CAR

STUDIES PLANNING

1. MOTORSPORT INTRODUCTION AND RACING TEAM

In this introductory module you will learn about and enjoy the history of Motorsport from its beginnings to today. In addition, we will analyze the different organizations and categories of the FIA that exist and have existed. You will have some sports regulations that have existed. This first module will help us to put ourselves in a situation and to acquire culture in this exciting world. Thanks to this module you will discover what the current structures are like within a Motorsport team of which one day you could be a member. This module will help you to know in detail the results are the tasks of the main members of a team.

2. PARTS LIST: RACE CAR

Identify all the important parts from a race car, detailing all main areas of a vehicle such as engine components, aerodynamic devices, chassis parts, powertrain, etc. With this spare parts detailed module, the student will know perfectly all multiple and different pieces, before getting deeply into each specific module.

3. RACE CAR DYNAMICS

One of the tasks of a Motorsport engineer is to take decisions about the settings on vehicles and to know what parameters of the vehicle when change, modify its behaviour. We will see the tires and its importance. You will learn how to do different calculations, and which modifies do to achieve the best setting.



4. RACE CAR DATA ACQUISITION

In order to be able to give instructions to our drivers and to understand the behaviour of our vehicle, it is necessary to get real car data. We will see the components of an acquisition system and different examples that will help us to understand and interpret data.

5. RACE BRAKES

To get the best lap time and be the fastest, not only the speed and power factor is enough. Brakes can be decisive during a race. In this module we will learn about all parts that make up a brake system, the different problems that we may have, and their solution. As well as perform an optimal braking calculation.

6. RACE SHOCK ABSORBERS

The suspension elements take on a special importance for the dynamics of our vehicle and, consequently, for its performance on the track. In this module we will see different parts and types of shock absorbers that will help us to better understand the dynamics of our vehicle.

7. RACE CAR ENGINE

The engine is one of the main parts of our race car. In this module we will see what types of engines exist, all different pieces that make them up as well as the different steps and calculations that we must consider for its mechanical preparation.

8. RACE FUELS AND LUBRICANTS

Having a good lubricant and an optimal gasoline will for sure affect the final performance of our vehicle. In this module we will explain what types of lubricants exist and how they will help us to make the best choice for our vehicle when competing.

9. AERODYNAMICS RACE CAR

To have a better vehicle performance it is important to take advantage of all available physics. Aerodynamics is one of the solutions that is gaining more and more prominence. This module will help you to understand the different aerodynamic elements and what parameters to consider. In this module we will focus on the Aero Maps and we will see an example of calculation to achieve an optimal aerodynamic balance for our vehicle.

10. POWERTRAIN RACE CAR

Achieving a correct and controlled ratio between the movement of the engine and the driving wheels is vital and this is thanks to the transmission system. In this module we will see the different powertrain systems and real calculations to get an optimal ratio.

11. MOTORSPORT MATERIALS

In Motorsport, many vehicle parts are made of specific materials. The choice of materials for the different motorbike elements is not arbitrary. In this module we will learn what characteristics each material has and the benefits they can offer to the motorbikes racing field

ENGINEERING MSC RACE CAR

STUDIES PLANNING

12. ANSYS

- Using finite element analysis (FEA), ANSYS Structural provides the method to predict the behaviour and performance of complex products of all kind of materials.

- The high demands on the structural elements with little weight in race vehicles, requires a precise analysis, with a correct definition and meshing of the geometry, a realistic definition of the stresses and a meticulous post-processing.

Review some basic fluid mechanics concepts. Assimilate the steps involved in a fluid flow simulation. Intercept the results and understand the limitations of fluid flow simulations. Get acquainted with the ANSYS Fluent simulation tool.

- ANSYS Design Modeler.
- ANSYS Meshing.
- ANSYS Fluent.
- Models & Formulation.
- Cell Zones & Boundary Conditions.
- Solver Settings.
- Post-processing.
- ANSYS CFD-Post.

13. PTC CREO

- 3D solid creation using all tools available.

- Assemblies, static assemblies, dynamic assemblies; dynamic movement analysis using pro/mechanism; structural and thermal simulation.

- Surface modeling.

14. MATLAB FUNDAMENTALS & SIMULINK

Understanding MATLAB software and its environment.

Provide a basic knowledge of MATLAB programming, usage of functions and script files.

-Creating and modifying Simulink models and simulating system dynamic.

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

-Modifying solver settings for simulation accuracy and speed.

-Building hierarchy into a Simulink model.

-Creating reusable model





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