Field of study: Transport engineering
Programme of studies: Transport engineering and traffic

First year of study:

Subject of study: Mathematical Analysis, Code D22ITTL101

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 1st year / 1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course offers the students theoretical and practical concepts of the Mathematical Analysis.
CONTENT: Convergence: Sequences and series of real numbers, Power series, Fourier series. Continuity and Differentiability: Functions of several real variables, Implicit functions, The extreme values of a real function of several variables. Integral calculus: Definite integrals with parameters, Improper integrals, Line integrals of the first type, Multiple integrals, First type surface integrals. Elements of field theory.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Diamandescu, Aurel - Analiză Matematică, Vol. I, II, Editura Universitaria, Craiova, 2005
Diamandescu, Aurel – Îndrumar de Analiză Matematică, Editura Universitaria, Craiova, 2006
Diamandescu, Aurel – Culegere de Probleme de Analiză Matematică, Editura Universitaria, Craiova, 2007
Diamandescu, Aurel – Matematici Generale, Editura Universitaria, Craiova, 2009
Predoi Maria, Bălan Trandafir – Mathematical Analysis, Vol. I, II, Editura Universitaria, Craiova, 2005.

Subject of study: Technical chemistry (Code D22ITTL102)

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

SUBJECT: Mechanics I (Code:D22ITTL103)+ Mechanics II (Code:D22ITTL211),

NUMBER OF CREDITS: 5-1st sem., 6-2nd sem.
YEAR/SEMESTER: 1st year/1st sem.+2nd sem.
TYPE OF COURSE: Mandatory
OBJECTIVES: The course presents to students the fundamental notions of analytical mechanics and specific notions of kinematics; kinematical analysis of rigid body in particular motions and, generally, in general motion.
CONTENT:
Reduction of the sliding vectors.
Mass, the centre of mass (definitions, properties, Guldin-Pappus Theorems).
Moments of inertia.
Kinematics of material point.
Kinematics of rigid body.
Kinematics of relative motion for material point.
Kinematics of relative motion for solid body.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Bogdan, M.L. ş.a., Mecanica tehnică - culegere de probleme, Editura " Sitech", 1997, ISBN 973-97524-8-8;
Bogdan, M.L., Bogdan, C., Mecanica. Cinematica şi Statica, Editura "Sitech", 2004, ISBN 973-657-558-6;
Bogdan, M.L., Bogdan, C., Mecanică. Culegere de probleme, Editura "Universitaria", 2005, ISBN 973-742-018-7;
Bogdan, M.L., Bogdan, C., Mecanica. Dinamică şi Vibraţii mecanice, Editura "Universitaria", 2006, ISBN 973-742- 329-1, ISBN978-973-742-329-0;
Rădoi, M., Deciu, E., Mecanica, Editura Didactică şi Pedagogică, Bucureşti, 1981.
Buculei, M., Mecanica, vol. I, II, Reprografia Universităţii din Craiova, 1980.
Constantinescu, I., Bolog, C., Mecanică, Editura Didactică şi Pedagogică, Bucureşti, 1978.
Iacob, C., Mecanică teoretică, Editura Didactică şi Pedagogică, Bucureşti, 1971.
Irimiciuc, N., Mecanica, Editura Didactică şi Pedagogică, Bucureşti, 1971.
Voinea, R., Voiculescu, D., Ceauşu, V., Mecanica, Editura Didactică şi Pedagogică, Bucureşti, 1984.

Subject of study: Basics of economy (Code D22ITTL104)

NUMBER OF CREDITS: 2
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Computer programming and programming languages I (CodeD22ITTL105): + Computer programming and programming languages II (Code:D22ITTL213)

NUMBER OF CREDITS: 5 – 1st sem. + 5 – 2nd sem.
YEAR/SEMESTER: 1st year / 1st + 2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: To develop at students basic skills in the use of Windows operating systems, to familiarize students with development of

fundamental algorithms and programming theory; learn students with programming in "C" language and development of Windows applications.
CONTENT: Architecture of a computer system, internal representation of information; Numeration bases, logic functions, elements of algorithms, Introduction to C language vocabulary - operators; Instructions and statements of C language, expressions, functions, I / O operations Elementary; Pointers and arrays, structures and unions in C, use of strings, dynamic memory allocation, library functions, simple chain lists, double chain lists, recursion, files in C, solving systems of linear equations structure Windows applications , Programming mouse related events, GDI functions; Use of type menu and dialog box in Windows,.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
Knuth D.E. , Treaty of computer programming. fundamental algorithms, Ed. Tehnica, 1973
Burdescu, D., - Algorithms and data structures, Ed. Mirton, Timişoara, 1992
Petrovici, V., - Programming in C language, Ed. Tehnică 1993, Bucureşti
Kernighan B., Ritchie D. , The C Programming Language, Prentice Hall, 1988
Pădeanu, L., O., Windiws programming in C language, Reprografia Univ. din Craiova, 1993
Petzold Charles, Programming Windows, 6th edition, Microsoft Press, 2012

Subject of study: Study of materials, Code: D22ITTL106

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 1st year / 1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course offers students theoretical concepts of the correlation between microstructure, properties and processing of the metallic materials.
CONTENT: Crystal structures of metallic materials. Crystalline lattices and imperfections in crystalline solids. Plastic deformation of metallic materials (plastic deformation of single crystals and polycrystalline materials). Properties of metallic materials. Crystallization principles of metallic materials. Theory of binary alloy systems. Crystallization of iron-carbon alloys. Heat treatments and thermo-chemical treatments of ferrous materials. Non-ferrous metals and alloys. Advanced materials developments.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
C. Teisanu – Metalurgie Fizica pentru Ingineri
M. Radulescu – Studiul Materialelor, EDP
H. Colan – Studiul Materialelor, EDP
I. Trusculescu – Studiul Materialelor, EDP
S. Gadea – Metalurgie Fizica si Studiul Metalelor, EDP, 1980
R. Saban, D. Gheorghe s.a - Studiul si Ingineria Materialelor, Editura Didactica si Pedagogica, Bucuresti, 1995
C. Baciu, I. Alexandru, R. Popovici s.a - Stiinta Materialelor Metalice, Editura Didactica si Pedagogica, Bucuresti, 1996
N. Popescu, R. Saban, I. Pencea s.a - Stiinta Materialelor pentru Inginerie Mecanica, Ed. Fair Partners, Bucuresti, 1999

Subject of study: Physical education I (Sport) (Code D22ITTL107)

NUMBER OF CREDITS: "1"
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: -

Subject of study: Foreign language I (English, Francaise, Deutsch I (Code D22ITTL108)

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: Optional
TEACHING LANGUAGE: -
EVALUATION: Written/oral examination

Subject of study: Linear Algebra, Analytical and Differential Geometry, Code: D22ITTL209

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year / 2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course gives the possibility to analyze the physical and mechanical phenomena using the vector notion and his properties. Many mathematical models that describe the behavior of mechanical components, in static or dynamic regime, are obtained using geometric notions like curves and surfaces.
CONTENT: Vectorial spaces, examples, properties; Mathematical connections among vectorial spaces; Bilinear forms and quadratic forms, applications; Euclidean spaces - the notion of length of a vector and unoriented angle between two vectors; Orthogonality, orthogonal base; Tensors, properties; Free vectors, applications; Line and plane in space; Quadrics and Conics; Curves; Surfaces.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
G. Marinescu, Spaţii vectoriale topologice şi pseudotopologice, Editura Academiei, Bucureşti, 1959.
M. Stoka, Geometrie diferenţială, Editura Didactică şi Pedagogică, Bucureşti, 1964.
G.E. Şilov, Matematiceskii analiz, Nauka, Moskva, 1969.
P. Stavre, Curs de geometrie diferenţială, Litografia Universităţii din Craiova, 1970.

I. Creangă, C. Haimovici, Algebră liniară, Editura Didactică şi Pedagogică, Bucureşti, 1970.
R. Miron, Geometrie analitică, Editura Didactică şi Pedagogică, Bucureşti, 1976.
C. Iacob, Matematică aplicată în mecanică, Editura Academiei, Bucureşti,1989.
M.M. Stănescu, Curs de Algebră Liniară, Geometrie Analitică şi Diferenţială, Reprografia Universităţii din Craiova, 2000.
M.M. Stănescu, F. Munteanu, V. Slesar, Probleme de Algebră Liniară, Geometrie Analitică şi Geometrie Diferenţială, Editura Sitech Craiova, 2004.
M.M. Stănescu, Elemente de teorie a spaţiilor vectoriale, Editura Universitaria, 2005.
M.M. Stănescu, O. Georgescu, C.M. Georgescu, Algebră Liniară. Aplicaţii. Editura Universitaria, 2006.
P. Stavre, M.M. Stănescu, Rezolvarea algoritmică a sistemelor de ecuaţii liniare. Aplicaţii, Ed. MatrixRom, Bucureşti, 2007.

Subject of study: Numerical applications in engineering (Matlab, Simulink, Mathcad) (Code D22ITTLL210)

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian

Băgnaru**,** D**.,** Mecanică aplicată în ştiinţele inginereşti, Vol. 1 şi 2, Editura SITECH, Craiova, 2010.
Băgnaru, D., Cătăneanu A, Dinamică cu aplicaţii în inginerie, Editura Universitaria Craiova, 2009Băgnaru, D., Vintilă, D., Nanu, G., Cătăneanu, A., Grigorie, L., Mecanică. Teorie. Lucrări de laborator, Editura SITECH, Craiova, 2010

Subject of study: Technical drawing and infographics , Code: D22ITTL212

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 1st year/ 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The main aim of the course is to prepare students regard to acquiring the basic theoretical and practical concepts to represent industrial technical design, to develop the creative skills to prepare project designs. Terms used are under current standards and international standards.
CONTENT:
Representations used in technical drawing. Representation in ortogonal projection. Representation of views, sections and breakage. Representation of views intechnical drawing. Dimensioning in technical drawing: classification of dimensions; rules of listing. Registration quotas on the drawing. Methods of dimensioning and special cases for dimensioning. Representation of the threads. Tolerances. Dimensional accuracy. Linear and angular dimensions tolerances. Accuracy of shape and position of geometrical elements. Surface condition. Specific and conventional representations. Representation and cylindrical and tapered holes dimensions. Drawing overviews. Rules of representation, positioning of the components and dimensioning design overall. From snap-on. Threaded assembly. Elastic assembly.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Ene Al.I.- “Desen tehnic industrial”, Editura SITECH, Craiova, 1995;
Marin, D; Raicu, L.; Adir, V.; Dobre, D.- “Desen tehnic industrial. Teorie si aplicatii” Editura 57 BREN, Bucuresti, 1999;
Precupeţu P.; ş.a,- “Desen tehnic industrial pentru construcţia de maşini”, Editura Tehnică, Bucureşti, 1982;
Vasilescu, E.-“Desen tehnic. Teme. Elemente de introducere în proiectare”,Litografiat, IPB,1984;
Vasilescu, E.; ş.a.-“Desen tehnic. Elemente de proiectare”,Editura Tehnică, Bucureşti,1994;
I.R.S. Catalogul Standardelor Române ,Editura Tehnică, Bucureşti

Subject of study: Physical education II (Sport) (Code D22ARL214)

NUMBER OF CREDITS: “1”
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: -

Subject of study: History of technics (Code D22ITTLL216)

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Foreign language (English, Francaise, Deutsch II (Code D22ITTL218)

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: optional
TEACHING LANGUAGE: -
EVALUATION: Written/oral examination

Second Year of study

Subject of study: Technical drawing and infographics, Code D22ITTL323

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/ 1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The main aim of the course is to prepare students regard to acquiring the basic theoretical and practical concepts to represent industrial technical design, to develop the creative skills to prepare project designs. Terms used are under current standards and international standards.

CONTENT:
Representations used in technical drawing. Representation in ortogonal projection. Representation of views, sections and breakage. Representation of views intechnical drawing. Dimensioning in technical drawing: classification of dimensions; rules of listing. Registration quotas on the drawing. Methods of dimensioning and special cases for dimensioning. Representation of the threads. Tolerances. Dimensional accuracy. Linear and angular dimensions tolerances. Accuracy of shape and position of geometrical elements. Surface condition. Specific and conventional representations. Representation and cylindrical and tapered holes dimensions. Drawing overviews. Rules of representation, positioning of the components and dimensioning design overall. From snap-on. Threaded assembly. Elastic assembly.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Ene Al.I.- "Desen tehnic industrial", Editura SITECH, Craiova, 1995;
Marin, D; Raicu, L.; Adir, V.; Dobre, D.- "Desen tehnic industrial. Teorie si aplicatii" Editura 57 BREN, Bucuresti, 1999;
Precupeţu P.; ş.a,- "Desen tehnic industrial pentru construcţia de maşini", Editura Tehnică, Bucureşti, 1982;
Vasilescu, E.-"Desen tehnic. Teme. Elemente de introducere în proiectare",Litografiat, IPB,1984;
Vasilescu, E.; ş.a.-"Desen tehnic. Elemente de proiectare",Editura Tehnicã, Bucureşti,1994;
I.R.S. Catalogul Standardelor Române ,Editura Tehnicã, Bucureşti

Subject of study: Special mathematics, Code: D22ITTL322

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Materials technology, Code D22ITTL324

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year / 1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course offers the students theoretical and practical concepts regarding the main technology of production and processing technical materials.
CONTENT: Classification of material properties; metal materials; obtaining metallic materials; metal casting; powder metallurgy; plastic deformation of metals; welding of metallic materials; technologies unconventional; NDT materials.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Gheorghe, St, Teisanu, C., Tehnologia materialelor, Editura Universitaria din Craiova, 2009.
Amza, Gh. ş.a., „Tehnologia materialelor", Ed.Tehnică, Bucureşti, 1999;
Butnariu, I ş.a. Procese şi tehnologii în metalurgia extractivă, Editura Tehnică Bucureşti, 1995.
Cheşa, I ş.a. Alegerea şi utilizarea oţelurilor, Editura Tehnică, Bucureşti 1084.
Gheorghe Şt, Aliaje sinterizate antifrictiune pe baza de cupru, Editura UNIVERSITARIA, 2002.
Mangra, M. ş.a, Tehnologii si aplicatii in metalurgia pulberilor, Editura Universitaria Craiova, 2002.

Subject of study: Mechanisms, Code:D22ITTL325

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course objectives: to familiarize the students with fundamental notions regarding mechanisms and machine elements. Structural calculus methods, kinematics, kinetostatics and dynamics of mechanisms. The basic skills to conceive and design mechanisms is another goal of the course.
CONTENT:

Structural analysis of mechanisms;
Kinematical analysis of planar mechanisms;
Kinetostatical analysis of planar mechanisms;
Dynamic analysis of planar mechanisms.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Artobolevskii, I., I., Teoria mecanismelor şi a maşinilor (traducere din limba rusá), Editura Tehnica, Bucureşti, 1955.
Buculei, M., Bagnaru, D., s.a. Metode de calcul in analiza mecanismelor cu bare, Ed. Scrisul Romanesc, Craiova, 1986.
Handra-Luca, V., Stoica, I.,A., Introducere în teoria mecanismelor, vol. II, editura Dacia, 1983.
Pelecudi, Chr., ş.a., Mecanisme, E.D.P., Bucureşti, 1985.
Popescu, I., Proiectarea mecanismelor plane, Ed. Scrisul Romanesc, Craiova, 1977.
Dumitru, N., Mecanisme spaţiale, Ed. Universitaria, Craiova , 1999.
DUMITRU BOLCU, DANIELA TARNIŢĂ- Elemente de calcul si modelare a structurilor compozite, Editura Universitaria, Craiova, 2001 ISBN973-8043-38-7
DANIELA TARNIŢĂ - Mecanisme acţionate cu arcuri. Metode de analiză şi sinteză dinamică, Editura Universitaria, Craiova, 1998 ISBN:973-9271-29-4
IULIAN POPESCU, DANIELA TARNIŢĂ, - Mecanisme. Curs pentru profilul electric, Reprografia Universităţii din Craiova,1997
DANIELA TARNIŢĂ - Mecanisme, Calculul şi construcţia mecanismelor acţionate cu elemente elastice, cu aplicaţii în electrotehnică, Reprografia Univ. din Craiova, 1996
DANIELA TARNITA, DUMITRU BOLCU, Metode de analiza cinematica a mecanismelor plane, Editura Didactica si Pedagogica, Bucuresti, 2005, ISBN 973-30-1485-0.
DUMITRU BOLCU, DANIELA TARNITA, Metode de analiza cinetostatică a mecanismelor plane, Editura Didactică şi Pedagogică, Bucureşti, 2009,ISBN 973-30-1485-0.

Subject of study: Graph Theory In Transportations, Code: D22ITTL326

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: presentation of theoretical concepts and practical applications on graph theory, their proper use in professional communication, learning algorithms to determine the optimal path in the graph.
CONTENT: Getting Started, Graph Representation targeted, Untargeted Graphs, Operations on graphs, Graphs valued, Route, circuit and chains in graph, Related components and associated hard, Trees, Bipartite graphs, Transport networks.
Algorithms for graphs: matrix algorithm, method Boolean composition
Determination of related components
Determination of Eulerian circuits
Hamiltonian paths and circuits (Kaufmann algorithm, Foulkes, Chen)
Routs optimal value (Ford's algorithm
Bellman-Kalaba, Dijkstra, Floyd-Warshall)
Kruskal's Algorithm, Prim Algorithm
Problems damage (Little's algorithm, Hungarian algorithm)
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
Grafuri – aplicatii, vol I, II, Ionescu Tiberiu, 1984, Editura Didactica si Pedagogică
Flows in networks, R. L. Ford, D.R. Fulkerson, 1962, Princeton Univ. Press
Graph Theory, R. Diestel, 2000, Springer-Verlag New York

Subject of study: Strength of materials I, Code: D22ITTL327 + Strength of materials II – D22ITTL434

NUMBER OF CREDITS: 5- 1st sem. + 5 – 2nd sem.
YEAR/SEMESTER: Year II AR, ITT/semester I+I
TYPE OF COURSE: fundamental
OBJECTIVES: Achieve of computing skills in order to design mechanical constructions;
- Assimilation of knowledge on simple and complex demands of the various pieces of machinery, aggregates and machinery;
CONTENT: Sectional charts efforts; Axial efforts;, Surface geometric features; Torsion stress; Bending of straight beams stress; Elements of elasticity theory; Compound stress; Calculation of deformations; Statically indeterminate systems, Dynamic stress; Fatigue stress.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Boiangiu, D., Probleme de Rezistenţa materialelor, Editura Tehnică, Bucureşti, 1989;
Buzdugan, Gh., Rezistenţa materialelor, Editura Academiei, Bucureşti, 1986;
Buzdugan, Gh., ş.a., Rezistenţa materialelor, Culegere de probleme, EDP, Bucureşti, 1979;
Cernăianu, E., Petrescu, G., Rezistenţa materialelor, Teorie şi probleme, Repr. U. Craiova, 1986;
Cernăianu, E., Roşca, V., ş.a., Îndrumar de laborator, Repr. Universităţii din Craiova, 1989;
Ilincioiu, D. Roşca,V., Rezistenţa materialelor, vol.1, Editura Scorilo, Craiova, 1999;
Ilincioiu, D. Roşca,V., Caiet pentru Rezistenţa Materialelor, Editura Scorilo, Craiova, 1999;
Mocanu, D.R., Rezistenţa materialelor, Editura Tehnică, Bucureşti, 1980;
Nădăşan, Şt., Curs de Rezistenţa materialelor, Vol.I, II, III, Editura I.P.Timiţoara, 1953-1957;

Posea, N., Rezistenţa materialelor, Editura Didactică şi Pedagogică, Bucureşti, 1979;
Roşca,V., Ilincioiu, D., Rezistenţa materialelor, vol.2, Editura Scorilo, Craiova, 1999;
Roşca, V., Teoria Elasticităţii aplicată în Rezistenţa materialelor, Ed. Curtea veche, Buc., 1997;
Roşca, V., Ilincioiu, D., ş.a., Rezistenţa materialelor, Încercări fundamentale, Editura Universitaria, Craiova, 2007.

Subject of study: Physical education I (Sport) (Code D22ITTIL328)

NUMBER OF CREDITS: "1"
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: -

Subject of study: Electrical Engineering, Basics
Code: D22ITTL329

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Elements of automation, Code: D22ITTL330

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Foreign language (English, Francaise, Deutsch I (Code D22ITTL331)

NUMBER OF CREDITS: 2
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: optional
TEACHING LANGUAGE: -
EVALUATION: Written/oral examination

Subject of study:Technical physics (Code D22ITTL432)

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Computer aided design-basis, Code: D22ITTL433

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 2nd year / 2nd semester
TYPE OF COURSE: domain

OBJECTIVES: To develop at students skills to generate a three-dimensional geometry with wireframe, solid modeling and surfaces techniques; to combine these models in virtual assemblies, and to automatically extract the plane documentation from 3D models;
CONTENT: The role of CAD system in a production cycle; components of a CAD system and its evaluation criteria, analytical representation of curves and surfaces; 3D surface modeling techniques: the primitive, by generation - revolution, extrusion, tubular , swept, rulers - rule, planar, loft, derived surfaces - blend, offset, fillet, corner); parametric solid modeling based on the sketch, geometric constraints and dimensional parametric solid modeling based on feature; Features for tree modeling crankshafts; Special modeling for crankcase; modeling features for cylinder heads; Use of standardized libraries, documentation extraction of virtual models, virtual assemblies, assembly constraints, exploded representations; A-class surfaces; specific modeling elements Body auto.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination, practical test
BIBLIOGRAPHY (selective):
Applications in Mechanical Desktop, Roşca, A., Ed. Universitaria 2005
Basics of Computer Assisted Design, Roşca, A., Reprografia Universităţii, 2001
Autocad design, Roşca A. ş.a., CERTI 1995
Assisted computer design, Mazilu D., Note de curs, Reprografia Universităţii, 1999
Murgulescu E., Analitic and Differential Geometry, EDP 1965
***, Company documentation, Mechanical Desktop
*** Company documentation, Dassault - Catia
*** Company documentation, Autodesk Inventor

Subject of study: Fluids mechanics and Hydraulic machines, Code: D22ITTL435

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers to the students the theoretical and practical concepts about the fluids flow with application in the mechanical engineering
CONTENT:
The main properties of fluids. The general methods of study used in the mechanics of fluids. The fundamental equations of the mechanics fluids. The kinematics of the fluid. The dynamics of the ideal fluids. The statics of fluids. The dynamics of the viscous fluids under the laminar and turbulent flow. The applied of the mechanics of fluids.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

1.Anton L., The mechanics of fluids and hydraulic machines, The Horizons University Publishing House, Timisoara,1998,
2. M.Buculei, M. Radulescu, Talu M., Mihaela Buculei, The mechanics of fluids and the hydraulics machinery .Vol.I, The Universitaria Publishing House, Craiova, 2011.
3.Constantinescu VN, The dynamics of the viscous fluids under in the laminar regime, The Academy PublishingHouse,Bucharest,1983;
4.Ghe.Dan Ionescu, Introduction into the mechanics of fluids, The Technical Publishing House, Bucharest, 2005
5.Rădulescu V., N. Vasiliu – The fluid of mechanics, Fundamentals and Applications. Collection of problems, The Printech Publishing House, Bucharest, 2004;
6. Talu M., The fluid of mechanics. Theory and applications solved computationally using the finite element method or by numerical simulation. The Universitaria Publishing House, Craiova , 2008
7.Ungureanu V.,The fluid of mechanics and the hydraulic machines, The Transilvania University Publishing House, Brasov, 2008;

Subject of study: Topography and transport infrastructure (Code D22ITTL437)

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Physical education (Sport) (Code D22ITTLL438)

NUMBER OF CREDITS: "1"
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: -

Subject of study: Practice, Code D22ITTL439

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Foreign language II (English, Francaise, Deutsch (Code D22ITTlL439)

NUMBER OF CREDITS: 2
YEAR/SEMESTER: 2nd year/1st semester
TYPE OF COURSE: optional
TEACHING LANGUAGE: -
EVALUATION: Written/oral examination

Subject of study: Tolerances and dimensional control, Code: D22ITTL440

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/ 2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course provides students with specific notions for dimensional and geometric accuracy of mechanical engineering parts, correct prescription of economic tolerances when designing assembly fits of main types: cylindrical and conical, with bearings, thread, feathers and grooves gear. Laboratory work skills training needed to perform control operations aimed in manufacturing processes of parts and assembly listed above, by performing measurements with different methods and measuring devices.
CONTENT: Dimensional and geometric tolerances. Surface roughness. Tolerances, fits and control of smooth cylindrical assemblies. Chains of dimensions. Tolerances, fits and control of conical parts and assemblies. Bearing assembly tolerances and fits. Tolerances, fits and control threaded fasteners. Tolerances, fits and control parts and assemblies with wedges and grooves. Tolerances, fits and control gear wheels and gear cylinders. 3D measurement with TESA MultiGage articulated arm.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
REFERENCES :

David, I., Precizia de fabricaţie şi montaj în construcţia de maşini, Ed.Politehnica Timişoara, 2008.
David, I., Bagiu, L., Toleranţe şi ajustaje, Ed. Printech, Bucureşti, 2000.
David, I., Gubencu, D., Mălaimare, G., Toleranţe şi ajustaje, Ed. Politehnica, Timişoara, 2005.
Chase C., Kenneth, W., Dimensioning and Tolerances Handbook, McGraw Hill Reyorsen Publishing House, New York, USA, 1999.
Dumitraş C., Popescu, I., Bendic, V., Ingineria controlului dimensional si geometric la fabricarea masinilor, Ed. Tehnică, Bucureşti, 1998.
Henzold, G., Geometrical Dimensioning and Tolerancing for Design, Manufacturing and Inspection, Second Edition: A Handbook for Geometrical Product Specification using ISO and ASME standards, Kindle Edition, 2006.
Pascu, I., Stanimir Al., Toleranţe dimensionale şi geometrice, Ed. Universitaria, Craiova, 2009.
Pascu, I., Toleranţe şi ajustaje, Ed. Universitaria, 2007.
Pascu, I., Stanimir Al., Toleranţe şi control dimensional. Îndrumar de laborator, Ed. Universitaria, Craiova, 2012.
Pascu, I., Vătafu, M. - Toleranţe şi control dimensional. Îndrumar de laborator, Ed. Universitaria, Craiova, 2007.

Third Year of study:

Subject of study: Thermothecnics, Code: D22ITTL544

Number of credits: 4.
Year/Semester: 3rd , 1st semester.
Type of Course: Mandatory
Objectives: It presents the notions necessary for understanding thermal phenomena, use of heat and getting mechanical work from heat, the fundamental principles of design and operation of thermal machines and installation
Content: Transmission of knowledge in the production, transmission and use of heat. Thermodynamic analysis methods. Using diagrams and tables in calculations of thermal drying installations. Real gases and water vapor as thermal agent in energy installations of high power. The moist air as an agent in drying and cooling installations. Gas dynamic.
Teaching Leanguage: Romanian
Evaluation: written/ oral examination
Bibliography:

Bică, M., Cernăianu C.D., Bara, N., Termotehnică si masini termice, Ed. Universitaria, Craiova 2010.
Dănescu, Al.s.a. Termotehnică si masini termice, E.D.P. Bucuresti 1985.
Radcenco Vsevolod, Marinescu Mircea, Băran Nicolae, Termodinamică Tehnică. Teorie şi aplicaţii. Editura Tehnică, Bucureşti, 1996.
Ungureanu, C., Pănoiu, Zubcu, V., Ionel, I., Combustibili, instalaţii de ardere, cazane, Editura Politehnică N., Timişoara, 1998
Kirilin, V.A.,Sîcev, V.,V., Şeindlin, A.,E., Termodinamica, Editura Ştiinţifică şi Enciclopedică, Bucureşti 1985.

Subject of study: Machine Elements I, CodeD22ITTL545 + Machine Elements II, Code: D22ITTL651

NUMBER OF CREDITS: 5-1st sem. + 4-2nd sem.,
YEAR/SEMESTER: 3th year/1st+2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: Promoting and developing of some concepts, machine elements design procedures and techniques from mechanical and mechatronic systems structure, stimulating and forming the creativity students skills by elaborating original solutions and modern design through facilities brought by CAD/CAM/CAE.
CONTENT: Machine elements design basics; Screw fastening and power screw transmissions; Gears and gear transmissions; Chain drives; Friction wheels transmissions; Belt drives; Continuously variable transmissions; Shafts and axes; Rolling contact bearings; Sliding contact bearings; Couplings; Sealing elements; Threaded joints; Assemblies through sunk and tapered keys; Spline assemblies; Polygonal profiles assemblies; Cotter and knuckle joints; Conical couplings; Assemblies through conical friction elements; Clamp couplings; Fretting and fatigue assemblies; Assemblies through elastic and dumping elements.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Catrina, Gh. s. a., Organe de maşini. Îndrumar de proiectarea pentru transmisii mecanice, Editura Universitaria. Craiova, 2012.
Catrina, Gh., Proiectarea transmisiilor prin cuple elicoidale, Facultatea de Mecanică Craiova, 1988.
Crudu, I., Atlas de reductoare, EDP, Bucureşti, 1983.
Dieter Muhs, s.a, Roloff/ Matek Machinenelemente Viewegs Fachbucher der Technic, 2003.
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.
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.
Ivanov M. N., Organe de maşini, Editura Tehnică „Chişinău", Universitatea Tehnică a Moldovei, 1997.
Robert L. MOTT, Machine Elements in mechanical Design, Prentice Hall, Columbus, Ohio, 1999.

Subject of study: Traffic, Code: D22ITTL546

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 3rd year/1st. sem.
TYPE OF COURSE: Mandatory
OBJECTIVES: Assimilation of the scientific concepts specific to road traffic, creating premises necessary to the interdisciplinary process with other complementary sciences; forming skills corresponding to logical application of international systems specific to road traffic in affected road areas in terms of congestion and noise and chemical pollution.
CONTENT: Road traffic technique. Microscopic traffic variables. Macroscopic traffic variables. Circulation accident. Human factor. Road path.Road capacity. Elements concerning application of probability theory and mathematical statistics in road traffic. Concepts concerning

circulation regulation in road intersections. Considerations for coordinating movement of vehicles with pretimed signals. Formation of traffic flows or circulation currents. Mathematical instruments for traffic flows analysis. Forecasting models of traffic flow. Elements of traffic flow theory. Elements of admissibility intervals theory. Urban traffic regulations by traffic lights. Utilization of AIMSUN software in road traffic.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Allan Bonnick, Automotive Science and Mathematics, Elsevier, 2008;

Boris S. Kerner, Introduction to Modern Traffic Flow Theory and Control, Springer-Vertag Berlin Heidelberg, 2009

David A. Hensher, Kenneth J. Button, Handbook of Transport Modelling, Pergamon, 2000;

Dumitru I., Trafic rutier, Note de curs, 2011;

Dumitru I., Trafic rutier, Elemente aplicative, Editura Universitaria 2008;

Homburger, W.S., Keefer, L.E., McGrath, W.R., editori, *Transportation and Traffic Engineering Handbook 2nd edition,* Institute of Transportation Engineers, Washington D.C. 1982;

Nistor, N., Vasiliu, Ch. *Teoria traficului rutier şi siguranţa circulaţiei.* Ed. Universităţii Bucureşti. 1977;

Pereş, Gh., ş.a., Teoria traficului rutier şi siguranţa circulaţiei, Tipografia Universităţii, Braşov, 1982.

Roger P. Roess, Elena S. Prassas, Willian R. McShane, Traffic Engineering- third edition, Pearson, Prentice Hall, 2004.

SUBJECT OF STUDY: Transportation systems, Cod: D22ITTL547

NUMBER OF CREDITS: 5

YEAR/SEMESTER: 3rd year / 1st semester

TYPE OF COURSE: Mandatory

OBJECTIVES: Provide students with the elements and concepts specific transport systems. Students are familiarized with specific elements of transport activity. Vocational skills in solving specific situations of road transport systems.

CONTENT: Transport and socio-economic context. Transport demand. The influence of transport infrastructure networks on the road transport system. The importance of traffic flow in road transport systems. The transportation and cargo facilities. Considerations about the road policy.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Alexa, C., Transporturi şi expediţii internaţionale, Editura All, Bucureşti, 1995.

Caraiani, Gh., Transporturile şi expediţiile rutiere, Editura Lumina Lex, Bucureşti, 1998.

Cocoşilă, M., Drăgan, V., Management cantitativ pentru inginerii de automobile, Editura MatrixRom, Bucureşti, 2000.

Dinu, Gh., ş.a., Curs general de formare professională pentru conducerea activităţii de transport rutier, Editura –IFPTR, Bucureşti, 1999.

Florea, Daniela, ş.a., Sisteme avansate de transport rutier", Editura Universităţii "Transilvania" Braşov, 2007.

Ghionea, F., "Tehnologia transporturilor publice-Îndrumar de laborator", Editura Matrix Rom, Bucureşti, 1997.

Iftimie, C-tin, „Spre un transport în comun eficace şi eficient", Editura MatrixRom, Bucureşti, 2004.

Raicu, Şerban, „Sisteme de transport", Editura AGIR, Bucureşti, 2007.

Tătar. I., ş.a., Manualul operatorului de transport rutier, Editura Institutului de Formare Profesională în Transporturilor Rutiere-IFPTR, Bucureşti, 2000.

Thierheimer, Walter, W., ş.a., „Sisteme de transport", Editura Universităţii "Transilvania" Braşov, 2002.

Subject of study: Engines for vehicles, Code D22ITTL548

NUMBER OF CREDITS: 6

YEAR/SEMESTER: 3rd year/1st semester

TYPE OF COURSE:Mandatory

OBJECTIVES: Assimilation of concepts and notions specific to thermal processes, to characteristics of internal combustion engines, to elements and conceptual- constructive solutions, as well to environmental impact in terms of pollutant products and technical solutions characteristic tot their reduction. Formation of skills necessary to determinate the parameters which characterize thermal processes and the interpretation of an engine's characteristics. Skills development concerning engines design in terms of energy, economic and pollution requirements. Creating premises necessary to the interdisciplinary process with other complementary sciences

CONTENT: Engines systematic. Main parameters and operating conditions of motor vehicles and tractors engines. Internal combustion engines operational principle. Thermodynamic cycles of piston engines. Gas changing processes. Compression process. Combustion process. Relaxation process. Engines energy performance. Operating conditions and engines characteristics. Motor mechanism's kinematics. Forces and moments acting on motor mechanism. Considerations on the design of automotive and tractors engines. Principal dimensions computation and internal combustion engines similarity. Piston group. Rod. Crankshaft. Engine's fixed components. Gas distribution system. Fuel injection engines supply. Lubrication system. Cooling system.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Challen, B., Baranescu Rodica, Diesel Engine Reference Book, Butterworth Heinemann, 1999;
Cristea, D., Cai de optimizare a motoarelor cu ardere interna, Editura Universitatii din Pitesti, 2009;
Dumitru I., Procese si caracteristici ale motoarelor cu ardere interna, Craiova, 2009;
Dumitru I., Procese si caracteristici. Indrumar de laborator, Craiova, 2009;
Istrate, A., Vinatoru, C, Bica, M., Motoare cu ardere interna. Proiectare, Reprografia Universitatii Craiova, 2000;
Grunwald, B., Teoria, calculul şi construcţia motoarelor pentru autovehicule rutiere, editura Didactică şi Pedagogică, bucureşti, 1980;
Negurescu, N., s.a, Motoare cu aprindere prin scanteie. Procese, Editura MatrixRom, Bucuresti, 2009;
Pulkrabek, W., Engineering Fundamentals of the Internal Combustion Engine, Prentice Hall, New Jersey, 2002; Negrea, V., D., Bazele cercetarii experimentale a motoarelor cu ardere interna si a autovehiculelor rutiere, volumul 1 si 2, Editura Eurostampa, Timisoara, 2005;
Rakosi, E., Rosca, R., Manolache, Gh, Ghid de proiectare a motoarelor cu ardere interna pentru automobile;
***** STAS 5745-91, Motoare cu ardere internă, cu piston cu mişcare alternativă;

Subject of study: Economical analysis in transportation (Code D22ITTL549)

NUMBER OF CREDITS: 2
YEAR/SEMESTER: 3nd year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Mechanical Systems Modelling Basics, Code: D22ITTL652

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3th year/2nd semester
TYPE OF COURSE: Manadatory.
OBJECTIVES: The course addresses to students which follows the 4 years undergraduate studies at Faculty of Mechanics from Automotive Engineering (AR), Industrial Engineering (TCM), Transport Engineering (ITT), Engineering and Management (IEM).
This course forms and guide the students assimilation capacity for modelling and simulating, through modern methods, of the behavior in static and dynamic mode structures and mobile mechanical systems, based on multi body systems theory and finite element method.
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.).
CONTENT: Elements of matrices and vectorial algebra. Computer kinematic and dynamic modelling through computational methods of mechanical mobile systems.
Kinematic modelling and simulations with ADAMS software. Linear elasticity elements. Finite element modelling basics. Finite element modelling in static and dynamic mode of mechanical structures (theory and applications). Modelling and simulations by using finite element method with ANSYS and COSMOS software.
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: Design and modelling of traffic flows (Code D22ITTL653)

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3nd year/2nd semester
TYPE OF COURSE: Mandatory

TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Pollution in transports, Code D22ITTL654

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3nd year/2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The main objectives are represented by the knowledge of the pollutants emitted by internal combustion engines and how they affect the environment, establishment of the modality to reduce the engine emissions, presenting the link between engine operating conditions and pollution, presentation of alternative propulsion systems.
The researches results in recent years undertaken by representative study centres and large corporations of engine manufacturing and legislative requirements in this area are presented in this course.
CONTENT: Overview regarding the fuel economy and limiting the emissions on automotive engines. Turbocharging of engines for vehicles. Alternative propulsion systems.
TEACHING LANGUAGE: Romanian
EVALUATION: Written
BIBLIOGRAPHY (selective):
1. Arama, C., s.a., Poluarea aerului de catre motoarele cu ardere interna, Editura Tehnica, Bucuresti, 1975.
2. Bataga, A.N., Rodarea, uzarea, testarea si reglarea motoarelor termice, Editura Tehnica, Bucuresti, 1995.
3. Bobescu, Gh., s.a., Motoare pentru automobile si tractoare, Editura Tehnica-Info, Chisinau, 2000.
4. Dan, F., Dan, C., Combustibili, poluare, mediu, Editura Dacia, Cluj-Napoca, 2002.
5. Grünwald, B., Teoria, calculul si constructia motoarelor pentru autovehicule rutiere, E.D.P., Bucuresti, 1980.

Subject of study: ELEMENTS OF DYNAMICS OF VEHICLES, Code D22ITTL655

NUMBER OF CREDITS: 5
YEAR/SEMESTER: 3nd year/2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: presentation of theoretical concepts and practical concepts of: kinematic and dynamic theories that define vehicle motion, assimilation of methodology and study design of the vehicle dynamic
CONTENT: Transmission arrangement and main dimensional and mass parameters of vehicles. The selfpropulsion process of vehicles. Drag forces vehicle. Reaction forces of tread on car wheels. Vehicle traction and braking dynamics. Fuel consumption. Vehicle stability. Handling vehicles.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective): Cordoş, T., Todoruţ, A., Dinamica autovehiculelor pe roţi, Teste şi Aplicaţii, Editura TODESCO, Cluj-Napoca, 2001.
Dickson, C.J., Tires, suspension and handling, Second Edition, Society of Automotive Engineers, Inc., 1991.
Frăţilă, Gh., Calculul şi construcţia automobilelor, Editura didactică şi pedagogică, Bucureşti, 1977.
Gillespie, T.D., Fundamentals of vehicle dynamics, Society of Automotive Engineers, Inc., 1992.
Macarie, T.N., Automobile – Dinamica, Editura Universităţii din Piteşti, Piteşti, 2003.
Mateescu, V., Popa, L., Performanţele automobilului, Editura Printech, 2000.
Oţăt V., Bolcu D., Simniceanu L., Dinamica autovehiculelor, Editura Universitaria Craiova, 2005

Subject of study: Traffic management , Code D22ITTL657

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 3rd year/2nd semester
TYPE OF COURSE: Manadatory
OBJECTIVES: Assimilation of notions specific to road traffic monitoring and control installations. Developing skills concerning traffic parameters determination and choice of equipment necessary to traffic management.
CONTENT: Road traffic management's importance, structures, systems, examples. Road traffic signaling and control systems. Traffic management at intersection level. Traffic management at city level. Databases: acquisition, storage, utilization. Intercorrelation traffic management- traffic participants.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
transport, Ed. Tehnica, Bucuresti, 2003
Banciu Doina, Inteligenta in transporturi, Ed. Capitel, Bucuresti, 2005
Dobrescu Radu, Autovehicole inteligente, Ed. Matrix Bucuresti 1995
Martin Pozybill, Bernhard Krause, Fuzzy Logic in Traffic Control , State Trafic Departement Baden Württemberg
Shwe Yi Aye, Design and Construction of LAN based Car, Traffic Control System, PROCEEDINGS OF WORLD ACADEMY OF SCIENCE, ENGINEERING AND TECHNOLOGY VOLUME 36 DECEMBER 2008 ISSN 2070-3740
***** MONITRAF, Sistem Informatic pentru administrarea on-line a traficului urban, Salonul Cercetarii, 3-7 oct 2008
***** Note de curs, Anul academic 2009-2010;
***** Lege nr. 203, din 16 mai 2003, privind realizarea, dezvoltarea si modernizarea retelei de transport de interes national si european, Publicat in Monitorul Oficial, Partea I nr. 361 din 27 mai 2003;

Subject of study: Practice, Code D22ITTlL656

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Multimodal transport (Code D22ITTL659)

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3nd year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examinatio

Fourth Year of study:

Subject of study: Informatics in transport, Code: D22ITTL765

NUMBER OF CREDITS: 6
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: Knowledge and appropriate use of system theory concepts relating to freight transportation. Software applications which can be utilized to solve transportation problems. Applications dedicated to transport modeling and simulation problems.
CONTENT: Transport systems theory. Freight transportation system. The essence of transportation process'. Transport's base functions. Freight flow. Motor vehicle's productivity. Strengthening senders after recipients. Cargo transport routing table. Vehicle choice and determining necessary resources. Software applications which can be utilized to solve transportation problems. Applications dedicated to transport modeling and simulation problems
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Conducerea automată a proceselor industriale, vol I, Vînătoru Matei, 2000, Editura Universitaria Craiova
Informatică ţn transporturi, Vînătoru Matei, Oprica Theodor, 2010, format electronic
Fundamente de sisteme automate, Vînătoru Matei, 2011, Sitech, Craiova
Informatica în Transporturi- Lucrări de laborator, uz intern, Oprica Theodor George, Vînătoru Matei
Aimsun-exerciţii, Oprica Theodor, suport electronic.

Subject of study: Means of conveyances, Code: D22ITTL766

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: Mandatory
OBJECTIVES: Discipline aims to make students acquire the basic concepts of road vehicles construction, skills development of organological analysis of conveyances, concept and design skills development.
CONTENT: General concepts about conveyances, constructive solution on the overall composition of the conveyances, construction and calculation elements for: clutch, gearbox, longitudinal transmission, front and rear axle, steering system, braking system, suspension system.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Buzdugan, Gh., Rezistenţa materialelor, Editura tehnică, Bucureşti, 1980.
Barbu, Gh., ş.a. Tehnologii moderne de manipulare, transport şi depozitare a produselor., Editura tehnică, Bucureşti, 1984.
Catrina, Gh., Organe de maşini, Vol. I., Vol. I., Reprografia Universităţii din Craiova, 1997.
Dobrotă, S., Probleme actuale ale modernizării activităţii de transport auto, M.T.Tc., Bucureşti, 1974.
Frăţilă, Gh., - Calculul şi construcţia automobilelor, Editura didactică şi pedagogică, Bucureşti,1977
Neagoe, D., Transmisia autovehiculelor, Editura Universitaria Craiova 2004.
Neagoe, D., Calculul si constructia autovehiculelor Vol. II, Reprografia Universitatii Din Craiova 2004.
Neagoe, D., s.a., Calculul si constructia autovehiculelor - Indrumar de laborator, Editura Universitaria Craiova 2006.
Tabacu, Ion - Transmisii mecanice pentru autoturisme, Ed. Tehnică, Bucureşti, 1999.
Untaru, M. ş.a. Automobile, Editura didactică şi pedagogică, Bucureşti, 1975.

Subject of study: Repairs Technologies for vehicle I (Code: D22ITTL767) + Repairs Technologies for vehicle II (Code: D22ITTL874)

NUMBER OF CREDITS: 4-1st sem./2 – 2nd sem.
YEAR/SEMESTER: 4th year/1st and 2nd semester
TYPE OF COURSE: Manadatory
OBJECTIVES: The course gives the students theoretical and practical concepts regarding to the vehicles repair principles.
CONTENT: vehicle system structure, wear parts car, methods for determining the wear parts and reconditioning their technological processes parts reconditioning vehicles, technological processes reconditioning vehicle parts, vehicle parts repair technologies and component assemblies, repair framework, body and cab cars corrosion protection.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Abăitancei, D. ş.a. -Motoare pentru automobile si tractoare. Construcţie şi tehnologie, voi. I şi 2. Editura tehnică. Bucureşti, 1978 şi 1980
Banu, I., Anghel, D. -Tehnologia fabricării maşinilor, Ed. Universităţii din Piteşti, 2000.
Chiru, a., Marincaş, d. -Tehnologii speciale de fabricare şi reparare a autovehiculelor, Ed. Universităţii "Transilvania" Braşov, 1991

Crivac, Gh., Tica, B.ş.a. -Tehnologii de fabricare a autovehiculelor. Ed.Universităţii din Piteşti, 2002.
Filip, N., Turea, N. -Fabricarea automobilelor şi control dimensional, Editura Universităţii "Transilvania" Braşov, 2000.
Nicolae,V.,Crivac,Gh.,Ilie,S.-Fabricarea şi repararea industrială a autovehiculelor, Ed. Universităţii din Piteşti, 2001.
Tică, B**.** Fabricarea si repararea industrială a autovehiculelor rutiere. Ed.Universitaria Craiova 2008

Subject of study: ELEMENTS OF VEHICLES DYNAMICS, Code: D22ITTL768

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: vehicles domain
OBJECTIVES: presentation of theoretical concepts and practical concepts of: kinematic and dynamic theories that define vehicle motion, assimilation of methodology and study design of the vehicle dynamic
CONTENT: Vehicle traction and braking dynamics. Fuel consumption of vehicles. Vehicle stability. Handling vehicles.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Cordoş, T., Todoruţ, A., Dinamica autovehiculelor pe roţi, Teste şi Aplicaţii, Editura TODESCO, Cluj-Napoca, 2001.
Dickson, C.J., Tires, suspension and handling, Second Edition, Society of Automotive Engineers, Inc., 1991.
Frăţilă, Gh., Calculul şi construcţia automobilelor, Editura didactică şi pedagogică, Bucureşti, 1977.
Gillespie, T.D., Fundamentals of vehicle dynamics, Society of Automotive Engineers, Inc., 1992.
Macarie, T.N., Automobile – Dinamica, Editura Universităţii din Piteşti, Piteşti, 2003.
Mateescu, V., Popa, L., Performanţele automobilului, Editura Printech, 2000.
Oţăt V., Bolcu D., Simniceanu L., Dinamica autovehiculelor, Editura Universitaria Craiova, 2005

SUBJECT OF STUDY: Vehicles terotechnics, Code D22ITTL769

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year / 1st semester
TYPE OF COURSE: specialized
OBJECTIVES: Provide students with technology maintenance for vehicles, defects that can occur in operation, of the technologies of remedy defects and repair of vehicles.
CONTENT: Introduction. Concepts of tribology. Dynamics wear of machine parts. Durability and resource. System maintenance and repairs. Exploitation technology vehicles. In specialized automotive repair.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Nagy, T., Fiabilitatea şi terotehnica autovehiculelor, vol. I, Universitatea Transilvania, Braşov, 1997.
Pisoschi, Al.-Gr., Oţăt, V., Dumitru, I., Terotehnica şi fiabilitatea autovehiculelor, Reprografia Universităţii din Craiova, Craiova, 1998.
Dumitru, I., Pisoschi, Al.-Gr., Terotehnica şi fiabilitatea autovehiculelor, lucrări de laborator-îndrumar, Reprografia Universităţii din Craiova, Craiova, 1999.
Pisoschi, Al.-Gr., Popa, Gh., Constantinescu, A., Elemente de durabilitate, fiabilitate şi mentanabilitate, Editura Universitaria, Craiova, 2006.

Subject of study: Control and automatic traffic management, Code: D22ITTL770

NUMBER OF CREDITS: 6
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Telematics in transport Code: D22ITTL772

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: Optional
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination

Subject of study: Reliability of vehicles, D22ITTL873

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: Learning by students of the relationship of reliability, maintainability and terotehnica vehicles
CONTENT: Reliability: reliable vehicles; Study of reliability, object definitions;
Random variables; Theoretical aspects of reliability, the basic parameters; Primary processing of experimental data; Theoretical laws of distribution used in reliability; Confidence intervals; Parameters of reliability for repairable items and unrecoverable;Reliability of systems; Reliability tests..
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Nagy, T., Fiabilitatea şi terotehnica autovehiculelor, vol. I, Universitatea Transilvania, Braşov, 1997;
Pisoschi, Al.-Gr., Terotehnica şi fiabilitatea autovehiculelor, Universitatea din Craiova, Craiova, 1998.
Dumitru, I., Pisoschi, Al.-Gr., Terotehnica şi fiabilitatea autovehiculelor, lucrări de laborator-îndrumar, Reprografia Universităţii din Craiova, 1999
Pisoschi, Al.-Gr., Popa, Gh., Constantinescu, A., Elemente de durabilitate, fiabilitate şi mentanabilitate, Editura Universitaria, Craiova, 2006.

Subject of study: Technical expertise of traffic accidents, Code D22ITTL875

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
Fuels and lubricants

Subject of study: Fuels and lubricants, Code D22ITTL876

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: Mandatory
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination

Subject of study: Equipment and automotive diagnostic techniques, Code: D22ITTL877

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/ 2nd semester
TYPE OF COURSE: Mandatory
OBJECTIVES: The course provides students with knowledge regarding vehicles' specific elements of diagnosis equipment and techniques, and training skills in automotive diagnosis and understanding, explaining and interpreting theoretical and practical content of the discipline.
CONTENT: General principles of diagnosis. General diagnosis of the vehicle. Diagnosing the technical condition of the engine. Diagnosing the ignition system. Diagnosing the technical condition of the transmission. Steering Diagnosis. Brake System Diagnosis. Suspension Diagnosis. General diagnostics using electronic tester.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Manea, C., Stratulat, M., „Fiabilitatea şi diagnosticarea automobilelor", Editura Militară, 1982;
Mondiru C., „Automobile Dacia , Diagnosticare, întreţinere, reparare" ,Editura Tehnică , Bucureşti, 1998;
Negruş, E., ş.a. „Încercarea autovehiculelor", E.D.P., 1983;
Oţăt, V., Dumitru, I., ş.a., „Echipamente şi tehnici de diagnosticare pentru autovehicule", Editura Universitaria, Craiova, 2007;
Oţăt, V., Simniceanu, L., „Încercarea autovehiculelor", Ed. Universitaria, Craiova, 2004;
Stratulat,ş.a. Diagnosticarea automobilelor" ,Editura Militară Bucureşti , 1990

Subject of study: Noise and vibration control in vehicles, Code: D22ITTL879

NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/ 2nd semester
TYPE OF COURSE: Optional
OBJECTIVES: Discipline aims to familiarize students with the basics related to the noises and vibrations occurring during operating motor vehicles, general skills for the use of the information provided by the noises in order to establish the technical faults.
CONTENT: General notions on the vibratory patterns of cars, the effects of vibration and noise comfort and safety in traffic.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Darabont A.,Iorga I., Ciodaru M.,-Masurarea zgomotului si vibratiilor in tehnica, Editura Tehnica Bucuresti ,1983
Filip N.,-Zgomotul la autovehicule, Editura Todesco , Cluj Napoca, 2000
Filip N., Cordos N., Rus I.,-Zgomotul urban si traficul rutier, Todesco , Cluj Napoca,2001
Pandrea N., Parlac S., Popa D., -Modele pentru studiul vibratiilor automobilelor, Editura TIPARG, Pitesti 2001
*** SR ISO 9613-1. Acustica. Atenuarea sunetului propagat in aer liber
*** STAS 6926/15-92. Masurarea zgomotului exterior produs in miscare si in stationar de autovehicule rutiere cu motor.
7. Hotararea Guvernului 321/2005 (Directiva 2002/49/EC).

SUBJECT OF STUDY: Tractors and trailers, Code: D22ITTL882

NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: Optional
OBJECTIVES: Students are familiarized with the construction and operation of tractors and trailers, acquiring theoretical knowledge and calculation of dynamic systems tractors and tractor trailer.
CONTENT: Introduction. Principal parameters of tractors. Tractors parts of the general conditions imposed on them.
Driving force (propulsion) of the tractor. Gear ratio and transmission efficiency.
General dynamics of tractors.

Traction and dynamic qualities of tractors. Determination of transmission ratio, gears and propulsion forces of tractors.
Traction characteristics of wheeled.
Economic and dynamic characteristic and transport the tractor to work. Starting tractors. Consideration about on tractors transmissions.
Clutch. Role. Classification. Construction. Calculation clutches.
Gearbox for tractor. Role. Classification. Mechanical gearboxes.
Rear axle. Central transmission. Differential. Shaft.
Final drive. Role. Component, construction.
Steering and braking system of tractors. Role.
Construction and characteristics.
Road tractors dynamic elements.
Trucks and tractors used to develop road trains.
Trailers and semi-trailers for trucks and tractors.
Agricultural trailers and semi-trailers. Light trailers and semi-trailers (for cars).

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Năstăsoiu Şt., Popescu S, ş.a. – „Tractoare”, Editura Didactică şi Pedagogică, Bucureşti, 1983.
Pisoschi Al.-Gr. şi col. -„Remorci şi semiremorci auto şi agricole”, Reprografia Universităţii din Craiova, 2002.
Pisoschi Al.-Gr. şi col. -„Cunoaşterea generală a autovehiculelor”, Tipografia Universităţii din Craiova, 2002.
Tecuşan N, Ionescu E – „Tractoare şi automobile”, Editura Didactică şi Pedagogică, Bucureşti, 1982.