Field of Study: Road vehicles Engineering
Programme of studies: Transport Systems Optimization

First year of study:

Subject of study: Advanced solutions for vehicles

CODE: D22OSTM101
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: mandatory
Objectives: Knowledges understanding and deepening by the master studets of the construction and operation of advanced vehicle systems. Establishment of operating conditions, vehicle operating requirements and the choice criteria as transport solutions.
Content: Power-driven vehicles - short history. Getting Started about Electric Vehicle Traction. Power storage devices. Electric vehicles with traction battery. Construction and operating of a pure electric propulsion vehicle. Hybrid cars. Classification, methods of operating, advantages of hybrid propulsion comparative with the conventional systems. Basic architectures of the hybrid propulsion chain. Hybrid chains: series, parallel and mixed.
Teaching Leanguage: Romanian
Evaluation: written/ oral examination
Bibliography:

Mehrdad Ehsani, Yimin Gao, Ali Emadi , „Modern Electric, Hybrid Electric, and Fuel Cell Vehicles",CRC Press, 2009
3Nan Qin, „Electric Vehicle Architectures", Electric vehicule transportation Center, 2016
Neagoe, D, „ Transmisia Autovehiculelor, Editura Universitaria » Craiova, 2008.
Neagoe D, Pană Gabriela Monica „Soluţii avansate de vehicule"- notiţe de curs –Notițe redactate - în curs de finalizare , Suport informatic
Oprişa - Stănescu P. D., „Autovehicule electrice, hibride şi cu pile de combustie", Editura Politehnica, 2015
Otat, V, „Dinamica Autovehiculelor, Editura Universitaria, Craiova, 2005.
Pană Gabriela Monica, „Soluţii avansate de vehicule"- suport teoretic pentru activitatea de laborator - Notițe redactate şi multiplicate
Pană Gabriela Monica "Echipamente speciale pentru alimentarea motoarelor de automobile", 2006, Editura Universitaria Craiova
PUŞCAŞ Ana-Maria,"Structuri hibride celulare integrate pentru creşterea eficienţei energetice a sistemelor mobile" teza de doctorat, Universitatea Transilvania din Braşov, 2011
Racicovschi V., Danciu G., Chefneux Mihaela, „ Automobile electrice si hibride", Electra (ICPE) 2007
Vladimir A. Katić, „Electrification of the vehicle propulsion system – an overview", FACTA UNIVERSITATIS,Series: Electronics and Energetics, 2011.

Subject of study: Advanced modelling and simulation techniques in Mechanical Engineering

CODE: D22OSTM102
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: Technical culture of specialty.
OBJECTIVES: The course addresses to students from first year - Master "Design and Concept of Modern Auto vehicles" at Faculty of Mechanics. The students needs to have acknowledgements from the following domains: Mechanics, Strength Materials, Machine Elements, Mechanical Systems Modelling Basics, Automotive Dynamics, Automotive Design and Calculations. The course follow to promote the modern design methods, finite element modelling and analysis in the aim of solving some complex problems from Automotive Engineering. Another aim is the one that it can be develop and form, the students ability through applications by using important modelling and analysis software (ADAMS, ANSYS, etc.). All of these are used for studying the behavior in static and dynamic mode of subassemblies from modern auto vehicles frame.
CONTENT: Theory of Elasticity Elements. 3D Modelling Techniques of Mechanical Systems. Mathematical Models for Finite Element Analysis in Static Mode for Mechanical Structures. Numerical Applications by Using MATLAB. Mathematical Models for Finite Element Analysis in Dynamic Mode for Mechanical Structures. Numerical Applications by Using MATLAB. Modal Analysis of Mechanical Structutres. Finite Element Modelling in Contact Problems Cases. Mechanical Structures Analysis in Thermal-Structural Coupled Mode. Finite Element Modelling and Simulation of an Impact Problems on Automotive Engineering.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Amirouche, F., Computational methods in multibody dynamics, Prentice-Hall, 1992.
Buculei M., Marin, M., Elemente de mecanică tehnică. Teorie şi aplicaţii, Ed. Universitaria, Craiova, 1994.
Brătianu, C., Metode cu elemente finite în dinamica fluidelor, Bucureşti, Ed.Academiei, 1983.
Corless, R.M., Essential in Maple, Springer-Verlag, 1995
Dumitru N., Margine A., Bazele modelării în ingineria mecanică.Editura Universitaria Craiova, 2002.
Dumitru N., Margine A., Organe de maşini. Asamblări. Elemente elastice. Proiectare asistată de calculator. Editura Universitaria Craiova, 2002.
Dumitru N., Margine, A., Catrina, Gh., ş.a., Organe de maşini. Arbori şi lagăre. Proiectare asistată de calculator, Editura Tehnica, Bucureşti, 2008, ISBN 978-973-31-2332-3.

Dumitru, N., Nanu, Gh., Mecanisme şi transmisii mecanice, Editura Didactică şi Pedagogică, Craiova, 2008.
Logan, Daryl, A First Course in the Finite Element Method, PWS Publishing Company, Boston, 1992.
Alexandru, P., Vişa, I. ş.a., Modelarea statico-dinamică a mecanismelor de ghidare ale roţilor automobilelor, Ed. LUX LIBRIS, Braşov, 2005.
Neagoe, D., Calculul şi construcţia autovehiculelor, vol.I, II, Ed.Universitaria, Craiova, 2000.
Oţăt, V., Bolcu, D., Thierheimer W., Simniceanu, L., Dinamica autovehiculelor, Ed.Universitaria, Craiova, 2005.
Ansys theory reference, 8th Edition SAS IP, Inc.
Adams flex guide Mechanical Dynamics rev. 10.0.

Subject of study: Optimization of mobile mechanical systems

CODE: D22OSTM103
Number of credits: 5
Year/Semester: 1st year , 1st semester
Type of Course: optional
Objectives: Learning by the students of the theoretical and instrumental methods, means and procedures for the optimization of mobile mechanical systems.
Content: Kinematic and dynamics modeling by computational methods of mobile mechanical systems. General Aspects of Optimizing Problems. Numerical methods to solve minimal and maximum problems. Topological optimization (constructive) by the finite element method of mechanical structures. Solving optimization problems with and without constraints (restriction functions). Theoretical aspects on multiple objective optimization problems. Theoretical aspects regarding the stability of dynamic systems (Lyapunov stability of systems). System optimization issues. Theoretical aspects regarding the use of software for the optimization of mobile mechanical systems (ADAMS, ANSYS). Application study on the optimization of a mobile mechanical system by parametric methods
Teaching Leanguage: Romanian
Evaluation: written/ oral examination
Bibliography:

Amirouche, F., Computational methods in multibody dynamics, Prentice-Hall, 1992.
Buculei M., Marin, M., Elemente de mecanică tehnică. Teorie şi aplicaţii, Ed. Universitaria, Craiova, 1994.
Brătianu, C., Metode cu elemente finite în dinamica fluidelor, Bucureşti, Ed.Academiei, 1983.
Corless, R.M., Essential in Maple, Springer-Verlag, 1995
Dumitru N., Margine A., Bazele modelării în ingineria mecanică.Editura Universitaria Craiova, 2002.
Dumitru N., Margine A., Organe de maşini. Asamblări. Elemente elastice. Proiectare asistată de calculator. Editura Universitaria Craiova, 2002.
Dumitru N., Margine, A., Catrina, Gh., ş.a., Organe de maşini. Arbori şi lagăre. Proiectare asistată de calculator, Editura Tehnica, Bucureşti, 2008, ISBN 978-973-31-2332-3.
Dumitru, N. Margine, A.,Asamblări. Elemente elastice. Proiectare asistată. Editura Universitaria, Craiova, 2002.
Dumitru, N., Angrenaje cilindrice. Proiectare asistată de calculator, Editura Universitaria, Craiova, 2000.
Dumitru, N., Nanu, Gh., Mecanisme şi transmisii mecanice, Editura Didactică şi Pedagogică, Craiova, 2008.
Dumitru, N., Organe de maşini. Angrenaje. Elemente de proiectare, R. Univ. Craiova, Craiova, 1996.
Dumitru, N., Organe de maşini. Transmisii mecanice. R. Univ. Craiova, Craiova,1996.
Dumitru, N.,Margine, A.,Bazele modelării în ingineria mecanică. Editura Universitaria, Craiova, 2002.
Gafiţeanu, M., Elemente finite şi de frontieră cu aplicaţii la calculul organelor de maşini, Ed. Tehnică, 1987.
Dudita F., Diaconescu D., Optimizarea structurala a mecanismelor, Ed. Tehnica, Bucuresti, 1987.
Moise, V., Moise M., Iaciu Ghe., Metode de optimizare neliniara, Editura Printech, 2008.
Moise V., Simionescu I., Ene M, Sinteza optimala a mecanismelor cu came, Ed. Printech, 2011.
Predoi M., Capitole de matematici aplicate, Optimizarea sistemelor, Ed. Universitaria, Craiova, 1999.
Maple 18, User's guide.
ANSYS 12, User's Guide.
MathCad 2001 –User's Guide, Mathsoft Engineering & Education, Inc. Cambridge, USA, 2007.
MSC. ADAMS user manual

Subject of study: Advanced elements of road vehicle dynamics

CODE: D22OSTM104
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: mandatory
OBJECTIVES: presentation of theoretical concepts and practical concepts of kinematic and dynamic theories that define vehicle motion, advanced knowledge in the field of dynamical systems, vehicle dynamics, chaotic movements and the use of specialized computer programs or simulation of vehicle movement
CONTENT: Dynamical systems theory. Stability of dynamical systems. Chaotic movements: Methods of study. Shape optimization of vehicle by vehicle-air interaction study. Vehicle stability. Mathematical models used. Vehicle stability analysis. Maniabilitatea vehicles: maniabilităţii study, criteria for assessing the maniabilităţii. Using mathematical analysis software stability and maniabilităţii vehicles. Study maniabilităţii stability and computational simulation of vehicles through their movement.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Cîmpian V., Bolcu D., Neagoe D., Autoturismul virtual realizat cu ajutorul programului ADAMS/CAR utilizat pentru analiza comportamentului dinamic, A VIII A Conferinţă Internaţională de Autovehicule Rutiere, Piteşti, 2000;
Legois T., Modelisation et analyse de la dynamique du szstem vehicule-pilot, Inginieurs de l'Automobile, oct 1987, p. 101-106

Oţăt V., Bolcu D., Simniceanu L., Dinamica autovehiculelor, Editura Universitaria Craiova, 2005;
Simniceanu L., Aplicaţii ale teoriei sistemelor dinamice în dinamica automobilelor, Teza de doctorat, Universitatea Politehnica Bucureşti, 2005;
Neagoe D., Cercetări teoretice şi experimentale privind studiul stabilităţii şi maniabilităţii la autoturismele de fabricaţie românească în vederea îmbunătăţirii acestora, Teză de doctorat, Universitatea Transilvania Braşov, 2000
Simniceanu L., Elemente avansate de dinamica autovehiculelor rutiere, suport curs.
Finite Element Analysis for Design Engineers, KUROWSKI, PAUL M, 2004, SAE International
Elemente avansate de dinamica autovehiculelor rutiere – Îndrumar de laborator, Simniceanu L., Trotea M., 2012, pentru uz didactic
Proiectarea asistată de calculator în Matlab şi Simulink: Conducerea avansată a proceselor / SOARE, CĂLIN .- 2006, Bucureşti : Agir
Introducere în studiul dinamicii sistemelor, SIMION FLORIAN PAUL, 2003, Bucureşti : Matrix Rom
Automotive Vehicle Safety, PETERS, GEORGE A., 2002, Society of Automotive Engineers

Subject of study: Researches basics

CODE: D22OSTM105

Number of credits: 4

Year/Semester: 1st year , 1st semester

Type of Course:mandatory

Objectives: Presentation of the basic principles of the various methods and means of measuring the quantities that characterize the technological processes

Content: Measurement basics. Measuring systems. Parametric and Generators transducers. Electrical Tensometry. Fotoelasticimetria. Experimental Measurement of stress and deformations. Circuits for the transducers connecting. Statistical processing of experimental data. Methods of measuring displacements. Speed measurement methods. Methods of measuring forces, moments, power, temperature, pressure. Methods and principles for measuring surface roughness. Vibration measurement methods in mechanical systems

Teaching Leanguage: Romanian

Evaluation: written/ oral examination

Bibliography:

Apostolescu, N., Taraza, D., *Bazele cercetării experimentale a maşinilor termice*, E.D.P., Bucureşti, 1979.
Balaban, C., *Strategia experimentării şi analiza datelor experimentale. Aplicaţii în chimie, inginerie chimică, tehnologie chimică*, Editura Academiei Române, Bucureşti, 1993.
Ciocîrdia, C., Ungureanu, I., *Bazele cercetării experimentale în tehnologia construcţiilor de maşini*, E.D.P., Bucureşti, 1979.
Ciolacu Filip Gabriel, Nicolae Crăciunoiu, Adrian Sorin Roșca, *Principii și metode de măsurare*, Editura Universitaria, 2002.
Ciolacu, F.,G., Mazilu, Pogorschi, C.,L., *Bazele cercetării experimentale. Îndrumar de laborator*, Reprografia Universităţii din Craiova, 1997.
Ciolacu, F.,G., Pogorschi, C.,L., *Bazele cercetării experimentale. Curs*, Reprografia Universităţii din Craiova, 1996.
Ciolacu, F.,G., *Traductoare şi aparate de măsură*, Reprografia Universităţii din Craiova, 2000.
Ciolacu, F.,G., *Traductoare şi captoare pentru mărimi mecanice*, Editura Universitaria, Craiova, 1999.
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Constantinescu, I.N., *Măsurarea mărimilor mecanice cu ajutorul tensometriei*, Editura Tehnică, București, 1989.
David L, I. Păunescu, *Bazele cercetarii experimentale a sistemelor biotehnice*, Bucureşti, 1999.
Duşe D. M., N. F. Cofaru, *Bazele cercetării experimentale*, Sibiu, 2001.
Lupea I., *Măsurători de vibraţii şi zgomote prin programare cu LabView*, Cluj Napoca, 2005.Pisoschi Alexandru-Grigore, *Tribologia si fiabilitatea utilajelor agricole*, Editura Universitaria, 2002.
Stanimir A., *Îndrumar de laborator*, Editura Sitech, Craiova, 2014.
Tripa Pavel, Faur Nicolae, *Metode teoretice și experimentale pentru determinarea stării de tensiune și deformație*, Universitatea Tehnică Timișoara, 1994.
Tripa Pavel, *Metode experimentale pentru determinarea deformaţiilor şi tensiunilor mecanice*, Editura MIRTON,Timişoara, 2010.

Subject of study: Modern systems for maintenance of the road vehicle

CODE: D22OSTM106

Number of credits: 4

Year/Semester: 1st year , 1st semester

Type of Course: optional

Objectives: The course offers the students theoretical and practical concepts regarding training of original thinking in the field of the energies engineering, used as heat source.

Content: Interdependenc e Quality – Reliability; Reliability of products; Maintainability and availability of elements and technical systems; Predictive evaluation and optimization methods of maintainability. Maintenace strategy

Teaching Leanguage: Romanian

Evaluation: written/ oral examination

Bibliography:

Băjenescu, T. – Fiabilitatea sistemelor tehnice, Editura MatrixRom, Bucureşti, 2003;
Ene, V. Bazele teoretice ale exploatării tehnice şi reparaţiei automobilelor. Disponibilitate. Fiabilitate, Universitatea Tehnică a Moldovei, Chişinău, 2005;
Gîrlaşu, Şt., Gillich, N. - *Fiabilitatea sistemelor*. Universitatea „Eftimie Murgu”, Reşiţa, 1995.
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Manea C., Stratulat M. „Fiabilitatea şi diagnosticarea automobilelor”, Editura Militară, Bucureşti, 1982;

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Pisoschi Al.-Gr., Oţăt Victor, Dumitru Ilie. „Terotehnica şi fiabilitatea autovehiculelor", Reprografia Universităţii din Craiova, 1998;
Pisoschi, Al.-Gr., Popa, Gh., Constantinescu, A.- Elemente de durabilitate, fiabilitate şi mentanabilitate, Editura Universitaria, Craiova, 2006;
Postavaru, N.: Managementul calităţii totale. Ed. Universitatea Tehnica de Constructii Bucuresti, 2006
Spiroiu, M. – Fiabilitatea si mentenanta vehiculelor feroviare, Editura MatrixRom, Bucureşti, 2006;
Stoian, C., Frumuşanu, G. – Fiabilitatea şi mentenanţa utilajelor. Editura Cartea universitară, Bucureşti, 2005.
Tarău, I., Stancu, V., Georgescu, C. - Calitate şi fiabilitate. Editura Fundaţiei Universitare „Dunărea de Jos", Galaţi, 2001.

Subject of study: Not including motor vehicle diagnostics

CODE: D22OSTM107
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/ 1st semester
TYPE OF COURSE: optional
OBJECTIVES: The course provides the students with the specific notions of this discipline aiming further at their application in the design of vehicle's structural components and explaining moreover advanced methods and techniques and advanced onboard and laboratory diagnostics.
CONTENT: General principles of diagnosis vehicles. General diagnosis of motor vehicles. Main vehicle diagnostics systems. Modern diagnostic elements. Self-diagnosis and diagnosis of board (on board diagnose) - Equipment and method. Laboratory diagnosis - service (off board diagnose) - Equipment and method.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Andreescu, C., ş.a. Diagnosticarea automobilelor, Editura Printech, Bucureşti, 2002
Cristea, D., Sisteme speciale ale automobilelor şi motoarelor, Editura Universităţii din Piteşti, 1999.Dumitru I., Diagnosticarea sistemelor tehnice, Editura Universitaria, Craiova, 2005
Grunwald, B., Teoria, construcţia şi calculul motoarelor pentru autovehicule rutiere, Editura Didactică şi Pedagogică, Bucureşti, 1982
.Manea, C., Stratulat, M., Fiabilitatea şi diagnosticarea automobilelor, Editura Militară, Bucureşti, 1982
Oţăt, V., Dumitru, I., Echipamente şi tehnici de diagnosticare a autovehiculelor, Editura Universitaria, 2007.

Subject of study: Ethics and academics integrity

CODE: D22OSTM108
Number of credits: 4
Year/Semester: 1st year , 1st semester
Type of Course: mandatory

Subject of study: Scientific researche/practice

CODE: D22OSTM109
Number of credits: 5
Year/Semester: 1st year , 1st semester
Type of Course: mandatory
OBJECTIVES: Developing specific study program abilities by identifying the fundamental and documentary elements related to the analysis of technical norms and research in the field
CONTENT: Scientific research: defining the theoretical, applied, experimental and analytical elements. Classical and modern bibliographic research techniques on a given theme. Drawing up a bibliography; references and footnotes. Choosing the field of research and proposing a theme. Establish the main objectives within the activity. Documentation on the fundamentals of the research-design field chosen. Search engines specific to stintificial research. Identifying important achievements, defining the proposed themes. Scientific report resulting from bibliographic research on a given topic; summary and keywords that characterize the theme; content of ideas, critical analysis, personal opinions, conclusions. Presentation of scientific articles: elaboration of the presentation of the article; estimating the length of the presentation according to the time limits; designing the presentation form; preparation of the presentation
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Belous, V., Plăhteanu, B. Fundamentele creaţiei tehnice. Editura Performantica, Iaşi , 2005
Enăchescu,C. Tratat de teoria cercetării ştiinţifice, Editura Polirom, Iaşi, 2005
Manolea, Gh. Bazele cercetării creative, Editura AGIR, Bucureşti 2006

Subject of study: Modern technologies to manufacture and repair of road vehicles

CODE: D22OSTM210
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: mandatory
OBJECTIVES: Deepening modern to manufacture and repair methodologies of the vehicle.
CONTENT: Generalities about the repair process. Determination of the necessary elements to reach the technological repair processes Advnced materials for repair process. Actual tendencies for materials and their manufacture. Ni based superalloys . Multifunctional materials with low density. Metallic materials, „Metallic foam", type, extremely light, multiple uses.Structurakl and functional materials, Bio-metals (Ni-based implants). Abrasive materials. Modern methods for reconditioning of the vehicle componets, Advanced technologies for shaft, bushing , pistons etc. reconditioning.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Crivac, Gh., Tica B, ş.a. -Tehnologii de fabricare a autovehiculelor. Ed.Universităţii din Piteşti, 2002

Marincaş, D., Abaitancei, D-Fabricarea şi repararea industrială a autovehiculelor rutiere. Editura didactică şi pedagogică, Bucureşti 1982
Nicolae,V., Crivac,Gh., Ilie,S. - Fabricarea şi repararea industrială a autovehiculelor, Ed. Universităţii din Piteşti, 2001.
Tică, B. -Tehnologia reparaţiilor şi recondiţionărilor. Reprografia Universităţii din Craiova, 1997
Tică, B. – Fabricarea si repararea industrială a autovehiculelor. Editura Universitaria Craiova, 2008

Subject of study: Advanced systems of multimodal transport

CODE: D22OSTM211
NUMBER OF CREDITS: 6
YEAR/SEMESTER: 1st year/ 2nd semester
TYPE OF COURSE: mandatory
OBJECTIVES: The course provides the students with the specific knowledge about advanced systems of multimodal transport.
CONTENT: Context on the development of intelligent transport systems. Concept of Intelligent Transport System. The concept of multimodality. Strategies and policies on intelligent transport systems. Transport systems. Transport modes. Elements of the transport system. Interfaces of the transport system with the environment. Information flow and physical flow. The information system specific to the transport system. Carrying out of trade in merchandise. Stages of the trade transaction. Information feeds for contracting. Information flows specific to the commercial transaction. Documents used in a commercial transaction. Structure of Intelligent Transport Systems. Advanced Traffic Management Systems (ATMS). Advanced passenger information systems (ATIS). Advanced Vehicle Control Systems (AVCS). Commercial Vehicle Operation Systems (CVO). Advanced Public Transport Systems (APTS). Emergency Management Systems (EMS). Electronic payment systems (EPS). Techniques and methods used in the development of modern multimodal transport systems Electronic tracking. Automated location of vehicles. Travel metering. Emergency management. Dispatch / monitoring. Creation of integrated information systems in the transport system. Structure and formation of information systems. Representation of the data structure. Representing the architecture of information systems. Models used to optimize transport routes. Integrated computer system in multimodal freight transport. Concept of integrated computer system in multimodal freight transport
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Banciu, D., Hrin, R., George M., Anghel L, David, A. - Inteligenţă în transporturi, Editura Capitel, Bucureşti, 2005
Budică I. - Managementul transporturilor, Editura Universitaria Craiova, 2007
Caraiani G., Steresu M - Transporturi maritime, Editura Lumina Lex, Bucureşti, 1998
Dinu Sorin Viorel - Transporturile rutiere, Editura Transport rutier, Bucuresti, 2000
Hagiac, R., Georgescu, I. - Manipularea şi depozitarea mărfurilor, Editura Tehnică Bucureşti, 1973
Georgescu C., Nicolau S. - Tehnologii Moderne de Transport, Editura Tehnică, Bucureşti, 1974
Hagiac R., Dinescu I., Georgescu C. – Transportul paletizat şi containerizat al mărfurilor, Editura Tehnică, Bucureşti, 1974
Ivănescu D., Dinu Gh. - Transporturile rutiere naţionale şi internaţionale. Reglementări actualizate, Editura Transport rutier, Bucuresti, 2000
Tălangă C - Transporturile şi sisteme de aşezări din Romania, Editura Tehnică, Bucureşti, 2000.
Lungu D. - Manualul managerului de transport rutier, Editura Transporturi Rutiere Bucuresti 2003
Minea M., Grafu D.-F,Surugiu M.C. – Sisteme inteligente de transport, aplicatii Ed. Matrix, Bucuresti, 2007
Manea A., Manea L. - Autovehicule de transport rutier în zona portuară, Editura Matrix Bucureşti, 2004
Stancu G., Bindiu I - Transporturi multimodale, Revista de drept comercial, 2006.
Raicu S. - Sisteme de transport, Editura Agir, Bucureşti. 2007
Thierheimer W, Cojocaru A., Ţurea N., Oţăt V., Ciunel Ştefăniţă, ş.a - Sisteme de Transport, Editura Universităţii Transilvania Braşov, 2011

Subject of study: Modern testing and calibration of road vehicles

CODE: D22OSTM212
NUMBER OF CREDITS: 6
YEAR/SEMESTER: 1st year/ 2nd semester - Master
TYPE OF COURSE: mandatory
OBJECTIVES: This course provides the students with the specific knowledge and the appropriate use of specific fundamental concepts of the discipline, and explaining moreover specific methods and techniques as well as advanced calibration tests upon vehicles, aiming thus at acquiring advanced knowledge in the field of vehicle testing.
CONTENT: Qualitative evaluation experiments and calculation errors. Electronic measuring of non-electrical quantities. Choosing and preparing vehicles for testing. Attempting vehicle handling and stability. Sources of vibration in a vehicle. Indices for assessing the quality automotive suspension. Trying sealing body. Considerations on the calibration concept vehicle. Engine calibration. Fuel calibration. Establishing specific calibration methodology vehicles. Calibration equipment necessary for vehicles
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Cîmpian , V., „Aparat spaţiu-viteză-timp” Universitatea din Braşov, 1976
Gafiţenu, M., ş. a. „Vibraţii şi zgomote”, Editura „Junimea” Iaşi, 1980
Hilohi, C., Untaru, M., „Metode şi mijloace de încercare a automobilelor”, Ed. Tehnică, 1982;
Negruş, E., ş.a. „Tester mobil pentru încercarea complexă a anvelopelor în condiţii de drum”, I.P.B. Bucureşti, 1979
Negruş, E., ş.a. „Încercarea autovehiculelor”, E.D.P. Bucureşti, 1983.

Oţăt, V., Simniceanu, L., „Încercarea autovehiculelor”, Ed. Universitaria, Craiova, 2004;
Oţăt, V., Bolcu, D., Thierheimer, W., Simniceanu, L., „Dinamica autovehiculelor”, Ed. Universitaria, Craiova, 2005 ;
Stratulat ,şa., „Diagnosticarea automobilelor” ,Editura Militară Bucureşti , 1990.
Politehnic Bucureşti, 1979;
Popa, S., Hilohi, C., „Încercarea autovehiculelor” Ed. Tehnică, Bucureşti, 1972

Subject of study: Urban logistics

CODE: D22OSTM213
NUMBER OF CREDITS: 6
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: mandatory
OBJECTIVES: Assimilation of the concepts of urban logistics by the learners; Knowledge of the basic concepts of advanced systems in the field of motor vehicle and transport engineering, using urban logistics methods.
CONTENT: Logistics of freight transport logistics (Transport modes; General characteristics of road freight transport; Transport design in the logistics infrastructure implantation strategy;Road transport in a European vision; Types of logistics; State of research in the field of intermodal distribution of goods; Marketing strategy and types of physical distribution networks of goods). Freight transport - an essential process in the distribution of goods. Modeling the distribution of goods. Analysis and evaluation of the urban transport system. Urban Transport Planning (PTU) in the short term. Urban roads and logistics evolution. Developing useful computer logistics applications. Urban transport – component of the urban logistics
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Roess, P. Traffic engineering- third edition, prentice hall, 2004;
Stan, C., sa Metode inovative de management a traficului urban pentru reducerea stressului şi a poluării - 2007;
Webster, f. V., traffic signal settings, road research laboratory, london, u.k., road res. Tech., paper no. 39, 1958;
Florea, D. Managementul traficului rutier, ediţia a-II-a completată şi revizuită, editura Universităţii Transilvania din Braşov,ISBN 973-9474-55-1, 2000,
Florea, D. „Aplicaţii telematice în sistemele avansate de transport rutier” - Editura Universităţii “Transilvania din Braşov”, 2004, ISBN 973–635–258-7.
Husch, D., Albeck, J. Intersection capacity utilization. Trafficware Ltd., Sugar Land, 2003. ISBN 0 – 0742903-0-0.
Baniaş, Ovidiu, Contribuţii la conducerea traficului rutier urban utilizând o reţea de senzori wireless ca detector de trafic- teză de doctorat, universitatea politehnică din timişoara, 2009;
Neagu, E. – Trafic rutier şi siguranţa circulaţiei. Editura Universităţii din Piteşti, 2003.
Florea, D. – Managementul traficului rutier. Editura Universităţii „Transilvania” din Braşov, 2000.
Pereş, Gh., ş.a. – Teoria traficului rutier şi siguranţa circulaţiei. Universitatea din Braşov, 1982.
FILIP, N. Ingineria Traficului Rutier, Ed. Mediamira, Cluj-Napoca, 2010.
Anton V.: Siguranţa circulaţiei, note de curs, 2010;
Filip, N. ş.a. Zgomotul urban şi traficul rutier. Ed. Todesco, Cluj-Napoca, 2003.
American Association of State Highway and Transportation Officials (AASHTO): Roadside design guide, Washington, 2002;
American Association of State Highway Transportation Officials (AASHTO): A Policy on Geometric Design of Highways and Streets, Washington D.C., 2004;
*** Ceex X2c34/2006 Proiect - Mob-Urbis - Managementul Creşterii Mobilităţii Urbane Si Modalităţi De Implementare A Soluţiilor Durabile, Menit Să Satisfacă Cerinţele Sociale Si Economice De Perspectivă, In Traficul Rutier;
*** Ghid Privind Realizarea, Analizarea Şi Evaluarea Hărţilor De Zgomot. Om 1830/2007;
*** Nise2 – Contract 2 - Drive Cycle And Short Test Development, Final Report. Department Of The
*** Speed Management: A Road Safety Manual For Decision-Makers And Practitioners. Geneva, Global
*** STAS 10144/5-89, Calculul Capacităţii De Circulaţie A Străzilor;
***Highway Capacity Manual 2010;

Subject of study: Scientific researche/practice

CODE: D22OSTM109, D22OSTM214
Number of credits: 5-1st semester/7-2nd semester
Year/Semester: 1st year , 1st /2nd emester
Type of Course: mandatory
OBJECTIVES: Developing specific study program abilities by identifying the fundamental and documentary elements related to the analysis of technical norms and research in the field
CONTENT: Scientific research: defining the theoretical, applied, experimental and analytical elements. Classical and modern bibliographic research techniques on a given theme. Drawing up a bibliography; references and footnotes. Choosing the field of research and proposing a theme. Establish the main objectives within the activity. Documentation on the fundamentals of the research-design field chosen. Search engines specific to stintificial research. Identifying important achievements, defining the proposed themes. Scientific report resulting from bibliographic research on a given topic; summary and keywords that characterize the theme; content of ideas, critical analysis, personal opinions, conclusions. Presentation of scientific articles: elaboration of the presentation of the article; estimating the length of the presentation according to the time limits; designing the presentation form; preparation of the presentation
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Belous, V., Plăhteanu, B. Fundamentele creaţiei tehnice. Editura Performantica, Iaşi , 2005
Enăchescu,C. Tratat de teoria cercetării ştiinţifice, Editura Polirom, Iaşi, 2005
Manolea, Gh. Bazele cercetării creative, Editura AGIR, Bucureşti 2006

Second year of study:

Subject of study: Biomechanical solutions in accidentology

CODE: D22OSTM321
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: specialty
OBJECTIVES: The course follows: the familiarization of the students with the notions of human musculoskeletal system, with the main types of devices and implants used for the trauma problems;
-the knowledge of the main procedures and techniques
used to solve the trauma problems;
- fundamentals elements for design of implants, prosthesis, orthosis and other rehabilitation devices.
CONTENT:
Elements of human lower limb biomechanics
Elements of human upper limb biomechanics.
Elements of human trunk, neck and spine biomechanics
Biomaterials used in trauma and orthopedics.
Biomechanical solutions for rehabilitation of the human lower limb joints
Biomechanical solutions for rehabilitation of the human upper limb joints
Biomechanical solutions for the replacement of the human lower limb joints
Biomechanical solutions for the replacement of the human upper limb joints
Biomechanical solutions for spine rehabilitation
Biomechanical solutions for human fractures
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Donald Peterson, Joseph D. Bronzino, Biomechanics, Principles and Applications, CRC Press, Ed. Taylor and Francis, 2008.
Gray H., Anatomy, descriptive and surgical., Lippincott Press, N.Y., Boston, 1986
Handra-Luca V., Introducere in teoria mecanismelor, Ed. Dacia, Cluj-Napoca, 1986
Nigg B.M., Herzog W., Biomechanics of the musculo-skeletal system, John Wiley&Sons Ltd., N.Y., 1995
Popescu I., Iordachita I., Dumitru N., Rinderu P.L., Mecanisme biologice, Editura Sitech, Craiova, 1997.
Winter D.A., Biomechanics and motor control of human movement, John Wiley & Sons, Inc., 1990.
Petre Badea,Laurentiu Camil Bohiltea, Anatomia umana functionala si biomecanica,ISBN: 973-0-00641-5 Editura: Colectia Medicina Sportiva, 2008
Doina Dragulescu, Modelarea in biomecanica, Editura DIDACTICA-PEDAGOGICA, 2009

Subject of study: Modeling, systematization and traffic organization

CODE: D22OSTM322
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: mandatory
OBJECTIVES: Assimilation by the students of the knowledges for the modeling, systematization and organization of the road traffic.
CONTENT:
Theoretical background of traffic flows. Traffic prameters; Traffic volume variation; Crossroads: Systematization of crossroads. Factors influencing the design of the crossroads. Conflict points in crosroads; The choice of crossroad types; Methods and techniques for systematization, coordination, guidance and control of traffic flows; modern solutions in road traffic management; use of ITS technologies in road traffic management; modelling and simulation of the road traffic.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Danech- Pajouh, m., road traffic indicators as a performance guide, proceedings of ieee intelligent transportation systems, 2001;
Hobbs, F. D. Traffic planning & engineering – second edition. Pergamon press, 1979;
Nistor, N.,sa , Bazele teoretice al traficului rutier, institutul politehnic bucuresti,1976;
Roess, P. Traffic engineering- third edition, prentice hall, 2004;
Stan, C., sa Metode inovative de management a traficului urban pentru reducerea stressului şi a poluării - 2007;
Webster, f. V., traffic signal settings, road research laboratory, london, u.k., road res. Tech., paper no. 39, 1958;
Florea, D. Managementul traficului rutier, ediţia a-II-a completată şi revizuită, editura Universităţii Transilvania din Braşov,ISBN 973-9474-55-1, 2000,
Florea, D. „Aplicaţii telematice în sistemele avansate de transport rutier" - Editura Universităţii "Transilvania din Braşov", 2004, ISBN 973–635–258-7.
Husch, D., Albeck, J. Intersection capacity utilization. Trafficware Ltd., Sugar Land, 2003. ISBN 0 – 0742903-0-0.
Baniaş, Ovidiu, Contribuţii la conducerea traficului rutier urban utilizând o reţea de senzori wireless ca detector de trafic- teză de doctorat, universitatea politehnică din timişoara, 2009;
Neagu, E. – Trafic rutier şi siguranţa circulaţiei. Editura Universităţii din Piteşti, 2003.
Florea, D. – Managementul traficului rutier. Editura Universităţii „Transilvania" din Braşov, 2000.
Pereş, Gh., ş.a. – Teoria traficului rutier şi siguranţa circulaţiei. Universitatea din Braşov, 1982.
FILIP, N. Ingineria Traficului Rutier, Ed. Mediamira, Cluj-Napoca, 2010.
Anton V.: Siguranţa circulaţiei, note de curs, 2010;
Filip, N. ş.a. Zgomotul urban şi traficul rutier. Ed. Todesco, Cluj-Napoca, 2003.
American Association of State Highway and Transportation Officials (AASHTO): Roadside design guide, Washington, 2002;
American Association of State Highway Transportation Officials (AASHTO): A Policy on

Geometric Design of Highways and Streets, Washington D.C., 2004;

Subject of study: Analysis of the transport costs

CODE: D22OSTM324
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: optional
OBJECTIVES: Students acquiring the basic knowledge of carrying out the necessary economic analysis during the evaluation process of the transport projects.
CONTENT: Object and necessity of economic and financial analysis; Economic analysis. Financial analysis. The correlation between economic and financial evaluation; Costs. Cost typology; Costs and benefits of transport service providers; Costs of transport users; Methodology for achieving economic analysis;

TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
CRISTEA, H., TALPAS, I., COSMA D., Gestiunea financiară a întreprinderilor, Editura Mirton, Timişoara,1998
IŞFĂNESCU, A., STĂNESCU, C., BĂICUŞI, A., Analiza economico-financiară, Editura Economică, Bucureşti, 1999.
IŞFĂNESCU, A., ROBU, V., ANGHEL, I., TUŢU A., Evaluarea întreprinderii-ediţia a II-a, Editura Tribuna Economică, Bucureşti, 1999.
POPA M., Evaluarea proiectelor de investitii in infrastructura transporturilor, Editura BREN, Bucuresti, 2004
ROBU, V., GEORGESCU, N., Analiză economico-financiară, Editura. OMNIA UNI S.A.S.T. S.R.L., Braşov, 2000

Subject of study: Analysis and reconstruction of the traffic accident

CODE: D22OSTM325
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: mandatory
OBJECTIVES: Learning by students of the elements specific to the road traffic accident analysis; Developing the skills required to reconstruct a traffic accident.
CONTENT: Basic problems of the traffic accident reconstruction; Identification and taking of the traces for traffic accident expertise; Ways to reconstruction of the Kinematics and dynamics sizes of the vehicles involve in traffic accidents; Human factor and traffic accident; Pedestrian accident expertise; Modeling and simulation in the reconstruction of traffic accidents
Teaching Leanguage: Romanian
Evaluation: written/ oral examination
Bibliography:
Dumitru I., Analiza și reconstrucția accidentelor de circulație, Note de curs, 2016
Dumitru I., Oțăt Oana, Oțăt V., Analiza și reconstrucția accidentelor de circulație. Elemente aplicative, 2017
Gaiginschi Radu. – Expertiza tehnică a accidentelor rutiere – Editura Tehnică, Bucureşti, 2002.
Gaiginschi Radu – Reconstructia si expertiza accidentelor rutiere, Editra Tehnica, Bucuresti, 2009;
Gaiginschi Radu s.a – Siguranta circulatiei rutiere vol.II, Editura Tehnica, Bucuresti, 2006;
Hohn, M. – Decizia la conducatorii auto (o abordare psihologica), Ed. Multimedia, Arad, 1999;
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Nistor Neculai, s.a. – Expertiza tehnica a accidentului de circulatie, Ed Militara, Bucuresti, 1987;
Oţăt, Oana, Dumitru, I., Oţăt, V., Expertiza Tehnică a Accidentului de Circulaţie – Aplicaţii, Universitatea din Craiova, 2014
Rothengatter, T., & Carbonell Vaya, E. (coord.) – Traffic and transport psychology, Pergamon, 1997;
*** Accident Reconstruction – Technology And Animation - VI -SAE SP-1150 –1996.
*** Datentechik, S – PC-CRASH A Simulation Program for Vehicle Accidents, Operating Manual, Version 8.0 - November 2006, Linz, Austria.
*** Traffic Engineering Handbook, Institute of Transportation Engineers (1992). Washington, DC.;
*** Virtual CRASH 2.2 Documentation
*** http://www.esafetysupport.org, http://www.makeroadssafe.org, http://www.inrets.fr
***
http://www.vcrash.com/download/models&shapes.pdf

Subject of study: Modern systems for air conditioning in transport

CODE: D22OSTM326
Number of credits: 5
Year/Semester: 2nd year; 1st semester
Type of Course: optional
Objectives: The course offers the students knowledge concepts subject-specific, explanation and interpretation some processes, the concepts necessary to the design of constructive solution.
Content: General concepts of technique thermodynamics. Principles of thermodynamics. Real gases. The moist air. Compressors used in air-conditioning. Refrigeration systems. Heat pumps.
Teaching Leanguage: Romanian
Evaluation: written/ oral examination
Bibliography:
Cernăianu C.- Termotehnică. Editura Universitaria Craiova, 2009
Bică M., Nagi M., Cernăianu C., Bara N.- Transfer de căldură. Editura Universitaria Craiova, 2009
Ionel I., Dungan L., Ferencz A., Pop G.- Termotehnică aplicaţii. Editura Politehnica Timişoara 2000
Bică, M., Naghi, M. – 1999 – Transfer de căldură şi masă. Editura Universitaria. Craiova

Subject of study: Scientific researche/practice

CODE: D22OSTM328,
Number of credits: /7-1st semester
Year/Semester:2nd year /1st semester
Type of Course: mandatory

OBJECTIVES: Developing specific study program abilities by identifying the fundamental and documentary elements related to the analysis of technical norms and research in the field

CONTENT: Scientific research: defining the theoretical, applied, experimental and analytical elements. Classical and modern bibliographic research techniques on a given theme. Drawing up a bibliography; references and footnotes. Choosing the field of research and proposing a theme. Establish the main objectives within the activity. Documentation on the fundamentals of the research-design field chosen. Search engines specific to stintificial research. Identifying important achievements, defining the proposed themes. Scientific report resulting from bibliographic research on a given topic; summary and keywords that characterize the theme; content of ideas, critical analysis, personal opinions, conclusions. Presentation of scientific articles: elaboration of the presentation of the article; estimating the length of the presentation according to the time limits; designing the presentation form; preparation of the presentation

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Belous, V., Plăhteanu, B. Fundamentele creaţiei tehnice. Editura Performantica, Iaşi , 2005

Enăchescu,C. Tratat de teoria cercetării ştiinţifice, Editura Polirom, Iaşi, 2005

Manolea, Gh. Bazele cercetării creative, Editura AGIR, Bucureşti 2006

Subject of study: Scientific researche

CODE: D22OSTM429

Number of credits: 10

Year/Semester: 2nd year , 2nd semester

Type of Course: mandatory

Teaching Leanguage: Romanian

Evaluation: written/ oral examination

Subject of study: Practical stage for dissertation preparing

CODE: D22CPAM430

Number of credits: 20

Year/Semester: 2nd year , 2nd semester

Type of Course: mandatory

Subject of study: Supporting of dissertation thesis

CODE: D22CPAM431

Number of credits: 10

Year/Semester: 2nd year , 2nd semester

Type of Course: mandatory