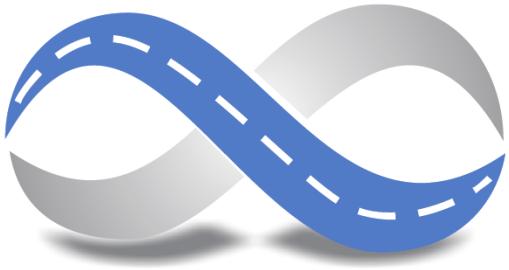
Department of Automobiles and Transport

Visual identity

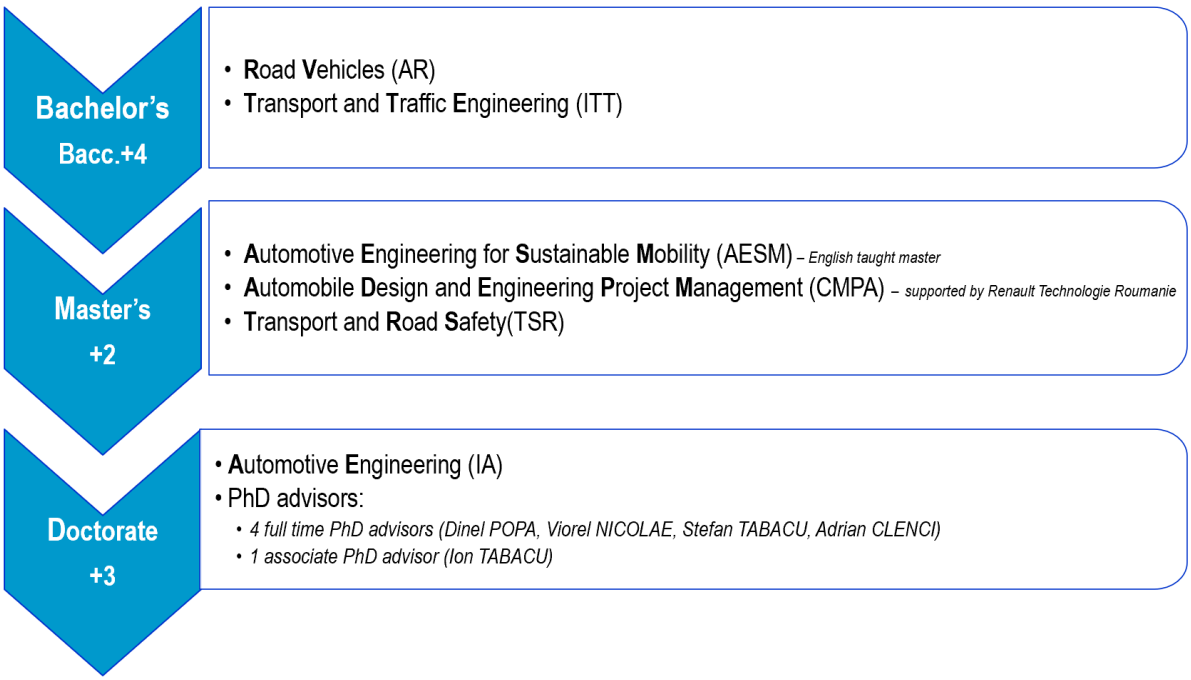


Logo

*The graphic symbol (logo) imagines the road, i.e., the environment in which all the knowledge acquired or discovered within the **D**epartment of **A**utomobiles and **T**ransport is manifested, and the perspectives are… infinite, unlimited.*

The ***colour used*** *denotes professionalism, seriousness and, at the same time, care or concern for the* ***environment*** *(making a parallel to water, as a fundamental element of life); currently, the ambition of the department is continuing the effort for achieving excellence in the field of **A**utomotive **E**ngineering and being recognised, at the national level, as main department, concerned with the issue of* ***sustainable mobility****.*

The **study programs** managed are carried out, as can be seen in the image below, on all three levels of higher education: **b**achelor's degree (4 years after baccalaureate), **m**aster's degree (2 years after bachelor's degree) and **d**octorate (3 years after master's degree).



Study programs

All study programs carried out within the Department of Automobiles and Transport belong to the fundamental field of ***Engineering Sciences***, the science branch of Transport Engineering. The ***fields of undergraduate and master's degree studies*** for our programs are ***Automotive Engineering*** for AR, IAMD, CMPA and ***Transport Engineering*** for ITT, TSR.

*The **D**epartment of **A**utomobiles and **Transport** is currently the only engineering school in Romania that offers study programs in the field of **Automotive Engineering**, on all three levels (bachelor's, master's and PhD).*

Road vehicles (AR)

This bachelor's program was established in 1977. At that time, Pitesti became the third university centre in the country to pursue higher education in the field of motor vehicles. Over time, more than 4,000 graduates have integrated well into the labour market, both in Romania and abroad.

Through the training received during the university studies, the road vehicle engineer is part of the category of mechanical engineers, being able to carry out and coordinate multiple activities in the field of development (conception, design, prototyping, testing, validation), manufacture and operation of vehicles and vehicle components. Of course, other related areas are also accessible to the road vehicle engineer (sales, road accident reconstruction, damage assessment, organization of transport and road traffic activities, etc.). The quality of vocational training in accordance with the requirements of the labour market has meant that the vast majority of graduates of this study program finds a job very soon after graduation. The annual analyses carried out within the department indicate an average percentage of insertion of graduates on the labour market of 90% within the first six months after graduation.

Transport and Traffic Engineering (ITT)

This undergraduate program was established in 2003. In 2022, the 16th class will be completed, which translates into over 800 graduates whom the socio-economic environment has had the chance to benefit of.

The mission of the undergraduate program in Transport and Traffic Engineering (ITT) is to train specialists in transport planning and traffic management; the ITT program provides skills to enable graduates to participate in large-scale projects in these ever-evolving areas, which face challenges including automation, digitization and shared mobility, with rapidly expanding territorial trends.

Due to the existence of a significant number of economic agents whose object of activity is the achievement of large volumes of transport, based on external logistics (different modes of transport) and internal logistics (supply, storage, etc.), the economic environment in which ITT graduates will work is favourable to this specialization. At the same time, the large volume of turnover achieved by economic agents in the field of road transport determines strong interconnections at the level of the national and international economy, which is very favourable for the professional insertion of ITT graduates.

Automobile Design and Engineering Project Management (CMPA)

This professional master's program was established in 2009, following discussions with Renault Technologie Roumanie (at that time, the newly established Renault Engineering Centre in Romania). Its purpose is to provide the professional and transversal skills necessary for the management of teams that carry out complex car design activities.

The distinctive feature of this master's program is given by the presence in its curriculum of transversal disciplines (documentation and capitalization of information, professional communication, management, marketing, economic analysis), specific to the management of activities that are upstream of series production (conception, design, prototyping, testing and validation).

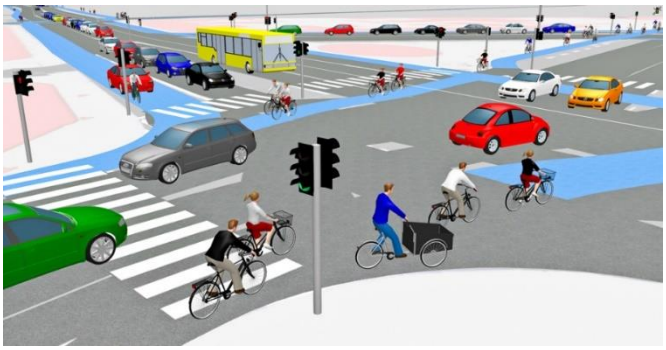
Automotive Engineering for Sustainable Mobility (AESM)

This master's program, conducted entirely in English, was established in 2011 as a result of the department's need for internationalization. At the same time, the AESM (Automotive Engineering for Sustainable Mobility) program was designed to be a good preparatory basis for doctoral studies in the field of Automotive Engineering.

Sustainable mobility is, in this century, the biggest challenge for the automotive industry. The fast pace of development in this field, which can be observed either through the new revolutionary technologies, implemented in series production, or through the dynamics of jobs, launches major challenges for educational institutions. Thus, new study programs capable of providing graduates with know-how adapted to the current requirements of the automotive industry are becoming essential.

Transport and Road Safety (TSR)

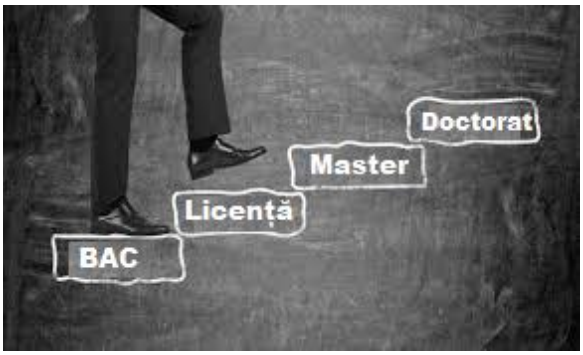
This master's program established in 2017 is the result of the action of consolidating the department at national level as an academic entity with key competencies in the field of Transport.



Transport is the circulatory system of the macro-organism called world economy that must function in balance (minimal impact on the environment and man). This master's program was built against this background in order to allow those interested (especially students of the ITT undergraduate program) to deepen the notions related to transport and traffic. Completion of the TSR master's degree courses allows the acquisition of skills on which the transport engineering specialist, in multidisciplinary teams, would base decisions on models for the development of future transport infrastructures, in accordance with the new guidelines on the use of non-motorized or motorized, but environmentally friendly means of transport, which use renewable energy.

Doctoral School in Automotive Engineering

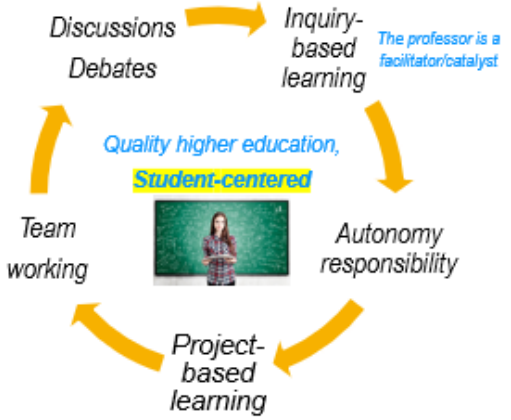
The University of Pitești is still the only university in Romania with accreditation for doctoral studies in the field of Automotive Engineering, obtained in 2009. Currently, four full-time PhD supervisors (*Prof. dr. eng. Dinel Popa, Prof. dr. eng. Viorel Nicolae, Prof. dr. eng. Ștefan Tabacu, Prof. dr. eng. habil. Adrian Clenci*) and one associate (*Prof. dr. eng. Ion Tabacu*) manage the activity of this doctoral school. For the recruitment of PhD students, the department relies mainly on graduates of our master's programs. The research topics addressed are generated either by the concerns / intuitions / scientific curiosities of the doctoral supervisors, or by those of the other colleagues who work in the doctoral school as tutors / co-supervisors or are delivered by various beneficiaries from the socio- economic environment.



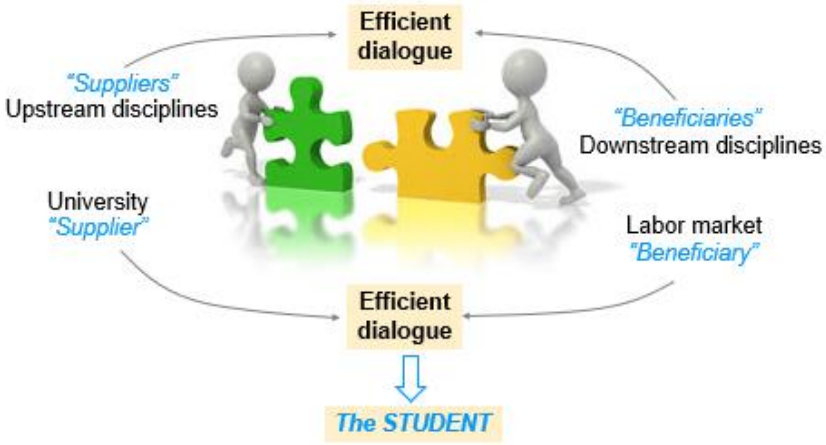
For the development of the topics assigned within the doctoral studies, the material base of the two research centres created around the automotive industry is exploited:

- the Automotive Engineering Research Centre (CCIA), established in 1998;
- the Regional Research and Development Centre for Innovative Materials, Processes and Products for the Automotive Industry (CRCD-Auto), established in 2015, through a project developed within the POSCCE 221 competition (Sectorial Operational Program, Increasing Economic Competitiveness, Development of Existing R&D Infrastructure and the creation of new R&D infrastructures), worth ~ 7 M €.

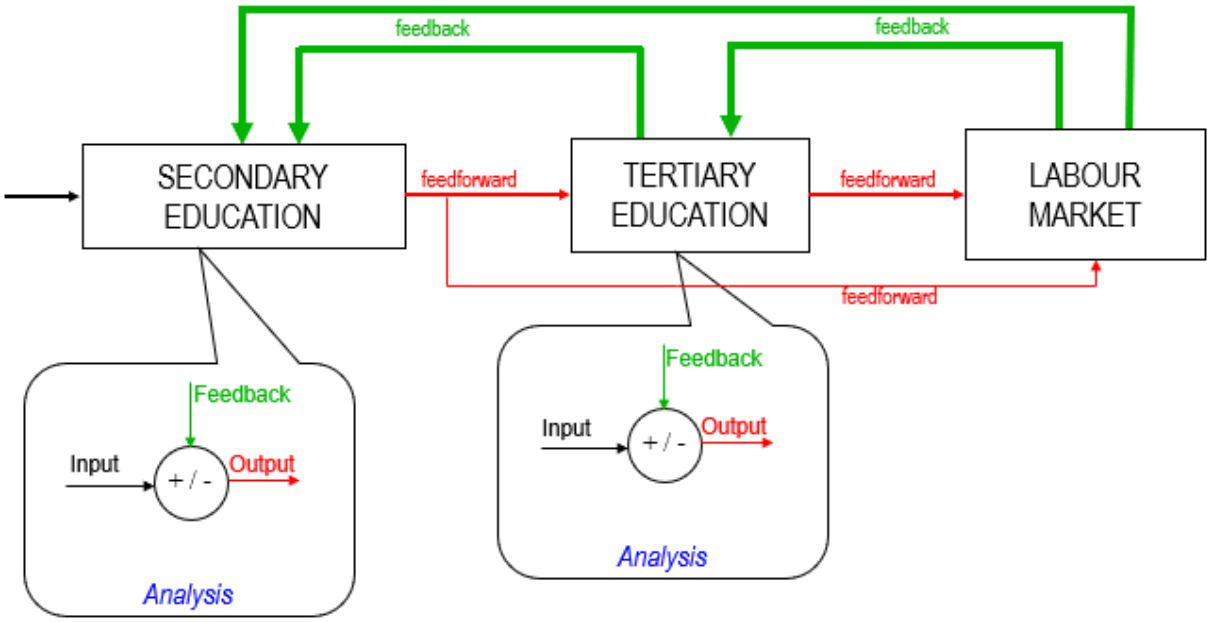
As a synthesis, within the Department of Automobiles and Transport, through the existing study programs, the general goal is the continuous improvement of the quality of students, future actors on the labour market, emphasizing the development of a student-centred education.



To this end, the department promotes the idea of intensifying the dialogue: on the one hand, between the holders of the upstream disciplines (seen as "suppliers") and those of the downstream disciplines (seen as "beneficiaries"); on the other hand, between departmental teachers (seen as "providers" of knowledge) and labour market representatives (seen as "beneficiaries", i.e. providers of feedback).

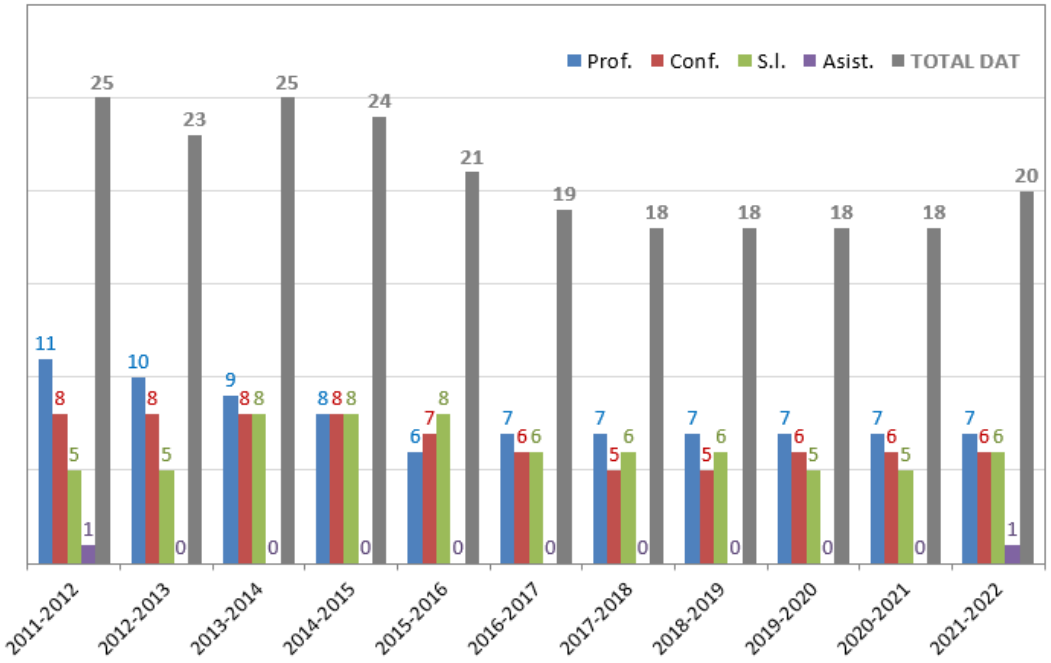


Therefore, the Department of Automobiles and Transport, in its actions related to continuous improvement, relies on dialogue and feedback. These ideas stem from the belief that a knowledge-based society must truly be an integrated closed-loop system.



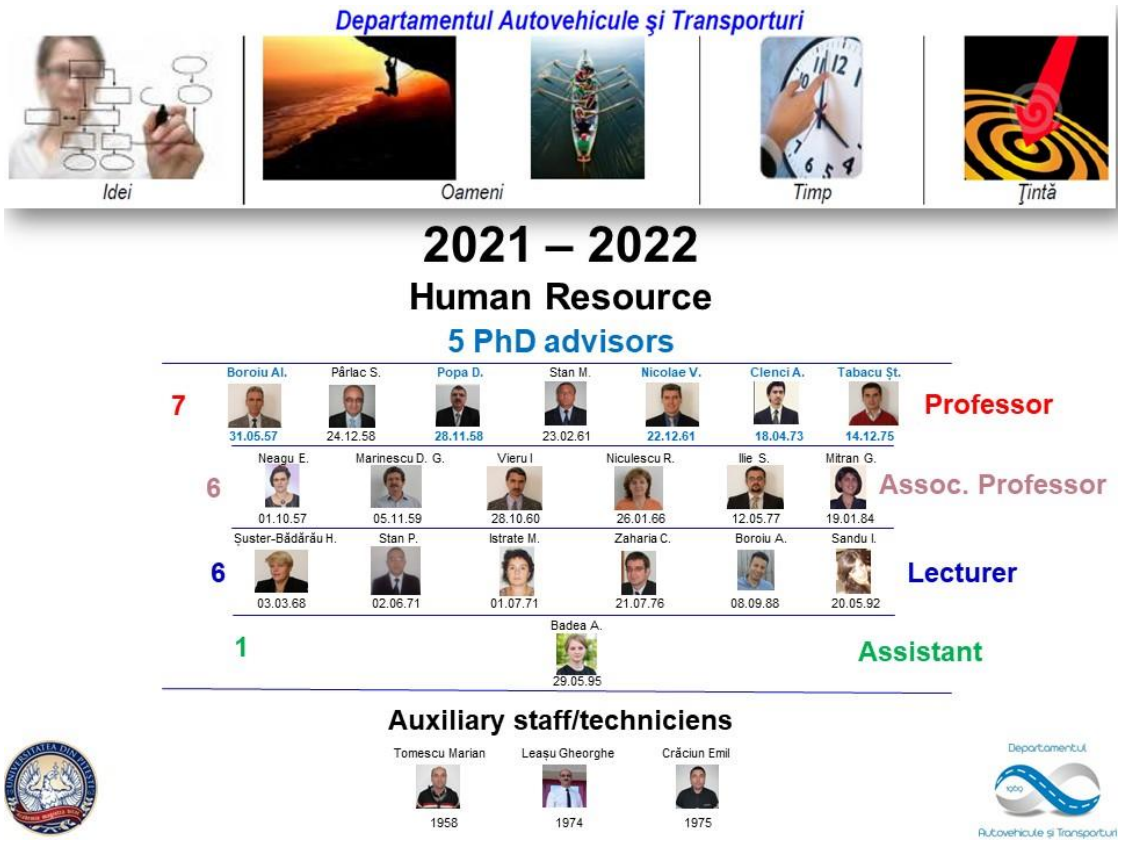
Each of the entities that are part of this integrated system has, simultaneously, both the role of "customer" and the role of supplier, and in such a relationship, the key phrase is "customer satisfaction". Obviously, the ultimate customer, or rather the ultimate stake, is society itself, for the development of which the proper functioning of the education system is essential.

The evolution of the teaching staff of the department, from its establishment until now, is presented below:



The evolution of the teaching staff in the 2011-2019 period[1]

A complete picture of the full-time teaching staff in the 2021-2022 academic year is provided below:



Full-time teaching staff in the 2021 -2022 academic year

[1] *Prof. = Professor; Conf. = Assoc. Professor; Ş.l. = Lecturer; As. = Assistant*

*Thanks to the work entitled "Făgăraș Municipality - the geographical center of Romania", in **2016**, Professor **Alexandru Boroiu** was awarded the title of **honorary citizen** of Făgăraș Municipality*

In the 2021-2022 academic year, the associated teachers within the **Department of Automobiles and Transport** are: Prof. dr. eng. Emeritus Ion Tabacu, Prof. dr. eng. Tiberiu Macarie, Prof. dr. eng. Radu Racotă, Prof. dr. eng. Florian Ivan, Dr. eng. Viorel Sălan (RTR), Dr. eng. Adrian Bîzîiac (Dacia), Dr. Eng. Cătălin Neacșu (Dacia), Dr. Eng. Ion Ghiold (CFR). Over time, the **Chair of Automobiles / Department of Automobiles and Transport** also included: Prof. dr. eng. Ghiorghe Crivac, Prof. dr. eng. Dumitru Cristea, Assoc. prof. dr. eng. Florin Șerban, Prof. dr. eng. Gheorghe Poțincu, Assoc. prof. dr. Eng. Nicolae Linte, Assoc. prof. dr. Eng. Theodor Ionașcu, Prof. dr. eng. Vasile Hara, Prof. dr. eng. Vasile Dumitrescu, Prof. dr. eng. Emilian Baciu, Prof. dr. eng. Corneliu Mondiru, Assoc. prof. dr. Eng. Mariana Ivănescu.

Our engineering school has experienced multiple challenges and transformations managed by those who over time have held the position of head of department / director of department:

1969 - 1974	*Prof. dr. eng. Gheorghe POȚINCU*	
1974 - 1975	*Assoc. prof. eng. Nicolae LINTE*	-
1975 - 1981	*Assoc. prof. eng. Theodor IONAȘCU*	-
1981 - 1984	*Lecturer eng. Valeria POP*	-
1984 - 1990	*Prof. dr. eng. Victor RĂDULESCU*	
1990 - 1991	*Prof. dr. eng. Emilian BACIU*	-
1991 - 1999	*Prof. dr. eng. Ion TABACU*	
1999 - 2003	*Prof. dr. eng. Dumitru CRISTEA*	
2003 - 2007	*Prof. dr. eng. Radu RACOTĂ*	
2007 - 2011	*Prof. dr. eng. Alexandru BOROIU*	
2011 - 2019	*Prof. habil. dr. eng. Adrian CLENCI*	
2019 - **present**	*Lecturer dr. eng. Helene ȘUSTER*	

For the selflessness and devotion put in the service of Romanian education, in 2004,
*The **President of Romania** awards the **Medal "Merit for Education" in the 1st grade***
*to Professor **Ion Tabacu***

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*In recognition of outstanding professional activities and achievements, in **2016**,*
*The **Senate of the Technical University of Cluj-Napoca** awarded*
*the title of **honorary teacher** to Professor **Ion Tabacu***

According to the legal provisions in force, the head of the department performs the management and operative management of the department, and in the exercise of this function, (s)he is assisted by the **council of the department**, currently composed of the following persons:

- *Assoc. prof. dr. eng. Gabriela Mitran,*
- *Lecturer dr. eng. Mihaela Istrate.*

Scientific research is the main factor that generates knowledge in a university, being, thus, an inseparable part of achieving a high-performing education system. Therefore, within the Department of Automobiles and Transport, the research-development-innovation activities are supported by the direct involvement of teachers and researchers, doctoral students, master's students, students in the final years of the bachelor's cycle, as well as external partners and collaborators.

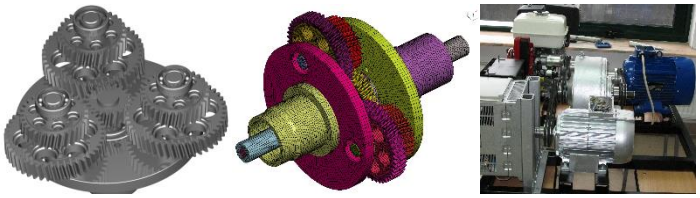
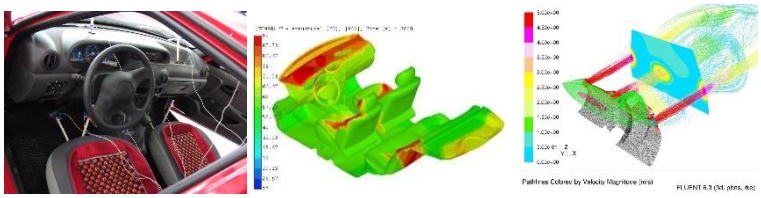
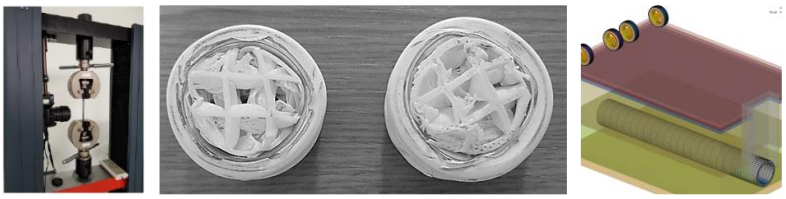
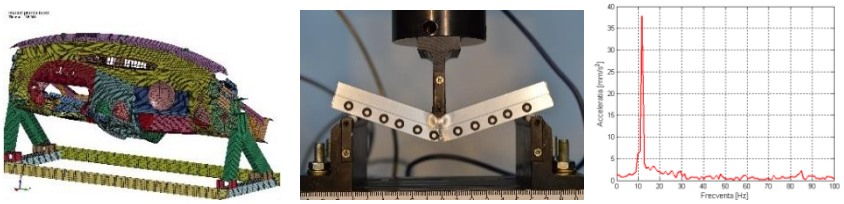
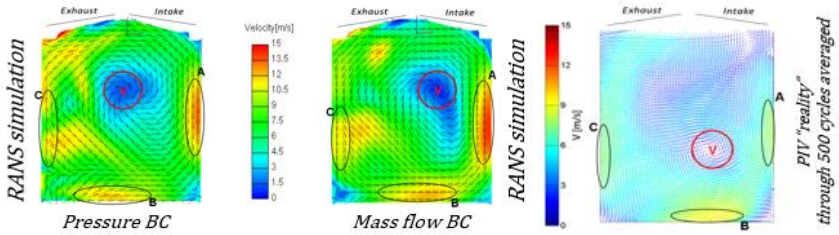
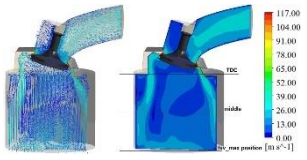
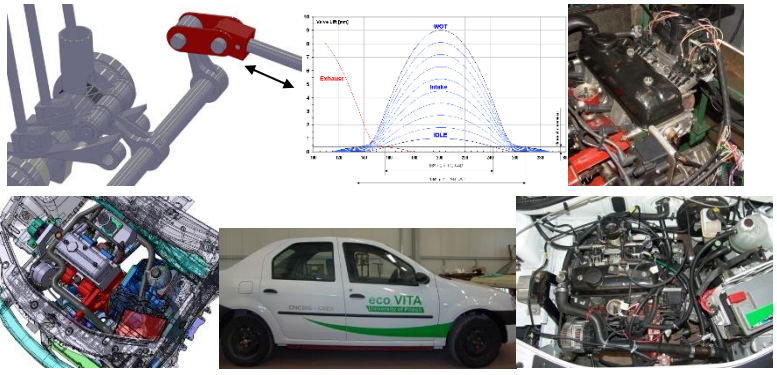
Each year, the scientific research activity of the department is planned through a document entitled "Internal Plan for Research-Development-Innovation", which includes the directions and topics of research, the teams that assume them and the estimated results.

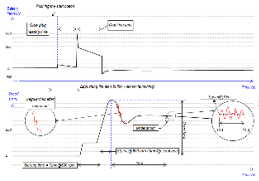
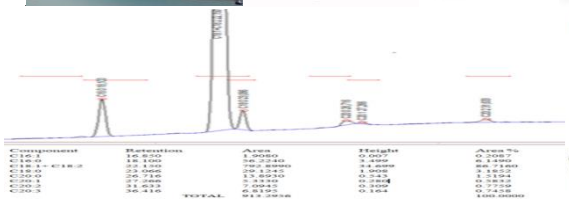
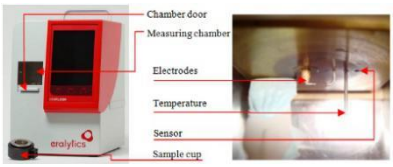
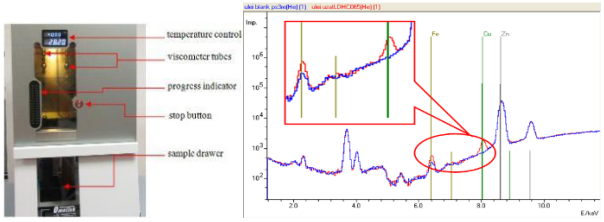
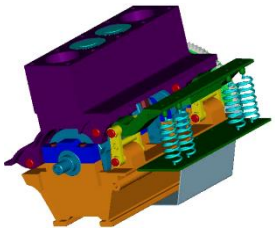
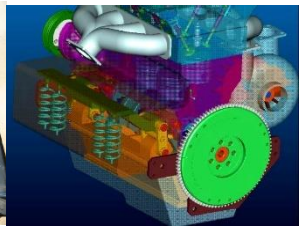
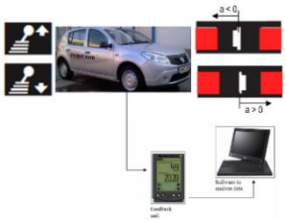
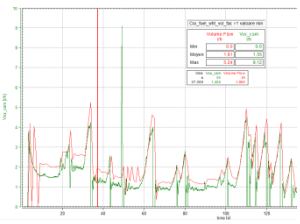
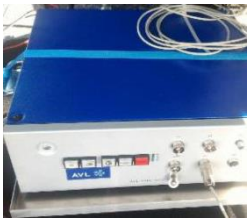
Thus, at present, the following **research directions** are being developed within the department:

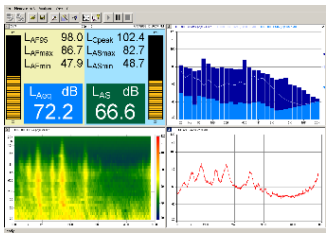
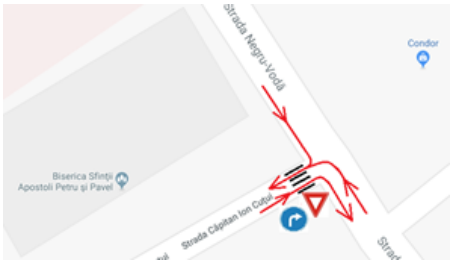
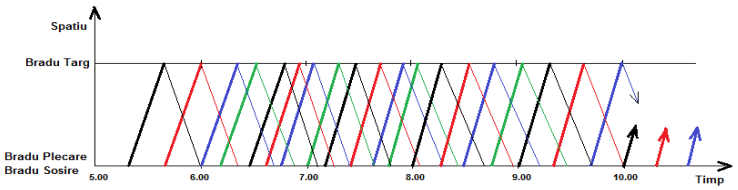
- Improving the energetic and environmental performance of motor vehicle engines,
- Electric and hybrid mobility to reduce pollutant emissions and fuel consumption,
- Organizing transport for sustainable mobility,
- Traffic safety, active safety and passive safety,
- Modelling and simulation in transport,
- Vibro-acoustic comfort and thermal comfort in cars,
- Dynamics of multibody systems with applications in automotive engineering,
- Modelling and simulation. Structural analysis,
- Manufacturing materials and technologies in the automotive industry,
- Car dynamics.

A **photo gallery** of the most representative scientific research projects carried out in recent years is presented below:

Research on the development of environmentally friendly vehicles developed under the Ecologic program dan.marinescu@upit.ro	

Mechanical system for coupling thermal and electric power sources, intended for green cars with hybrid propulsion dinel.popa@upit.ro	
Research on improving the microclimate in the passenger compartment of cars mariana.ivanescu@upit.ro	
Mechanical stress studies (static, dynamic). Passive security stefan.tabacu@upit.ro	 
Numerical simulation of the cyclic variation of the internal aerodynamics of s.i.e. (RANS vs. LES vs. PIV) adrian.clenci@upit.ro victor.iorga@upit.ro	
Spark ignition engine calibration in accordance with the Real Driving Emissions standard (RDE) adrian.clenci@upit.ro	
Research on reducing fuel consumption by using variable valve actuation (VVA) Eco2VITA project adrian.clenci@upit.ro	 

Research on the development of a method to improve the cold start qualities of biodiesel engines rodica.niculescu@upit.ro adrian.clenci@upit.ro	  
Study of the physicochemical properties of fuels / biofuels and lubricants rodica.niculescu@upit.ro mihaela.nastase@upit.ro	     
Development of a method for diagnosing engines / road vehicles by assessing the degree of wear of engine oil rodica.niculescu@upit.ro catalin.zaharia@upit.ro	  
Research on the development of a variable compression ratio (VCR) engine adrian.clenci@upit.ro	  
The influence of driving style on the fuel consumption of vehicles. EcoDriving & Real Driving Fuel Consumption adrian.clenci@upit.ro catalin.zaharia@upit.ro	  
Reducing road traffic accidents by knowing the stability limits of cars tiberiu.macarie@upit.ro	 

Assessment and management of ambient noise and air quality in a pilot, peri-urban area, within which there are large industrial targets and traffic arteries sebastian.parlac@upit.ro	 
Studies and research to improve urban road traffic elena.neagu@upit.ro andrei.boroiu@upit.ro alexandru.boroiu@upit.ro	
Design of public transport systems alexandru.boroiu@upit.ro andrei.boroiu@upit.ro	

*2017: **Diploma of Excellence – the field of Scientific Research** from the Argeș County Council, granted to Assoc. Prof. Dr. Eng. **Dănuț Gabriel Marinescu**, the director of the „Automotive Engineering" Research Center*

The partnership with the socio-economic environment is of prime importance for the Department of Automobiles and Transport. What animates this partnership is the idea that the *purpose* of any school is to make available to the socio-economic environment quality graduates who are at the level of employers' expectations. Of course, the Department of Automobiles and Transport is well connected to the industrial environment, and in the following is presented *only one example that is distinguished by its uniqueness in Romania*: **Renault Chair@UPIT.**

Launch of the Renault Chair@UPIT at the "Automotive Engineering" Research Centre (2017)

The purpose of creating this entity is to combine the efforts of the two institutions to achieve an educational process truly adapted to the economic / industrial realities of the moment. The automotive industry has been, is and will be a very dynamic field, subject to major challenges and changes, which also requires the education system to have an approach adapted to these realities, and for this an efficient contact with the industrial environment is needed.

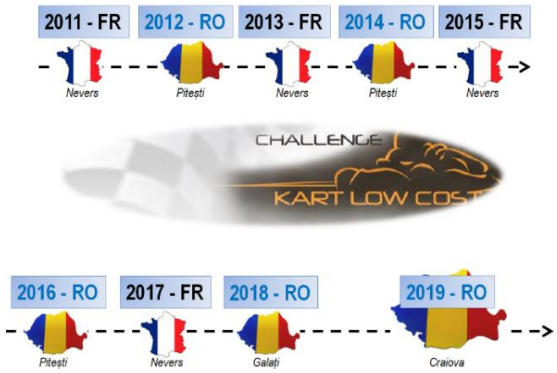
Therefore, taking all the above into account, in 2017, University of Pitesti, through Department of Automobiles and Transport, proposed to Renault Romania Group the creation of the **Renault Chair@UPIT**; in other words, the Department of Automobiles and Transport has allocated a space for Renault Romania

representatives, thus ensuring their frequent presence at the university in order to develop joint actions, among which we may mention:

- *improving the contents of the study disciplines, through applied discussions between the specialists of the Renault Romania Group and the professors of the University of Pitesti,*
- *establishing and implementing new educational strategies (e.g. project-based learning),*
- *the provision by the University of Pitesti of on-the-car training of Renault Romania Group engineers,*
- *the participation of the Renault Romania Group in the training activities of students by offering complementary courses,*
- *consultations given by the specialists of the Renault Romania Group to the students of the University of Pitești,*
- *supporting academic excellence by awarding the Renault Merit Scholarship,*
- *carrying out co-tutorship for the development of diploma projects, dissertation and doctoral theses,*
- *development of the material base of the laboratories of the University of Pitesti through various donations / sponsorships,*
- *facilitating the technical visits of students and professors within the various entities of the Renault Romania Group …*

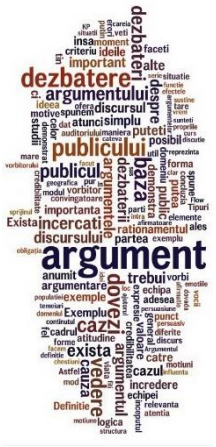
We conclude the synthetic presentation of the Department of Automobiles and Transport with the **list of the most representative student events**, organized in the last years:

- Challenge **K**art **L**ow **C**ost (**KLC**):
  - is a Franco-Romanian student competition, initiated in 2011, as a result of the good academic relations that the Department of Automobiles and Transport has with the Institut Supérieur de l'Automobile et des Transports de Nevers (Université de Bourgogne);
  - it is intended to take place alternately, one year in France, the other in Romania;



  - it has 2 components: a thermal motor go-kart competition + an electric motor go-kart competition;
  - it is a competition of engineering projects, due to the fact that the participating students compete with karts to whose development they have substantially contributed (conception, design, execution);
  - the 9th edition was attended by 60 students from 5 universities and the 10th edition is scheduled at Nevers in May 2022

- **Arena of Opinions** – Student Academic Debate Club:
  - it encourages and supports the exercise of communication skills in public,
  - it develops critical thinking, logical reasoning, tolerance of other opinions and fair play, understanding the importance of listening to interlocutors,
  - it debuted in 2016, with the 5th edition taking place this year.
  - the topics debated in the previous 4 editions:



    - 2019:
      - *The future of the diesel engine for passenger cars (Yes or No?)*
      - *Public vs. private transport*
    - 2018:
      - *Thermal vs. electric propulsion*
      - *Road vs. rail transport*
    - 2017:
      - *Thermal vs. electric propulsion*
    - 2016:
      - *Spark ignition engine vs. compression ignition engine*
      - *Front drive axles vs. rear drive axles*
      - *Traffic light intersection vs. roundabout intersection*
- National student competition of automotive engineering "Professor univ. eng. Constantin Ghiulai" organised by **S**ocietatea **I**nginerilor de **A**utomobile din **R**omânia, **SIAR** (**S**ociety of **A**utomotive **E**ngineers of **R**omania):
  - Vehicle Dynamics Section: first launched in 2014 and in 2022 at its 8th edition
  - Automotive Computer Aided Design – CATIA, started in 2017, this year is the 5th edition

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SIAR
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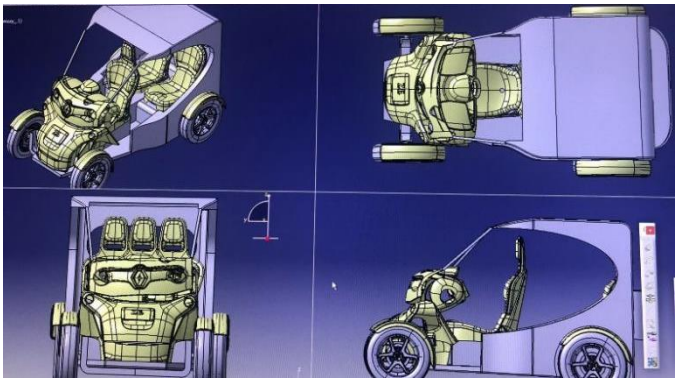
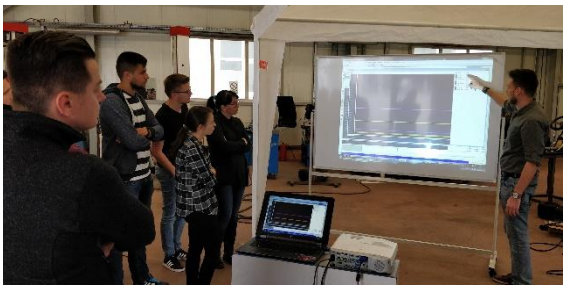
- **Twizy** student contest by Renault:



- The "Andrei G. Ioachimescu" National Student **Mechanics** Competition:
  - the 2013 edition (9th) was held at the Faculty of Mechanics and Technology.
- The "C. C. Teodorescu" Professional Student Scientific Competition on **Material Strength**:
  - In 2018, the 37th edition was organized by the Faculty of Mechanics and Technology.
- **S**tudent **S**cientific **C**ommunications **S**ession – annual event organized within the Faculty of Mechanics and Technology

- Since 2012, the annual organization of experimental sessions on the **Renault Romania** test track, at Merișani, within the subject Practice III – Road Vehicles (**Experimental Research in Automotive Engineering**)


- Since 2009, annual courses on **calibration of internal combustion engines** for students of the Road Vehicles degree program, thanks to **Renault Technologie Roumanie.**

The Department of Automobile and Transport, founded in **1969**, has a good reputation in the public consciousness and in academic and industrial milieus at national and international level. It has been built on the excellence of the professors and students that the department has hosted in its **53 years of existence**.

A retrospect of the **Department of Automobile and Transport** over its **53 years of existence** makes us look confidently toward the future.

Vivat, Crescat, Floreat !

18/04/2022