One of the strengths of this course is the synergy created through academic activities accompanied by significant contributions from qualified technical staff from the industrial sector, internships with partner companies and visits to some of the most important companies within the sector.

The Master’s Degree course in Advanced Automotive Engineering aims to offer all the skills needed to design and develop high performance cars and motorcycles. It’s promoted by MUNER (Motorvehicle University of Emilia-Romagna), an association founded by the Emilia Romagna Region and through collaboration between the universities in the area, including the University of Parma, and some of the most prestigious Italian companies in the sector such as Lamborghini, Dallara, Ducati, Ferrari, Haas F1 Team, HPE Coxa, Maserati, Alpha Tauri and Pagani.

This Master’s Degree course in AAE, offered exclusively in English, is made up of different syllabuses with 25 places available for each one.

Advanced Powertrain – Modena (Modena); Advanced Powertrain Bologna (Bologna in the second semester); High Performance Car Design (Parma in the second year); Advanced Motorcycle Engineering (Bologna); Advanced Sports Manufacturing (Bologna).
WHAT ARE YOU GOING TO LEARN?

- AUTOMATIC CONTROLS 6
- FEM FUNDAMENTALS AND CHASSIS DESIGN 9
- ELECTRONICS SYSTEMS/ AUTOMATIC CONTROLS 12

PRIMO SEMESTRE COMUNE - MODENA
- INTERNAL COMBUSTION ENGINES 6
- VEHICLE DYNAMICS 12
- ELECTRONICS SYSTEMS / AUTOMATIC CONTROLS 12
- POWERTRAIN DESIGN AND MANUFACTURING 6

ADVANCED SPORTCAR MANUFACTURING  - BOLOGNA
- ADVANCED MOTORCYCLE ENGINEERING  - BOLOGNA
- CFD FUNDAMENTALS AND AERODYNAMICS 9
- RACING CAR DESIGN - MODENA
- HIGH PERFORMANCE CAR DESIGN - MODENA
- ELECTRIC DRIVES/ELECTRIC PROPULSION

ADVANCED POWERTRAIN  - BOLOGNA
- ADVANCED POWERTRAIN - MODENA

SECONDO SEMESTRE
- MANUFACTURING AND ASSEMBLY

PRIMO ANNO CFU
- AUTOMATIC CONTROLS 6
- FEM FUNDAMENTALS AND CHASSIS DESIGN 9
- ELECTRONICS SYSTEMS/ AUTOMATIC CONTROLS 12

ADVANCED POWERTRAIN - MODENA
- POWERTRAIN DESIGN AND MANUFACTURING 6
- INTERNAL COMBUSTION ENGINES 6
- MECHANICAL TRANSMISSIONS 6
- VEHICLE CONCEPTUAL DESIGN 6
- MECHANICAL VIBRATIONS 6
- POWERTRAIN DESIGN AND MANUFACTURING 6
- AUTOMATIC CONTROLS 6
- AUTOMOTIVE COMPUTER AIDED DESIGN 6
- ELECTRIC DRIVES/INTERNAL COMBUSTION ENGINES 12

SECOND SEMESTER
- AUTOMATIC CONTROLS - BOLOGNA
- FEM FUNDAMENTALS AND CHASSIS DESIGN 9
- VEHICLE DYNAMICS 12
- ELECTRONICS SYSTEMS / AUTOMATIC CONTROLS 12
- POWERTRAIN DESIGN AND MANUFACTURING 6
- INTERNAL COMBUSTION ENGINES 6
- MECHANICAL TRANSMISSIONS 6
- VEHICLE CONCEPTUAL DESIGN 6
- MECHANICAL VIBRATIONS 6
- POWERTRAIN DESIGN AND MANUFACTURING 6
- AUTOMATIC CONTROLS 6
- AUTOMOTIVE COMPUTER AIDED DESIGN 6
- ELECTRIC DRIVES/INTERNAL COMBUSTION ENGINES 12

WHAT TO EXPECT AFTER THE COURSE

The Advanced Automotive Engineering graduate is a professional who has an understanding of the intricate systems that make up the industry. The student will be able to design, develop and produce the main subsystems for road vehicles, both automobiles and motorcycles, with particular attention being paid to luxury and competitive vehicles. Depending on the specialization, the student will have a global vision of the various systems within the vehicle, can design, develop and produce the main subsystems for road vehicles, both automobiles and motorcycles, with particular attention being paid to luxury and competitive vehicles. Depending on the specialization, the student will have a global vision of the various systems within the vehicle, and the design of all the main “cold” systems and subsystems for high performance road vehicles.

Racing Car Design
Based on the design of the development of high-end motorcycles, both for the competition and production markets, managing typical Electronic Engineering and Industrial Design issues in the motorcycle sector.

Advanced Sportcar Manufacturing
Focused on planning, developing, controlling and selecting processes and production systems in the automotive sector with particular attention being paid to optimization, control and monitoring issues.

Advanced Motorcycle Engineering
Focused on the design and development of high-end motorcycles, both for the competition and production markets, managing typical Electronic Engineering and Industrial Design issues in the motorcycle sector.

Advanced Sporcar Manufacturing
Focused on planning, developing, controlling and selecting processes and production systems in the automotive sector with particular attention being paid to optimization, control and monitoring issues.

WHAT IS THE ADVANCED AUTOMOTIVE ENGINEERING PROGRAMME?