



**POLITECNICO
DI TORINO**

LA DIRETTRICE GENERALE
Ilaria ADAMO

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Call for applications
for the 2nd level Specializing Master's programme in

“Autonomous Commercial Vehicles for Carbon-Free Logistics”

(1st edition)
offered in apprenticeship format
(Art. 45 – D.Lgs. n. 81/2015)

Academic Year 2019/2020

(Annex “A” - Director - General's Decree no. 1136/2019 of 5th June 2019)



Politecnico di Torino
Corso Duca degli Abruzzi, 24 – 10129 Torino – Italia
tel: +39 011.090.6333 fax: +39 011.19745022
direttrice.generale@polito.it www.polito.it



Art.1 Programme overview

The 2nd level Specializing Master's programme in "Autonomous Commercial Vehicles for Carbon-Free Logistics" is offered by Politecnico di Torino for academic year 2019/2020. The Programme Coordinator is Ezio Spessa, professor at the Department of Energy (DENERG) of Politecnico di Torino.

The duration of this 2nd level Specializing Master's programme is 2 years for a total of 78 ECTS.

The 2nd level specializing Master's programme in "Autonomous Commercial Vehicles for Carbon-Free Logistics" aims at providing training for young graduate apprentices who will be hired by CNH Industrial for Iveco and FPT. The 2nd level Specializing Master's programme will develop skills for the use of innovative technologies in the automotive sector, with particular focus on autonomous driving and the hybrid / electric technologies applied to commercial vehicles.

2030+ commercial vehicles have to meet the EU checkpoint towards the 2050 "zero accident", "close-to-zero emissions" and "virtually carbon-free" goals. The path towards air quality improvement and noise reduction will be paved by the deployment of pure electric-mode vehicles. Their efficient and effective operations require them to be fully integrated in the energy network and system. This will be based on the pervasive employment of renewable energy to simultaneously address greenhouse gas reduction. Another key ingredient to future decarbonisation of the European transport system will be the availability of low carbon renewable fuels and blending components, both liquid and gaseous e.g. those produced from biomass, or synthetic fuels using green electricity. Their production may potentially remove existing CO₂ from the environment and they may be used for chemical storage of electrical energy. Higher quality fuels may also have the advantage of providing improved efficiency and reduced emissions through better combustion. A new way of optimizing energy needs of the vehicle and design efficient solutions for auxiliaries will also be needed to meet the high demanding target.

On top of this, connected automated driving is seen as one of the key technologies and major technological advancements influencing and shaping future logistics and quality of life. The main drivers for higher levels of Automated Driving are:

- ✓ Safety: reduce accidents caused by human errors.
- ✓ Efficiency and environmental objectives: Increase transport system efficiency and reduce time in congested traffic by new urban mobility solutions. Also, smoother traffic will help to decrease the energy consumption and emissions of the vehicles.
- ✓ Comfort: Enable user's freedom for other activities when automated systems are active.
- ✓ Social inclusion: Ensure mobility for all, including elderly and impaired users.
- ✓ Accessibility: Facilitate access to city centres.

This 2nd level Specializing Master's programme focuses on all the technologies required to address such challenges in the next 10 years. It also digs into the new emerging technologies like artificial intelligence, automation, digitalization



and big data to create the framework for the new generation of fully-automated vehicles. Beyond 10 years, the new possibilities offered by digital era of transportation will enable new concepts of “smart” vehicles, whose operation can be dynamically adapted and optimized to missions and environmental conditions, pushing efficiency and environmental friendliness of transport means beyond current paradigms.

A giant innovation gap is needed to be covered in the next decade: it is materially impossible to face the change required by the abovementioned challenges without breaking the silos. Working together in cross disciplinary and cross sectors teams with a co-creation approach will be a key for success.

The primary objective of this 2nd level Specializing Master’s programme will thus be the formation of skills spread across mechanical engineering, electronics, energy, information technology and telecommunications. Students will be initially provided with the fundamental disciplines (vehicle mechanics, thermodynamics, communications, architecture of computers and networks) that create the common language needed to understand the following courses. These will then address specialized skills on electric and hybrid propulsion, on vehicle on-board electronics, intervehicular communication systems and embedded systems for vehicle automation.

A project proposal for this 2nd level Specializing Master’s programme will be submitted for funding to Regione Piemonte in the framework of a specific regional call for proposals “Apprendistato di Alta Formazione e di Ricerca (Art. 45 - D. Lgs. n. 81/2015) – Aggiornamento dell’Avviso pubblico approvato con Determinazione n. 537. 03/08/2016, Deliberazione della Giunta regionale n. 37-3617 del 11/07/2016 e n. 18/6767 del 20/04/2018 di cui alla D.D. n. 1486 del 17/12/2018”.

In accordance with the above mentioned call for proposals, selected candidates will be hired by the partner companies and upon completion of the programme they will attain a 2nd level Specializing Master’s diploma.

The partner companies have undertaken to recruit at least fifteen apprentices.

The 2nd level Specializing Master’s programme will begin in October 2019 and the apprentices will be recruited by the partner companies at the same time.

More information on the learning objectives, programme contents and possible career opportunities is available on the website of the 2nd level Specializing Master’s programme in Autonomous Commercial Vehicles for Carbon-Free Logistics: <https://didattica.polito.it/master/cnh/2020/home>

Art. 2

Training objective, didactic contents and organization of the activities

This 2nd level Specializing Master’s programme is an experiential learning path which combines educational activities at Politecnico and on-the-job training at the companies’ premises.

The 2nd level Specializing Master’s programme is organized as follows:

- training activities at Politecnico di Torino (classroom – laboratory – lecture- business case): approximately 400 hours
- training activities at the partner companies: approximately 800 hours, carried out at the employer’s premises



- self-learning activities: approximately 300 hours, carried out at the employer's premises.

Table n.1 – Organization of the courses

COURSE	Training activities	Training activities (hours)	Training activities (hours)
	ECTS	Politecnico	Companies
Propulsion systems, ICT and Mechanics for the industrial vehicles of the future	7	50	24
Chassis Design for Autonomous Vehicles	5	40	20
Electrified propulsion solutions and energy storage systems	9	70	30
Propulsion system application to industrial vehicles and energy management	7	60	15
Electronic systems for Autonomous Driving	9	70	30
ITS, Inter-vehicular Networks and OTA techniques	5	35	15
Modeling and control of electric and hybrid vehicles	5	40	20
Big Data, Artificial Intelligence and Cybersecurity for Autonomous Vehicles	7	35	46
Project Work	24	0	600
TOTAL	78	400	800

The 2nd level Specializing Master's programme will start on October 2019 and will last 2 years.
The official language of the programme is English.

Art. 3 Admission requirements

The 2nd level Specializing Master's programme in Autonomous Commercial Vehicles for Carbon-Free Logistics is intended for graduates who have to meet the following compulsory requirements:

- to be under the age of 30 on the date of recruitment;
- to have been awarded a full degree (Master's degree/Laurea specialistica/ Laurea magistrale) in one of the following areas of study within the deadline for enrolment in the 2nd level Specializing Master's programme:
 - o LM-20 (Aerospatial and Astronautic Engineering)
 - o LM-25 (Automation Engineering)
 - o LM-27 (Telecommunications Engineering)
 - o LM-28 (Electrical Engineering)
 - o LM-29 (Electronic Engineering)
 - o LM-30 (Energy and Nuclear Engineering)
 - o LM-31 (Management Engineering)
 - o LM-32 (Computer Systems Engineering)



- LM-33 (Mechanical Engineering)
- LM-53 (Materials Engineering)
- High-level English language skills.

The Office of Specializing Master's Programmes and Lifelong Learning will examine the documentation received within the deadline. Only non-Italian university degrees will be evaluated by a specific board chaired by the Programme Coordinator of the 2nd level Specializing Master's programme in Autonomous Commercial Vehicles for Carbon-Free Logistics. The partner companies will evaluate only the candidates who meet the above mentioned compulsory requirements.

Art. 4

Partner companies selection process

The partner companies will evaluate the applications which meet the compulsory requirements (*Art. 3 "Admission requirements"*), and reserve the right to contact only the candidates who meet their internal selection criteria. The selected candidates will be hired by the partner companies within the meaning of ex-art. 45 of D. Lgs 81/2015.

A good knowledge of the English and Italian language is considered an essential prerequisite for the final selection. The partner companies will assess the candidate's level of proficiency during the interview.

During the entire application period the partner companies can contact the applicants who satisfy both the compulsory requirements (art. 3) and the corporate selection criteria.

For further information on the selection process refer to the website of the 2nd level Specializing Master's programme in Autonomous Commercial Vehicles for Carbon-Free Logistics:

https://didattica.polito.it/master/cnh/2020/selection_process

Art. 5

Admissions and deadlines

Applications for this 2nd level Specializing Master's programme must be submitted on-line by filling out the Admission Request Form available on Politecnico di Torino website (*Apply@polito*) at the following link:

<https://didattica.polito.it/master/cnh/2020/home>

DO NOT apply by e-mail, fax or mail because these applications will NOT be considered.

Admission Request Forms must be submitted within the following deadline:

- July 15th, 2019 at 1:00 p.m. - Italian time

The following supporting documents must be attached to the application form (in English or Italian only):

MANDATORY DOCUMENTS

- valid identification document (passport for extra-EU applicants)
- curriculum vitae (cv must include the authorization to the processing of personal data – in compliance with



Legislative Decree no. 196/2003 and further amendments);

- Admission Request Form
- Exam transcripts for both Bachelor’s and Master’s degree programmes:
 - for applicants with degree(s) obtained from a non-Italian University: official transcript(s), by University of origin, produced on headed paper, containing the full list of all the exams passed and the grades obtained. The transcript(s) must also include the date of the degree conferral. Upon enrolment, the admitted candidates must submit the original copy of the “Dichiarazione di Valore”/“Statement of validity” (related to the Master’s degree) issued by the Italian Diplomatic Mission in the country where the qualification was awarded. If the Master’s degree was awarded by a European university, admitted candidates can turn in the “Diploma Supplement” instead of the “Dichiarazione di Valore”.

or

- for applicants with degree(s) awarded by an Italian Public University: self-certification (“dichiarazione sostitutiva di certificazione” - Art. 46 DPR 28 December 2000, n. 445) in which the students declare to have obtained both a Bachelor’s degree and a Master’s degree. The self-declaration must include: the name of degree programme, the name of the University, the date of degree conferral, the graduation final grade, the full list of all the exams passed and the grades obtained (this information is required for both degrees). Upon enrolment admitted students must provide the original copy of the self-certification, in compliance with art. 75 of D.P.R. 445/2000. Should the self-certification be found to be false or incorrect, the applicant loses any benefit which he/she might have acquired on the basis of the untruthful declaration.

OPTIONAL DOCUMENTS

- Cover letter
- Reference letter
- Italian language certificate (only for non-Italian applicants)
- English language certificate
- Residence Permit (only for non-EU citizens)

Failure to attach even one of the above mandatory documents will result in the exclusion from the selection process.

Art.6 Selection outcomes

At the end of the selection process carried out by the partner companies, Politecnico di Torino will publish the list of the candidates admitted to the programme on the online University Bulletin and on the “Selection outcomes” section of the programme website: <https://didattica.polito.it/master/cnh/2020/home>

Art.7 Enrolment

Enrolment

The candidates who have been admitted to the programme will have to enrol at Politecnico di Torino before the starting date of the 2nd level Specializing Master’s programme. Further information about enrolment will follow by e-mail.



Admitted candidates are not allowed to be simultaneously enrolled in another Specializing Master's Programme nor in any other university programme. Students enrolled in another programme must finish or suspend their career before enrolling at the 2nd Level Specializing Master's Programme in Autonomous Commercial Vehicles for Carbon-Free Logistics.

Delivery of documents

After the enrolment procedure has been completed, the selected candidates will have to hand over the original documentation uploaded in the application phase to the Specializing Master Office, within the starting date of the Master's programme (please refer to art. 5).

Upon enrolment, participants who hold a degree from a non-Italian University must submit the original copy of the "Dichiarazione di Valore"/"Statement of validity" relative to the degree, awarded by the Italian representation in the country in which the qualification or Statement of Comparability issued by the CIMEA Center was issued.

If the Master's degree was awarded by a European university, participants can turn in the "Diploma Supplement" instead of the "Dichiarazione di Valore".

Those who will not have the Declaration of value, can enrol in the Programme with a "provisional" status, but they will have to deliver them by 6 months after the beginning of the academic activity.

If the aforesaid document won't be delivered within the deadline, the student will be unable to complete actions of career, until the document is actually delivered.

Non-EU nationals are required to comply with the norms on entry visa and residence permit and will have to submit:

- Visa for "D" type study for participants who are non-EU citizens and reside abroad;
- Valid residence permit for non-EU citizens residing in Italy.

The Administration reserves the right to carry out checks on what has been declared in the substitutive certification declarations (pursuant to Article 46 of Presidential Decree 28 December 2000, No. 445).

If the control reveals the non-correspondence of the content of the declaration, the position of the declarant shall be withdrawn from the ranking list.

Art.8 Participation fee

The participation in the 2nd level Specializing Master's programme is free of charge for admitted students, as provided for by the regional call "Apprendistato di Alta Formazione e di Ricerca (Art. 45 - D. Lgs. n. 81/2015) – Aggiornamento dell'Avviso pubblico approvato con Determinazione n. 537. 03/08/2016, Deliberazione della Giunta regionale n. 37-3617 del 11/07/2016 e n. 18/6767 del 20/04/2018 di cui alla D.D. n. 1486 del 17/12/2018".

In accordance with the "Tuition Fee Guide" of Politecnico di Torino, admitted students are exempted from paying their participation fee, but they still have to pay a fee (€ 19,53) for insurance and revenue stamp for every academic year.



Art. 9 Qualification

Upon successful presentation of the student's Project Work, Politecnico di Torino will confer the 2nd level Specializing Master's diploma in Autonomous Commercial Vehicles for Carbon-Free Logistics.

Participants are required to:

- reach the total amount of 78 ECTS;
- attend at least 75% of total classroom hours (section 5.2.1 of the Bando della Regione Piemonte "Aggiornamento dell'avviso pubblico approvato con Determinazione n. 537 del 03/08/2016", di cui alla D.D. N. 1486 del 17/12/2018).

Art. 10 Competent office

The competent office is the Office of Specializing Master's Programmes and Lifelong Learning of Politecnico di Torino
e-mail: master.apprendistato@polito.it

Art. 11 Person responsible for the administrative procedure

The person responsible for the administrative procedure is Mr. Alberto Pusceddu (Head of the Specializing Masters Programmes and Lifelong Learning Office).

Art. 12 Privacy policy and access to documents

In accordance with the General Data Protection Regulation (EU Regulation 2016/679) and the "Code regarding the protection of personal data" (Legislative Decree No. 196 of 30th June 2003 and further amendments) personal data are processed by Politecnico di Torino exclusively for institutional purposes and in accordance with the transparency purposes imposed by the law. The processing of personal data is based on the principles of correctness, lawfulness and relevance of purposes. In order to pursue the "Bando in Autonomous Commercial Vehicles for Carbon-Free Logistic" candidates agree that the Politecnico di Torino shares their personal data with Iveco S.p.A. and FPT S.p.A. (CNH Industrial). These organizations will use the information provided as autonomous controllers of personal data.

For the Politecnico di Torino the privacy policy is available at: <https://didattica.polito.it/privacy>

For Iveco S.p.A. and FPT S.p.A. (CNH Industrial) the privacy policy is available at: https://www.cnhindustrial.com/Pages/Privacy_Notice.html?code=en-gb&brand=polito

Art. 13 Final provisions

1. Communication with candidates will take place primarily through the "Apply@Polito" platform.



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Specific communications might be sent via email or SMS using the contact details provided by candidates during registration on the platform.

2. Politecnico does not take any responsibility in case of unavailability of recipients and for loss of communications due to inexact indication of a candidate's email address or telephone number or due to delay or failure to notify changes to the contacts provided during registration.

3. This Call is published on the online University Bulletin available at https://www.swas.polito.it/dotnet/albo_online/. The same can be found on <https://didattica.polito.it/master/>.

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