ANNEX 26-DISS-M1-594

Table of contents

Art. 1 - Type 2
Art. 2 - Training objectives, job opportunities and course appeal 2
Art. 3 - Program's curriculum 2
Art. 4 - Progressive knowledge checks 4
Art. 5 - Final degree examination and award of the qualification 4
Art. 6 - Faculty 5
Art. 7 - Admission requirements 5
Art. 8 - Deadline for the online application process 6
Art. 9 - Annexes for the online application process 6
Art. 10 - Tuition and fees 7
Art. 11 - Web site and Organizational Secretary contacts 7

Art. 1 - Type

The University of Pavia has activated a **first level Post-Bachelor Vocational Program** in **Car Testing and Race Engineering (MCTRE) - *Race Engineering course*** at the **INDUSTRIAL AND INFORMATION ENGINEERING DEPARTMENT**, for the 2026/27 academic year.

Edition: 8

Disciplinary area: SCIENCES AND TECHNOLOGIES

Art. 2 - Training objectives, job opportunities and course appeal

The specific course of the Post-BA Vocational Program **aims to train highly qualified professionals with a solid background in the on-track managment of racing cars**. Course's students will gain **specific expertise in vehicle tuning techniques**, both **virtually using CAE and experimentally through training on the track with Formula 4 and GT cars driven by professional driver**s. The training course includes a **absolutely innovative elements**: alongside lectures, there will be **test sessions on the Quattroruote ASC track and Skydrive simulation sessions at the Monza Circuit**. During these hands-on sessions, participants will learn the techniques and methodologies that define all Race Engineering activities (from car management and radio communications to the psychological aspects of the relationship with the driver and the team). All participants will undertake a specifically designed advanced driving course to prepare them for subsequent on-track activities. Interaction with professional Race Engineers throughout the Race Engineering course will be crucial.

The course will also include targeted training on the following software: **VI-Grade CarRealTime, MSC Adams, Cradle CFD, AIM Race Studio 3, Atlas**, as well as **specific training on the SkyDrive dynamic simulator at the Monza Autodrome.**

Professionals trained through the Vocational Program's course can find employment in all racing departments and teams involved in motorsport championships in Europe and around the world. Notably, **the expertise gained during the specific Race Engineering course is crucial for quickly and successfully fitting into a team**. This professional engineering profile is in high demand on the job market, but it is not available through current academic education.

The following companies are involved in the Vocational Program, related to one or both courses, in various capacities: ASC, VI-grade, McLaren, Pirelli, CD-Adapco/Siemens, Seat, Thyssen Presta, AudiSport, ZF-TRW, Ycom, Brembo, Lamborghini, Continental, Prema, Trident, ADM Motorsport, Team Lazarus, JAS Motorsport, Tatuus, Autotecnica Motori, Maserati, Alfa Romeo, Magneti Marelli, FCA, Abarth, Michigan Scientific, Michelin, Oreste Berta, PCB, Kistler, Danisi Engineering, Skydrive, Harp Racing, Corbetta Racing, PetriCorse, Imperiale Racing, Leomax, Porsche NTC. Aviorace and Koni.

The current changing context of the *Automotive/Motorsport* sector requires companies/teams to rely on highly trained human resources, not only in terms of theory and methodology, but also in the most innovative design and experimentation techniques currently available. These techniques are the main area of specialisation of the Vocational Program courses.

Art. 3 - Program's curriculum

The **one-year** Vocational Program comprises a total of **1,500 hours**, broken down according to the table below.

The set of planned training activities is designed to enable course participants to acquire **60 university credits** (CFU).

The teaching modules are organized as follows and will be taught in **English**:

Module	SSD	Lenguage	L(h)	STD(h)	OL(h)	EX(h)	Tot(h)	CFU
DESIGN OF THE VEHICLE DYNAMICS								
1) Vehicle Dynamics Fundamental	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	60	90	0	0	**150**	**6**
	Contents: • Fundamentals of vehicle dynamics • Aerodynamics • Tires.							

2) Virtual Dynamics Design and Simulation	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	8	60	0	32	**100**	**4**
	Contents: • Multibody analyses introduction • Adams Car • Real-time analyses • From real-time virtual dynamics to dynamic driving simulator.							
3) Driving Simulator training	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	8	60	0	32	**100**	**4**
	Contents: • Experimental training with static driving simulator.							
PROPULSION AND CONTROL								
4a) Propulsion: ICE	ING-IND/08 | MACCHINE A FLUIDO	English	10	15	0	0	**25**	**1**
	Contents: • Internal combustion engines • Principal characteristics and features • Architecture • Consumption.							
4b) Propulsion: Hybrid, Electric (both courses)	ING-IND/32 | CONVERTITORI, MACCHINE E AZIONAMENTI ELETTRICI	English	10	15	0	0	**25**	**1**
	Contents: • Electric Motors • Generators • Accumulation Systems • Power supply • Recharging • Connection Systems • Wiring • Protocols • Diagnostics.							
4c) Propulsion: Materials and Structural Resistance	ICAR/08 | SCIENZA DELLE COSTRUZIONI	English	10	15	0	0	**25**	**1**
	Contents: • Ottimizzazione topologica • Analisi agli elementi finiti.							
5) Vehicle Dynamics Control (both courses)	ING-INF/04 | AUTOMATICA	English	10	15	0	0	**25**	**1**
	Contents: • Introduction to the main regulators • Braking control systems, stability, traction, and vector control • Classical problems, vehicle dynamic control, measurements, sensors and observers.							
VEHICLE TESTING AND PILOT/VEHICLE INTERACTION								
6) Advanced Driving Course	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	2	15	0	8	**25**	**1**
	Contents: • Driving experience and training.							
7) Skydrive Dynamic Simulator	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	10	15	0	0	**25**	**1**
	Contents: • Simulation of race track activities propaedeutic to the final examination.							
8) Race Track Management and Vehicle Set Up for Performance	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	18	135	0	72	**225**	**9**
	Contents: • Basic knowledge and tools evaluation; • Manuals and regulations; • Methodology for an effective racing car setting; • Analyses of Track tests.							

9) Race Engineering Science	ING-IND/13 | MECCANICA APPLICATA ALLE MACCHINE	English	10	15	0	0	**25**	**1**
	Contents: • Every day task and performance evaluation; • Development of a methodology to 'read driver's mind'; • Team building.							
10) Data acquisition	ING-IND/12 | MISURE MECCANICHE E TERMICHE	English	8	60	0	32	**100**	**4**
	Contents: • Data acquisition systems; • Data analysis; • Transducers and sensors; • Experimental training.							
11) Biomechanics: Driver/Vehicle interaction (both courses)	ING-IND/34 | BIOINGEGNERIA INDUSTRIALE	English	20	30	0	0	**50**	**2**
	Contents: • Methodology and tools for the evaluation of driver/vehicle interaction; • Comfort and features; • Integrated system of measurement and monitoring; • Driver physiology; • Psychophysical stress and physiological adaptation; • Environmental factors.							
		PARTIAL	**184**	**540**	**0**	**176**	**900**	**36**
Internship/Stage		English					**550**	**22**
Final exam							**50**	**2**
						TOTAL	**1500**	**60**
L ***Lectures;*** **STD** ***Study;*** **OL** ***Online lessons;*** **EX** ***Exercises, practical activities.***								

Lectures and seminars will be delivered by researchers from the University of Pavia and other universities, including the University of Naples Federico II, the University of Pisa, the Politecnico di Milano, Sheffield Hallam University, the University of Padova, Stanford University and **professional experts from companies** such as VI-grade, Pirelli, MegaRide, Danisi Engineering, McLaren, CD Adapco/Siemens, MSC Adams, Ycom, Brembo, Porsche, AudiSport, JAS Motorsport, Tatuus, Autotecnica Motori, SkyDrive and Regolo Studio. **There will be technical visits** to the Driving Simulator Center of Danisi Engineering, the CSI center and the Pirelli laboratories.

A number of **very innovative seminars and workshops** will be delivered to students, including:
1. **Experimental seminar on vehicle dynamics** designed in cooperation with FCA
2. **Seminar on experimental aerodynamics**
3. **Seminar on vehicle instrumentation**.

Students of the Vocational Program **may attend, free of charge, any seminars, workshops or events on related topics**, organized by the Coordinator, within the relevant Department.

Students attendance of the various training activities is structured as follows:

- internship, practical and laboratory activities: compulsory attendance
- lectures: attendance is mandatory for the minimum of hours corresponding to the 75% of the total.

The training period may not be suspended.

Transfers to similar Vocational Programs at other universities are not allowed.

Art. 4 - Progressive knowledge checks

Knowledge checks will be carried out during the course by the teachers delivering the lectures and practical exercises, conducting the seminars and practical tests and monitoring the students' work. Any progress tests and the final test will, not result in a mark.

Art. 5 - Final degree examination and achievement of the qualification

The final examination involves **presenting and discussing a written thesis** on the candidate's training activities. No mark or merit grade will be awarded for this examination.

At the end of the Vocational Program, participants who have completed all the activities and fulfilled all the requirements will be awarded the will be awarded the **first-level Post-Bachelor Vocational Program's Diploma in 'Race Engineering (MCTRE)'**.

Art. 6 - Faculty

Teaching will be held by faculty from the University of Pavia, and from other universities e as well as by highly-qualified professional experts.

Art. 7 - Admission requirements

The Vocational Program is intended for students who have obtained a **Bachelor's Degree**, in accordance with the Ministerial Decree No. 270/04, **in one of the following classes**:

- (L-9) Industrial Engineering Degree Class.

The Vocational Program is intended for students who have obtained a **Bachelor's Degree**, in accordance with the Ministerial Decree No. 509/99, **in one of the following classes**:

- (10) Industrial Engineering Degree Class

and **degrees in accordance with the previous regulations**.

The following qualifications will be given preference within the above classes:

- Mechanical Engineering
- Electrical Engineering
- Industrial Engineering
- Nuclear Engineering
- Aerospace Engineering
- Materials Engineering.

Moreover, Master's Degrees (MD) obtained in accordance with Ministerial Decree No. 270/04 in one of the following classes will also be considered:

- Aerospace and Aeronautical engineering – 25/S, LM-20
- Automation engineering – 29/S, LM-25
- Electrical engineering – 31/S, LM-28
- Energy and nuclear engineering – 33/S, LM-30
- Mechanical engineering – 36/S, LM-33
- Material sciences and engineering – 61/S, LM-53.

Candidates holding a **degree obtained abroad deemed equivalent to the degree classes stated above** may also be admitted.

The maximum number of places available is **28**.

A minimum number of **10** participants is required to activate the Vocational Program; a minimum of **4** participants is rnecessary to activate the specific course.

The Academic Board will also be able to assess whether the conditions for expanding the maximum number of participants are met.

If the number of applicants exceeds the expected maximum, a selection committee comprising the Coordinator and two Faculty members will be formed to select applicants and create a merit list, expressed in **hundredths**. This list will be determined on the basis of the following evaluation criteria:

1) Up to a maximum of 30 points for the graduation mark, as follows:

- 10 points for a graduation mark < than 100/110
- between 11 and 21 points for a degree grade ranging from 100/110 to 110/110 (A grade of 100/110 will be awarded 11 points, with an additional point awarded for every subsequent hundredth of a point obtained)
- 30 points for a grade of 110/110 "cum laude".

2) Up to a maximum of 70 points for an interview in Italian or English, aimed at assessing the candidate's skills, abilities and motivation in relation to the contents and specific objectives of the Vocational Program. Special emphasis will be placed on any work experience gained in the *Automotive* sector - scientific publications relating to the topics of the master's degree, and knowledge of specialised development software such as Matlab, Simulink, Adams, etc. The interview will be considered successful if the candidate achieves a score of a**t least 42 out of 70 points**.

In the event of a tie in the ranking list, the youngest candidate will prevail. If one or more candidates withdraw, the places they vacate will be offered again according to the merit list until they are filled.

AUDITING CLASSES

To be admitted, auditors will be required to meet the following criteria:

auditors, employees of the Vocational Program's partner companies or professionals, **must have proven experience in the *Automotive/Motorsport* field** and **may attend a maximum of 5 modules.**

Below is a breakdown of the **cost of the modules**, including € 32 (two stamp duties) and € 200 (administrative fees):

- Module 2 (40 hours, classroom) - € 2.500
- Module 3 (40 hours, classroom) - € 2.500
- Module 8 (90 hours, classroom and on-track experimentation) - € 9.500
- Module 10 (40 hours, classroom and on-track experimentation) - € 3.000
- Module 11 (20 hours, classroom and experimental) - € 1,500.

Auditors will receive a specific **certificate of attendance** related to the modules attended, without any credits being awarded.

Art. 8 - Deadline for the online application process

Applicants must submit their application for admission in accordance with the procedures, set out in the Call for Admission, from 27/04/2026 and **by the deadline of 30/09/2026.** The requirements of the Call fo admission and this Attachment, must be held by the deadline for application.

Art. 9 - Annexes for the online application process

Applicants must attach, during the online application, the scan of the following documentation:

1) (front-rear) **personal identification document** inserted during registration
2) **reference letter**
3) **motivational letter**
4) **CV** listing also professional experiences in working environments pertaining the above course, if any

ONLY FOR APPLICANTS WITH AN ITALIAN ACADEMIC TITLE:
5) **self-declaration of the passed exams** during the academic career reading relevant marks

ONLY FOR APPLICANTS WITH A FOREIGN ACADEMIC TITLE:
5) **Academic qualification required for admission** issued in English/Spanish/French or officially translated in Italian
6) **Transcript of records** (list of and relevant marks) issued in English/Spanish/French or officially translated in Italian

And also, if already available:

- ***Declaration of Value (DoV)** issued by the Italian embassy/consulate*
- *or **CIMEA Statement of Comparability***
- *or **Diploma Supplement** (if the foreign qualification is issued by an european university)*
- ***Statement of Correspondence** which can be downloaded from the **Automatic Recognition Database (ARDI).***

The aforementioned documents must be uploaded within the period referred to in art. 8.

Please note that, as indicated in art. 3 of the Call for Admission to the Vocational Program, **applicants holding a qualification obtained abroad must**, **by the enrollment deadline or at least by 12/01/2027** according to the calendar published by the Organizational Secretary of the Vocational Program, **deliver the following documentation in original**:

1. **Academic qualification** required for admission issued in English/Spanish/French or officially translated in Italian

- **LEGALISED** by **the Italian embassy/consulate in your country** (legalisation is NOT required for Belgium, Denmark, the United Kingdom of Great Britain and Ireland, France, Ireland and Germany OR for documents with an electronic/digital means of ascertaining its authenticity as QR code/string code)
  PLEASE NOTE: legalisation must refer to the document not the translation
- or **APOSTILLED** (the apostille is **only available** for the signatory countries to the **Hague Convention**)

- or **ACCOMPANIED** by **CIMEA Statement of Verification**.

2. Transcript of records (list of and relevant marks) issued in English/Spanish/French or officially translated in Italian

3a. IF your title HAS NOT been obtained in one of the Countries that are signatories to the **Lisbon Recognition Convention**

- **Declaration of Value (DoV)** issued by the Italian embassy/consulate
- or **CIMEA Statement of Comparability**
- or **Diploma Supplement** (*if the foreign qualification is issued by an european university*).

3b. IF your title HAS been obtained in one of the Countries that are signatories to the **Lisbon Recognition Convention**

- **Statement of Correspondence** which can be downloaded from the **Automatic Recognition Database (ARDI).**

Enrollment to the Vocational Program will be finalized ONLY upon delivery of this documentation.

Art. 10 - Tuition and fees

Enrollment

Students enrolling in the Vocational Program, for the 2026/2027 academic year, must pay the amount of **€ 15.000**, including: € 16 (stamp duty) and € 200 (administrative fees).

This amount must be paid in **2 instalments:**

- 1° instalment of € **10,000**, to be paid **upon enrollment**
- 2° instalment of € **5.000**, to be paid by **12** of **January 2027**.

Bodies or national/international subjects can contribute to the functioning of the Vocational Program by providing scholarships aimed to enrollment/internships attendance. In the event of finalization of the aforementioned agreements, they will be publicized on the relevant website with the eventual award criteria.

Final exam

In order to be admitted to the final exam, candidates must submit a specific application form along with the payment of 116 as a fee for the issuance of the Vocational Program's Diploma (including n° 2 stamp duty tax of 16 paid virtually: one for the parchment and one for the application). The cost of the parchment could be updated by resolution of the Board of Directors after the publication of this notice.

Art. 11 - Web site and Organizational Secretary contacts

Any communication and important information regarding candidates and students will be published on the following website:
https://masterunipv.it/

For information regarding the course organization:

Organizational Secretary

The Organizational Secretary will be located at:
Dipartimento di Ingegneria Industriale e dell'Informazione
Via A. Ferrata, 5 - 27100 Pavia (PV)
E: info.raceeng@unipv.it
T: +39 0382.6992201

The contact persons are: **Prof. Carlo E. Rottenbacher** - Sig.ra Laura Pecoraro (ASC)