Field of Study: Industrial Engineering and Management
Programme of studies: Industrial Economical Engineering

First year of study:

Subject of study: Mathematical Analysis

CODE: D24IEIL101
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students basic theoretical and practical concepts related to the differential and integral study of functions of several variables and their applications. It allows the necessary practical skills and techniques associated to the differential and integral calculus.
CONTENT: Sequences and series of real numbers. Power series. Taylor series. Functions of several variables (limits and continuity, differentiation, partial derivatives). Extrema for functions of several variables. Multiple integrals (double and triple). Elements of vector calculus.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Grecu L., Analiză matematică pentru ingineri, Ed. Universitaria Craiova, 2008
Pătrăşcoiu C. Grecu L., Bordeaşu I., Matematici aplicate în tehnică, Ed. Politehnica, Timişoara 2003
Grecu L., Probleme rezolvate de analiză matematică, Editura TipoRadical, Dr. Tr. Severin, 2006
F. Creţ, Rujescu C., Capitole speciale de analiză matematică și geometrie analitică, Ed. Mirton, Timişoara, 1999.
Cristescu R., Matematici generale, Ed. Didactică şi Pedagogică, Bucureşti 1967
Nicolescu M. Dinculeanu N. Marcus S., Analiză matematică, Ed. Didactică şi Pedagogică, 1966
Rădescu N., etc. Matematici speciale aplicate în economie –culegere de probleme, Reprografia Universităţii din Craiova, 1991.
Mihnea G., Matematici aplicate, Ed. Universității Bucuresti, 2000.

Subject of study: Chemistry

CODE: D24IEIL102
NUMBER OF CREDITS: **3**
YEAR/SEMESTER: 1nd year/1nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The development knowledge in the field of chemistry, close by practice and the relationship with the environment, contributes to technical formation of the students but also achieve a clear image of the phenomena taking place in the technological processes
CONTENT: Correlation between chemical structure and some properties of substances. Thermodinamic and chemical kinetics notions. Electrochemistry and electrochemical energy conversion. Corrosion and corrosion protection. Fuels and lubricants. Macromolecular compounds.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Ghermec, O., Chimie aplicată în inginerie, Editura Universitaria, Craiova, 2010,
Oancea, D., Podina, C., Oancea, A.M., Chimie. Principii şi Aplicaţii, Editura ALL,Bucureşti, 1998.
Ghermec, O., Chimie aplicată în inginerie, Tipografia Universităţii din Craiova, 2006

Subject of study: Physics

CODE: D24IEIL103
NUMBER OF CREDITS: 4
YEAR/SEMESTER: First year / first semester
TYPE OF COURSE: fundamental
OBJECTIVES: Discipline "Physics" aims to familiarize students with the main physical phenomena from mechanical elements, covering chapters such as where atomic and nuclear physics. This knowledge, provided students are required to understand and manufacturing processes as well as operational activities and equipment repair. Moreover, the knowledge gained may allow improvement of technological processes.
CONTENT: The kinematics material point, Newtonian mechanical principles, theorems and conservation laws in the dynamics of material point, Oscillations. Sizes characteristic oscillations. Propagation of oscillations. Where .. Wave interference. Diffraction of waves. Dispersion. Doppler effect, temperature. Temperature measurement. Amount of heat, heat capacity, specific heat, Principle I of thermodynamics. Second principle of thermodynamics. Entropy, thermal machines ideal. Electrostatic interaction of electric charges. Electric field. Coulomb force. Flow tubing. Gauss's theorem. . Working electric field. Electric potential of point load. Electrical potential gradient. Equipotential surfaces. General characterization of the magnetic field. Magnetic field flow. Movement of loads in electric and magnetic field. Lorentz force. Features ferro-magnetic substances, dia-and paramagnetic, electromagnetic waves, quantum physics elements, getting physical solid, crystalline structure. Classification. Modern applications of physics
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral
BIBLIOGRAPHY (selective):

George, C., Moisil , Fizica pentru ingineri, Editura Tehnică, 1980
Traian Creţu. Fizică generală, vol.1, vol.2, Editura Tehnică, 1984-1986
Demian Gabriela, s.a. Fizica. Indrumator de laborator, Editura Universitaria Craiova 2006
D. Halliday, R. Resnick: Fizica, vol. I si II. Editura Did. si Pedag, Bucuresti (1975).
R R.P. Feynmann, R. B. Leighton, M. Sands: Fizica modernă, Vol. I-III. Edit.Tehn. Bucuresti (1970).

Subject of study: Programming computers and programming languages I

CODE: D24IEIL104
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/ 1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students the basic computer terminology and concepts, a knowledge of the fundamental operating system functions, the theoretical and practical concepts of the Microsoft Office software applications as well as the Internet access and electronic communication.
CONTENT: Fundamentals of Computer. Operating Computer using GUI based Operating System. Microsoft Office application: MS Word, Excel, Access, PowerPoint. Internet access and electronic communication.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Brookshear J.G., Introducere în Informatica, Editura Teora, Bucuresti, 1998.
Coman D., Bazele utilizării calculatoarelor, Note de curs, 2010.
Coman D., Baze de date - ACCESS, Îndrumar de laborator, Reprografia Universităţii din Craiova, 2004.
Nortin Peter, John Goodman, PC - Totul despre calculatoare personale, Editura Teora, 2001
Petrescu A., Iacob Fr., Racovița Z., Inițiere în structura calculatoarelor electronice, Editura Teora,Bucuresti, 1996.
Prodan, F. Gorunescu, M. Gorunescu, Excel, Access si pagini Web, Ed. Albastră – Microinformatica, Cluj-Napoca, 2006.

Subject of study: Programming computers and programming languages II

CODE: D24IEIL210
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/ 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students the basic concepts of programming languages, the description of algorithms, flowchart and pseudocode, basic concepts of C/C++ language and programming, a knowledge of data structures, functions and structured programming.
CONTENT: Basic concepts of programming languages. Algorithms. Description of alghoritms through flowchart and pseudocode. C++ language structures. Variables. Constants. Operators. Basic Input/Output. Data Structures. Functions and Arguments. Arrays. Pointers. Implementation of user-defined functions.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Coman D., Bazele utilizării calculatoarelor, Note de curs, 2010.
Donald K., Arta programarii calculatoarelor, vol I "Algoritmi fundamentali", Editura Teora,Bucuresti, 1999.
Kernighan B., Ritchie D., The C Programming Language, Prentice Hall, 1988.
Jamsa K., Klander L., Manualul fundamental de programare în C și C++, Editura Teora, 1997
Patrut B., "Aplicatii in C si C++", Editura TEORA, 2003.
Pârv B., Vancea Al., Fundamentele limbajelor de programare, Editura Albastra, Cluj-Napoca, 1996.
Somnea D., Turturea D., Initiere in C++, Ed. Tehnica, Bucuresti 1993.
Tudor Sorin, Bazele programarii in C++, Ed. L&S, Bucuresti, 1995.

Subject of study: Linear Algebra, Analytical and Differential Geometry

CODE: D24IEIL212
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/ 1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students basic theoretical and practical concepts of linear algebra, analytical and differential geometry and their applications. It allows the necessary practical skills used in the study and understanding of other disciplines, and in engineering problem solving.
CONTENT: Vector spaces. Vector coordinates. Linear transformations. Eigenvectors and eigenvalues. Bilinear and quadratic forms. Euclidean spaces. Orthonormal basis. Conics and quadrics. Straight lines and planes in the Euclidean space. Differential geometry of curves and surfaces.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Vladimirescu I., Grecu L., Algebra liniara, geometrie analitica si diferentiala, EUC, 2007.
Vladimirescu I., Popescu M., Algebră liniară şi geometrie analitică, EUC, 1994
Vraciu G., Algebră liniară, Reprografia Univ. Craiova, 1994
C. Pătrăşcoiu, Algebră liniară, geometrie analitică și diferențială, EUC, 2005
Udrişte C., Algebră, geometrie analitică şi diferenţială, EDP, Bucureşti, 1984

Subject of study: Descriptive geometry and technical drawing

CODE: D24IEIL105 + D24IEIL211
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 1st year/1st and 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: Knowledge of basic concepts and reasonings on the implementation of solid geometry relationships in vertical projection systems. Knowledge representation methods in two-dimensional space of elementary geometric elements such as point, line, plane or surface. Knowledge and use of the methods for determining the actual size of the specified geometric elements. Understanding how to make detail drawings and drawings.
CONTENT: Representation of point and line in the triple vertical projection Representation plan. Methods of transformation of the figures. Assembly drawing. Assembly. Representation and dimensioning of machinery parts. Tolerances and fits. Applying the skills of working with drawing tools at the level of descriptive geometry

TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
Ghermec, C, Geometrie descriptivă şi desen tehnic, Note de curs
Popescu, T., ş.a., Geometrie descriptivă , Tipografia Universităţii din Craiova, 2005

Subject of study: Linear Algebra, Analytical and Differential Geometry

CODE: D24IEIL212
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: fundamental

OBJECTIVES: The course offers the students basic theoretical and practical concepts of linear algebra, analytical and differential geometry and their applications. It allows the necessary practical skills used in the study and understanding of other disciplines, and in engineering problem solving.
CONTENT: Vector spaces. Vector coordinates. Linear transformations. Eigenvectors and eigenvalues. Bilinear and quadratic forms. Euclidean spaces. Orthonormal basis. Conics and quadrics. Straight lines and planes in the Euclidean space. Differential geometry of curves and surfaces.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Vladimirescu I., Grecu L., Algebra liniara, geometrie analitica si diferentiala, EUC, 2007.
Vladimirescu I., Popescu M., Algebră liniară şi geometrie analitică, EUC, 1994
Vraciu G., Algebră liniară, Reprografia Univ. Craiova, 1994
C. Pătrăşcoiu, Algebră liniară, geometrie analitică si diferentială, EUC, 2005
Udrişte C., Algebră, geometrie analitică şi diferenţială, EDP, Bucureşti, 1984

Subject of study: Materials science

CODE: D24IEIL213
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students theoretical and practical concepts on the chemical bonds, materials structures and properties related to the solidification, plastic deformation and heat treatment processes.
CONTENT: Chemical bonds. Ideal and real crystallin lattices. Plastic deformation mechanisms. Crystalization and solidification phenomena. Accompaning processes of the solidification phenomena. Alloy systems theory. Fe-C alloys. Fe-based solidification structures. Non-ferrous alloys. Basis on heat treatments of ferrous and non-ferrous alloys. Heat treatment structures of ferrous and non-ferrous alloys. Basis on composites and nanomaterials.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Gingu, O., Sima, G., Stefan, I., Studiul materialelor – note de curs, Reprografia Universitatii din Craiova, 2011
Gingu, O., Materiale compozite usoare, Ed. Universitaria, Craiova, 2003
Mangra, M., Materiale fabricate prin metalurgia pulberilor, Editura Universitaria Craiova, 1997, ISBN -973-9271-17-0
Mangra, M., Stiinta Materialelor. Curs, Reprografia Universitatii din Craiova, 1994
Colan, H., Studiul Materialelor, Ed. Dacia, Cluj-Napoca, 1988

Subject of study: Mechanics

CODE: D24IEIL214
NUMBER OF CREDITS: 4
YEAR/SEMESTER: First year/2nd semester
TYPE OF COURSE: specialized
OBJECTIVES: The course offers the students theoretical concepts to substantiate all disciplines with mechanical character. This discipline represents the starting point for the study of phenomena that occur in the activity of the engineer, including basic scientific concepts of its activity.
CONTENT: Statics of material point. Statics of rigid (particular systems of forces, geometry masses, moments of inertia). Kinematics of material point (basic concepts, study material point movement in different coordinate systems). Kinematics of rigid (general movement of rigid, particular movement of rigid). Dynamics of material point (basic concepts, general theorems, differential equations of movement of material point). Elements of mechanical vibration (items of kinematics vibration, items of dynamic vibration).
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Sima, G., Mecanica si vibratii mecanice, Editura Universitaria, Craiova, 2009
Roşca, I., Seminar de mecanică, Ed.Matrix Rom., Bucureşti, 2001
Buculei M., Marin, M., Elemente de mecanică tehnică (teorie şi aplicaţii) Ed. Universitaria, Craiova 1994
Hegedus, A., Drăgulescu, D., Probleme de mecanică, dinamică, Ed. Helicon, Timişoara 1993

Subject of study: Materials technology

CODE: D24IEIL215
NUMBER OF CREDITS: 3
YEAR/SEMESTER: First year / 2nd semester
TYPE OF COURSE: speciality
OBJECTIVES: Discipline "Materials technology" aims to familiarize students with the main ways of obtaining metallic materials and their equilibrium diagrams and the main methods of processing materials. Emphasis is placed on acquiring key technologies, phenomena and processes which matter through to become a finished product. This knowledge, provided to the students are required to understand the manufacturing processes and as well the activities of exploitation and repair the

equipment. Moreover, the knowledge gained may allow improvement of technological processes.
The main objective is the acquisition of the method to obtain a particular product.
CONTENT: Purpose and importance of technology materials, metal materials, classification and properties, primary development, Cast iron. Developing cast iron, steels. Develop steel, non-ferrous materials. Ferrous materials development, secondary development, casting metals, Physical basis of casting, casting methods, processing methods by plastic deformation of metallic materials, hot and cold plastic deformation, erosion processing; powder aggregation processing, permanent joints; welding, soldering joints, Cutting, metal, Protection of metallic materials against corrosion, control of non-metallic materials
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral
BIBLIOGRAPHY (selective):
Aurel Nanu – Tehnologia Materialelor – Editura Didactică şi pedagogică 1983
Mihai Demian - Tehnologia Materialelor, Indrumar de laborator —- Editura Universitaria 2009
Sever Şontea - Tehnologia Materialelor - Craiova 1980
Vasile Popovici - Tehnologia Materialelor - Editura Politehnica 1985
M. Demian, C. Gârniceanu - "Materiale şi tehnologii primare" Ed. Scrisul Românesc 2002

Subject of study: English language I + II

CODE: D24IEIL108 + D24IEIL216
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 1st year/1nd + 2nd semester
TYPE OF COURSE: domain
OBJECTIVES: The course is designed to help students understand English words and paragraph and that is very important to understand English language
- Knowledge the necessary notions in English language for machine mechanisms and machinery;
CONTENT: 1. An introduction into Engineering Materials Technology (Production phase, usage, recycling), Present Simple and Continuous
The braking system in power cars (how brakes work, the concept of green brakes, ecological materials for brakes), describing events with Past Simple and Continuous
Composite technology (definition, applications, making a speech), Present Perfect vs. Past Simple, role-play
High voltage cables (description, materials, uses), means of expressing the Future
Describing properties of materials (using adverbs of manner), noun formation, vocabulary (describing tools, properties, uses), role-play
Describing components and assemblies (plugs and sockets), presenting advantages and disadvantages
Manufacturing techniques (drilling, flame-cutting, milling, sawing, shearing)
Describing position of assembled components (cluster ballooning), prepositions for describing position, The Passive Voice, Engineering design-working with drawings (plan, cross-section, exploded view, elevation, schematic, specification), describing details Inventions: the incandescent lamp, present and past tenses revision
Working with complex numbers, mathematical operations, fractions, Greek and Latin numeric prefixes**TEACHING**
Characteristics of Materials, Some Phrases for Academic Writing Property, Some Phrases for Describing Figures, Diagrams and for Reading Formulas, Grammar: Comparison, Processing and Performance, Classification of Materials, Grammar: Verbs, Adjectives, and Nouns followed by Prepositions
Metals, Introduction .Mechanical Properties of Metals, Important Properties for Manufacturing
Metal Alloys.Case Study, Ceramics, Structure of Ceramics, Word Formation: Suffixes in Verbs, Nouns and Adjectives Properties of Ceramics, Case Study: Optical Fibers versus Copper Cables, Grammar: Adverbs II
Polymers, Word Formation: The Suffix -able/-ible, Properties of Polymers
Case Study: Common Objects Made of Polymers Grammar: Reported Speech (Indirect Speech) Polymer Processing
Composites, Case Study: Snow Ski, Grammar: Gerund (-ing Form)
Case Study: Carbon Fiber Reinforced Polymer (CFRP)
Word Formation: Prefixes, Advanced Materials, Semiconductors, Case Study: Integrated Circuits
Advanced Materials, Smart Materials, Nanotechnology, Case Study: Carbon Nanotubes, Grammar: Modal Auxiliaries
Technical Writing , Punctuation and capitalization, Making corrections and improvements on written drafts
Being concise, Writing style - creating a warm, professional tone, Text abbreviations, Short words for emails and text messages, Identifying parts, Engine part vocabulary
LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1.Vince, M, Advanced Language Practice; Macmillan Publishers, 2003;
2. Universitatea Politehnică din Bucureşti,ICPE, CNR-CEI, Dicţionarul Terminologiei Electrotehnice Standardizate (Român-Englez, Englez-Român), Editura tehnică, Bucureşti 1996
3. Williams, Ivor, English for Science and Engineering, Thomson ELT, Edwards Brothers, 2007
4.Bălăcescu, Ioana, English for Geographers with Environmental Speciality, Craiova:Editura Universitaria,2009
5. Eisenbach, Iris,English for Materials Science and Engineering , Vieweg+Teubner ,2011
6. Williams, Ivor, English for Science and Engineering, Thomson ELT, Edwards Brothers, 2007

Subject of study: Physical education and Sport I + II

CODE: D24IEIL109 + D24IEIL217
NUMBER OF CREDITS: 1+ 1
YEAR/SEMESTER: 1st year/1nd + 2nd semester
TYPE OF COURSE: complementary

OBJECTIVES: the course is intended for students in order to preserve their health, increase their resistance to effort, harmonious physical development and create some sporting skills.
CONTENT: 1.-Running with changing tempo after 50m. and then 100-150m (3/4.2 / 4.4 / 4.2 / 4).
-Conduction of the ball (repeat); depriving the opponent of the ball (learning) - football.
2. -Processing an application hall of the hall with climbing, climbing, jumping, transport of weights.
-Service - pick-up - pass (complex of procedures) passes from the top, bottom in 2 and 3 players (volleyball)
3. - Initial testing through room tests
-Mark, demarcation in relation 1-1 free on the whole ground (basketball)
4. -Dribling, walking - repeating items in different variants (basketball); playing 5x5 with focus on tracking balls at the board.
5. Attack crash - learning the impulse, beat, jump, landing (volleyball); a two-way game with an emphasis on performing the service and attack strike in different areas.
6. -Dropping the ball in dribbling - learning; 5x5 game with emphasis on this technical process.
Taking the ball out of work - repeating with emphasis on excessive leg flexion. Bilateral game with emphasis on taking two hands down.
TEACHING LANGUAGE: Romanian
EVALUATION: sports tests
BIBLIOGRAPHY (selective):
Mangra, G.I., - Tenis de masă, Editura Universitaria Craiova, cod 130 CNCSIS, ISBN 978-606-510-170-8, 2008.
Lică, E.M., Mangra, G.I., - Tenis de masă - iniţiere în tehnica jocului, Editura Universitaria Craiova, cod 130 CNCSIS, ISBN 973-742-443-3 ISBN 978-973-742-443-3, 2006.
Mangra, G.I., - Exerciţii şi jocuri dinamice, Editura Universitaria Craiova, cod 130 CNCSIS, ISBN 973-742-009-8, 2005.
Mangra, G.I., - Managementul sportului, Editura Universitaria Craiova, cod 130 CNCSIS, ISBN 973-8043-592-2, 2004.
Mangra, G.I., Popa, G.M., Gheţu, R.B., - Exerciţii şi jocuri motrice pentru şcolari, Editura Universitaria Craiova, cod 130 CNCSIS, ISBN 973-8043-432-2, 2004.
Burcea, G., Orţănescu, C., Burcea, R., Mangra, G.I., - Handbal - Elemente de teorie şi metodică, Universitatea din Craiova, Facultatea de Educaţie Fizică şi Sport, Curs editat în Reprografia Universităţii din Craiova, 1999.

Subject of study:
Technical drawing and infographics

CODE: D24IEIL320
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1nd semester
TYPE OF COURSE: domain
OBJECTIVES:
The course is designed to help students understand the importance of Technical drawing and infographics
- Knowledge in the representation of machine mechanisms and machinery;
CONTENT: Releasable assembly. Assemblies with feathers. Threaded assemblies.Non-demountable assemblies.Welded assemblies. Classification. Welding mark.Gears and transmissions. Gears with gears. Chain transmissions. Belt transmissions.Bearings. Bearings for sliding. Rolling Bearings. Representation. Designation.Surface quality and tolerances. Signs of quality of processed surfaces. Tolerances and adjustments. Drawing the conventional quality signs and tolerances and adjustments on the drawing.Execution of the technical drawing. Formats used. Execution of the technical drawing on a scale. Drawing of the sub-assembly and the whole.Technical documentation. Drawing up the operation drawing. Drawing up the datasheet
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
1. R. Păunescu, Desen tehnic și infografică , Universitatea din Brasov,
2. C-tin Dale, Th. Nițulescu, P. Precupețu, Desen tehnic industrial pentru construcții de mașini, Editura Tehnică București 1990
3. Al. Ene, Desen tehnic industrial, Editura Avrămeanca, Craiova,1993
4. Al. Ene, Desen geometric, Craiova, 1992
5. Traian Popescu s.a., Desenul tehnic de la schita la ansamblu, Editura Universitaria Craiova, 2006
6. *** STAS desen tehnic Seria U10

Subject of study:
Environment protection

CODE:
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/1nd semester
TYPE OF COURSE: domain
OBJECTIVES: The course aims to present the basic concepts of environmental protection. The discipline contributes to the development of competences in the field of environmental engineering, knowledge and application of environmental concepts in the formation of students.
Knowledge of environmental pollution characteristics
Knowledge of the immediate and long-term effects of environmental pollution and degradation processes and of protection and consistency measures.
CONTENT: Environment protection. Basic concepts.
Protection of the atmosphere.
Soil protection.
Water protection.
Environmental pollution due to waste disposal
LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1. Criveanu M.C., PROTECTIA MEDIULUI – Note de curs
2.Gavrilescu E.; Buzatu G-D, ELEMENTE FUNDAMENTALE DE PROTECTIA MEDIULUI, Ed SITECH, 2014
3.Gavrilescu E.; Buzatu G-D, METODE DE DEPOLUARE A M.I., Ed SITECH, 2010

4.Ozun A., Teodosiu C., PREVENIREA POLUARII MEDIULUI, Ed.Univ. Transilvania, 2002

5.Rojanschi V. et all, PROTECTIA SI INGINERIA MEDIULUI, Ed.Economica, 2002

Second year of study:

Subject of study: Methods and Programms of numerical calculus

CODE: D24IEIL429
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2tnyear/1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students basic theoretical and practical concepts regarding the most important numerical techniques and their applications in solving problems, and the implementations of algorithms in numerical calculus programms.
CONTENT: Basic concepts(numerical versus analytical methods, errors). Numerical methods for linear systems of equations. Numerical methods in matriceal calculus. Method of succesive approximations and applications. Methods for solving nonlinear equations and systems. Approximation of functions. Numerical integration. Numerical solutions of ODE.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Grecu Luminita, Metode numerice cu aplicatii in C/C++, Editura Universitaria 2009
Valeriu Iorga, Boris Jora, Metode Numerice, Editura Albastra, 2008
Adela Ionescu, Mihai Costescu, Luminiţa Grecu, - Elemente de calcul numeric. Modele computaţionale, Editura Universitaria Craiova, 2005.
Dincă Al., Ebâncă D., Ţăndăreanu N.-Calcul numeric şi aplicaţii, Universitatea din Craiova,1985.
Ebâncă D.- Metode de calcul numeric, Ed. SITECH, Craiova , 1994.
Postolache M. Metode nemerice, Ed.Sirius, Bucureşti 1994
Ghinea M., Fireteanu V., MATLAB - calcul numeric, grafica, aplicatii, Teora, 1999
Curteanu S., Initiere in MATLAB, Ed. Polirom, 2008.

Subject of study: Special mathematics

CODE: D24IEIL321
NUMBER OF CREDITS: 4
YEAR / SEMESTER: year II/ 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course aims to familiarize the students with Special mathematics and the basic statistical concepts and features, and also with the mathematical framework needed for statistical and informational processing of the data obtained in various measuring processes.
CONTENT. Special mathematics, Event, probability, random variable. Typical values used in the study of the repartition for the measuring results and errors. Classical repartitions. Statistical series. Typical values of the distribution series (the indexes of the central trend, mean, median, dominant) Correlation – definition, types, basic methods. Elements of poll theory and methods.
TEACHING LANGUAGE: romanian
EVALUATION: written examination
BIBLIOGRAPHY (selective)

Adela Ionescu. Informational processing of measuring data. Editura Reprograph Craiova, 2007
N. Vasilescu, M. Costescu, C. Ionascu, G. Babucea, V. Tomita, D. Stuparu. Statistica, Editura Universitaria, Craiova, 2003
M. Costescu, N. Vasilescu, C. Ionascu. Statistica si elemente de teoria sondajului. Editura Reprograph, Craiova 2000
M. Tiron. Prelucrarea statistica si informationala a datelor experimentale. Editura Tehnica Bucuresti. 1976.

Subject of study: Basics of Computer Aided Design

CODE: D24IEIL322 + D24IEIL430
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 2 year/1st and 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: Basics of the computer aided design – 2D drawing and 3D modeling using surface and solid features. Ability to developed engineering CAD drafts from 3D computer models. Parametric design concepts, assembling, associative drafting development, basic engineering design concepts. Numerous exercises from laboratory classes will develop to students, strong abilities for using SolidWorks package.
CONTENT: The role of a CAD system in the production cycle. Analytic representation of curves and surfaces used in CAD system. Modeling elements: layers, colors, line types. Wireframes modeling, entities selection, copy, move, editing features. Drafting, tolerances, formats, sections, views, hatching. 3D modeling using surfaces, primitives, revolution, extrusion, sweeping, lofting, blend, offset, filet and corners operations on solids. Solids editing, sketching features and concepts, profile, path 2D/3D cutting, splitting, design using features as holes, drafts, fillets, shells, sweeps, ribs, chamfers. Parametric modeling using relations and Excel sheets. Assembling, degrees of freedom, components table, interference checking.
TEACHING LANGUAGE: Romanian
EVALUATION: Computer examination.
BIBLIOGRAPHY (selective):

Bazele proiectării asistate de calculator, Note de curs, Roşca A., Reprografia Universităţii, 2001
Viviana FILIP, Cornel MARIN, Lucian GRUIONU, Alexis NEGREA, Proiectarea, modelarea, simularea sistemelor mecanice, utilizând SolidWorks, CosmosMotion şi CosmosWorks, Valahia University Press, Târgovişte, 2008.
Proiectarea în plan cu Autocad R12, Roşca A. ş.a., CERTI 1995
Proiectare asistată, Mazilu D., Note ce curs, Reprografia Universităţii, 1999
*** Documentaţia de firmă SolidWorks.

Subject of study:
Strength of Materials I + II

CODE: D24IEIL324 + D24IEIL431
NUMBER OF CREDITS: 4+3
YEAR/SEMESTER: 2nd year / 1st+ 2ndsemester
TYPE OF COURSE: Domain
OBJECTIVES:
Dissemination of information regarding the main aspects of the mechanical resistance of materials is the main objective. Offering to the students the methods of analysis and calculation specific to the mechanical resistance of materials is objective as well.
CONTENT:
1. Generalities
2. Stresses in transversal sections of bars
3. Tensile and compression
4. Conventional calculation in shear of bars
5. General stress and strain status
6. Applications
1. Static momentum, momentum and inertia radius. Resistance Modulus. Variation of the inertial momentum.
2. Twisting of circular bars
3. Bending of bars. Definitions. Clasifications of the bending loadings
4. Stress diagrams, N, T,Mi. Conventions of signs. Normal and tangential stress in bended bars.
5. Strain of bended bars
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
Savu, I.D. – Mechanical Resistance of Materials – Course notes
Deutsch, I. – Mechanical Resistance of Materials, Ed. Didactică şi Pedagogică, Bucuresti, 1979
Cernăianu, E., Tarniţă, D. – Mechanical Resistance of Materials, Reprografia Universităţii din Craiova, 1995
Babeu, T. - Mechanical Resistance of Materials, Litografia UTT, Timişoara, 1991
Cristuinea, C. - Mechanical Resistance of Materials, Litografia IPTVT, Timişoara, 1981

Subject of study: Thermotechnic I + II

CODE: D24IEIL325 + D24IEIL433
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 2nd year/1st and 2nd semester
TYPE OF COURSE: domain
OBJECTIVES: The course offers the students theoretical and practical concepts of the thermodynamics of the heating processes
CONTENT: Fundamentals: thermodynamic system, state, state parameters and functions, equation, state equations, mechanical work, heat, internal energy, entalpy. Thermodynamic properties of the pure substances. Phases, parts, homogenous and heterogenous system. P-V-T surface. P-V, V-T, P-T diagrams. Clausis-Clapeyron equation. Specific heats. Thermal analysis of the ideal and real gases. Themodynamic fundamentals of the burning processes. Fuels. Reaction heat. Material balance of the burning process. I-T diagram.
TEACHING LANGUAGE: Romanian
EVALUATION: Written
BIBLIOGRAPHY (selective):
Nicolescu, s.a. – Apps in thermotechnics and thermal machines, SDP Publishing House, Bucharest, 1962.
Bică M., Călbureanu M., Cernăianu C., Gabriela Demian-Heat transfer, ICMET Publishing House, Craiova 2003, ISBN 973-86650-0-0
Savu, S – Course notes

Subject of study: Electromagnetic engineering and electrical machines

CODE: D24IEIL326 + D24IEIL434
NUMBER OF CREDITS: 3+3
YEAR/SEMESTER: 2nd year/ 1st and 2nd semester
TYPE OF COURSE: domain
OBJECTIVES: The course offers to students theoretical and practical concepts regarding electromagnetic phenomena, electric circuits analysis, construction and operating of electrical machines.
CONTENT: Electric and magnetic status. Interdependence of electrical and magnetic parameters. (General laws. Magnetic circuit law, Faraday ' s law, a.s.o.). Electrostatic field, potential difference, voltage. Static electriokinetic regime. DC electrical circuits. Electrical circuits in variable regime.
Electrical circuits in permanent sinusoidal periodic regime.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Şora C. - Bazele electrotehnicii, Editura didactică şi pedagogică, Bucureşti, 1982
Nicula Al., Cristea Gh., Simon S. - Electricitate şi magnetism, Editura didactică şi pedagogică, Bucureşti, 1982
Priboi M. - Electrotehnică, Editura Sitech, Craiova, 2001
Răduleţ R. - Bazele electrotehnicii. Probleme. Vol.I+II, Editura didactică şi pedagogică, Bucureşti, 1970
Bălă C. – Maşini electrice, Editura Didactică şi Pedagogică., Bucureşti 1982
Câmpeanu A. – Maşini electrice. Probleme fundamentale, speciale şi de funcţionare optimă, Editura Scrisul Românesc, Craiova 1988

Subject of study: Tolerances and dimensional control

CODE: D24IEIL435
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students theoretical and practical concepts regarding precision, deviations, tolerances, fits of different types of parts used in industry
CONTENT: Interchangeability. Deviations from the geometrical shape of revolution surfaces and flat surfaces. Surface roughness. Fits. Tol;erances and fits for different types of parts. Measurement of deviations from roundness and cilindricity
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Dragu Dumitru – Tolerante si masurari tehnice, Ed. Didactica si Pedagogica, Bucuresti, 1985.
Bagiu Lucian, Tolerante si masurari tehnice, Institutul Politehnic Timisoara, 1975
Vatafu M, Tolerante si masurari tehnice, Reprografia Univ. din Craiova, 1983
Stanimir A, Benga G., Cherciu M., Tolerante si Control dimensional, indrumar de laborator, Reprografia Univ din Craiova, 1998

Third year of study:

Subject of study: CAE (Computer Aided Engineering) Integrated Systems

CODE: D24IEIL541
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3rd year/1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: This course cover principles of design, analysis and computer simulation in engineering. Starting with advanced CAD knowledge of product shape design, finite elements method theory is presented and applied to simulate various manufacturing processes as metal molding, stamping, plastic injection. Static and dynamic structural analysis, contact, non-linear and thermal simulations are also explained through multiple examples in course and laboratory classes.
CONTENT: Basic theory of finite elements method. FEM analysis: static, frequency, buckling, thermal, optimization. Using SolidWorks Simulation - boundary conditions, loading, materials, initial conditions. Theory of optimal part design. Parameters and structural optimization of parts. Thermoplastic materials injection using Simpoe, best parameters computation, avoiding defects. Stamping process simulation using Stampack – Autoform, process visualization, part defects detection. Metal molding simulation using Vulcan – process visualization, optimal parameters computation, avoiding defects.
TEACHING LANGUAGE: Romanian
EVALUATION: Practical-computer test
BIBLIOGRAPHY (selective):
1.Rinderu, P. and L. Gruionu, Metode Numerice - Elemente teoretice si aplicative. 2003, Craiova, Romania: Universitaria. 210.
2.Viviana FILIP, Cornel MARIN, Lucian GRUIONU, Alexis NEGREA, Proiectarea, modelarea, simularea sistemelor mecanice, utilizând SolidWorks, CosmosMotion şi CosmosWorks, Valahia University Press, Târgovişte, 2008.
3. D. Mazilu, Proiectare asistată de calculator, Reprografia Universităţii, 1998.
4. Cosmos Student Workbook – teorie si exemple - disponibilă în format pdf pe CD în laboratoare.
5. F. Kreith, Mechanical Engineering Handbook, CRC Press, 1999
6. C. Wai-Fah, Structural Engineering Handbook, CRC Press, 1999.

Subject of study: Fluid Mechanics and hydraulic machines

CODE: D24IEIL542
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 3rd year/1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: This course is an introduction in fundamental theory of fluid mechanics and application of these principles to solving various technical problems. Numerous examples, hydraulic machines functioning and practical problem solutions are presented to the students in laboratory classes for a better understanding of theoretical knowledge.
CONTENT:
Fluid properties. Fluid modeling models. Pressure in fluids. Cauchy equations. Static of fluids: equations, pressure distribution on plane and curve surfaces. Principle of Archimedes. Fluid kinematics. Continuum equation. Cauchy-Lagrange theorem. Potential and rotational movements. Fluid dynamics. Constitutive equation – laminar flow, Navier-Stokes equations. Bernoulli laminar flow. Hydrodynamics. Applications. Dynamic of viscous fluids. Laminar, transitional and turbulent flow. Turbulent flow equations. Laplace equation. Major loss in ducts, tubes and pipes. Darcy-Weisbach equation for pressure and head loss. Energy and hydraulic grade line. Hydraulic diameter. Water flow in tubes. Orifice, nozzle and venture flow rate meters. Pipe in series and parallel. Pumps, compressors, blowers and fans. Total pressure or head loss in pipe or duct systems.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
Victor L.Streeter, E.Benjamin Wylie, Fluid mechanics,McGraw-Hill International Book Company Japan,1983.
H.C.Lowe,Fluid Mechanics, The Macmillan Press Ltd. ,London ,1979
Shin-I Pai, Viscous flow theory, D.Van Nostrand Company,Inc. 1957
Dan Gh.Ionescu,Introducere in Hidraulica, Edit.Tehnica, Bucuresti,1977.

SUBJECT OF STUDY: Electronics and Automation

CODE: D24IEIL543
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 3rd year/1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course intents to familiarize the students with the general issues of modern electronics, with the procedures that are used in the study of the electronic devices and the characteristic functions, and also with the most usual electronic circuits. Also, it will be realized an introduction in the field of the general industrial automation.
CONTENT: The general methods those are useful in electronics study. The conduction in semi-conductors. The pn junction. The semi-conductor diodes, The bipolar transistors. The electronics amplifiers. The amplification with reaction. The operational amplifiers (OA). Parameters. The linear applications with OA. The manual regulation. The automate regulation. The automate control systems.

The disturbances in the unfolding the processes. Transducers. Regulators. The execution elements. The features of a control system. The modeling of the automation control systems.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Th. Dănilă, N. Reus, V. Boiciu, Dispozitive şi circuite electronice, Ed. didactică şi pedagogică, Bucureşti, 1982.
E. Ceangă, A. Saimac, E. Banu, Electronică industrială, Ed. didactică şi pedagogică, Bucureşti, 1981.
Elena Niculescu, I. Smarandache, Circuite electronice. Îndrumar de laborator, Reprografia Univesităţii din Craiova, 1987.
Elena Niculescu, Dorina Purcaru, Dispozitive şi circuite electronice. Culegere de probleme, Reprografia Univesităţii din Craiova, 1988.
D. Mihoc, S.Şt. Iliescu, Teoria şi Elementele Sistemelor de Reglare Automată, Ed. Didactică şi Pedagogică, Bucureşti, 1984.
C. Marin, Structuri şi legi de reglare automată, Ed. Universitaria, Craiova, 2000.

Subject of study: Cutting operations

CODE: D24IEIL547
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 3rd year/2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students theoretical and practical concepts of the surfaces generation, physical principles of the cutting process as well as a knowledge of the characteristics phenomena of the cutting processes
CONTENT: Kinematics of cutting process. Physical principles of cutting process (chips formation and types of chips, the importance of chips shape, built-up-edges etc.). Plastic deformations of workpiece material. Forces and power in cutting processes, thermal phenomena in cutting processes. Cutting fluids. Tool wear and tool life. Vibration in cutting process. The quality of machined surfaces.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):

Benga, G., Ciolacu, F. - Prelucrări mecanice şi control dimensional, Editura Universitaria, 2003
Ciolacu, F.G., Mazilu D., Crăciunoiu N., Aşchiere şi procedee de prelucrare, Reprografia Universităţii din Craiova, 1999.
Ciolacu, F.G.,Crăciunoiu, N., Benga, G.C, Aşchiere şi procedee de prelucrare, Editura Sitech, Craiova, 2008.
Cozmincă, M.,Panait, S., Constantinescu, S., Bazele aşchierii, Editura Instit. Politehnic, Gh. Asachi, Iaşi, 1995
DeGarmo, E.P., Black, J.T., Kohser, R., Materials and Process in Manufacturing, Eight Edition, Pretince Hall, Upper Saddle River, NJ, 1997.
Oprean, A., ş.a., Bazele aşchierii şi generării suprafeţelor, Editura Didactică şi Pedagogică, Bucureşti, 1981;
Popescu I., Teoria aşchierii, Universitatea din Craiova, Facultatea de Mecanică, 1994.
Trent, E.M. - Metal cutting, editura Butterworth-Heinemann, Fifth edition, 2002

SUBJECT OF STUDY: Technologies and Equipments for plastic deformation

CODE: D24IEIL656
NUMBER OF CREDITS: 5
YEAR/SEMESTER: 3rd year / 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers students theoretical and practical concepts of the metallic materials processing by cold plastic deformation, physical principles of the cold plastic deformation as well as designing of the technologies, stamps and cold dies for processing by cold plastic deformation.
CONTENT: Processing methods by cold plastic deformation. Physical basis of the cold plastic deformation process (Basic plastic deformation laws; Plasticity criteria; Metallic materials deformation behaviour etc.). Theoretical and experimental methods used for plastic deformation analysis. Materials processing by stamping (analysis of the stamping process, force, mechanical work and power in stamping process, influence of the technological parameters, cutting by claws, stamps etc.). Materials processing by bending (analysis of the banding process, force, mechanical work and power in banding process, elastic recovery, bending technology for different workpieces). Materials processing by drawing (analysis of the drawing process, state of stress analysis, force, mechanical work and speed in drawing process, drawing technology of workpieces, active elements sizing.
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):

Teodorescu, M, s.a. - Tehnologia presării la rece, Bucuresti, Editura Didacticã si Pedagogicã, 1980;
Teodorescu, M, s.a. - Elemente de proiectare a stantelor si matritelor,Bucuresti, Editura Didacticã si Pedagogogicã, 1983;
Rosinger, St. - Procese si scule de presare la rece. Culegere de date pentru proiectare. Editura Facla, Timisoara, 1987;
Ciocîrdia, C., s.a. - Prelucrări prin deformare plasticã la rece, vol I si II, Ed. Tehnicã, Bucuresti, 1987, 1988;
Ciocîrdia, C., s.a. - Tehnologia presării la rece, Bucuresti, Editura Didacticã si Pedagogicã, 1991;
Neagu Al. - Tehnologia presării la rece. Îndrumar de laborator, Craiova, Reprografia Universitatii, 1985;
Neagu, Al., Ciupitu, I. - Tehnologia presării la rece, Îndrumar de proiectare, Craiova, Reprografia Universitatii, 1987.
Ciupitu I., - Deformari plastice. Tehnologii si echipamente - curs, Craiova, Reprografia Universitatii, 2000.

Subject of Study: General Economics

CODE: D24IEIL548
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 3rd year/1st semester
TYPE OF COURSE: B
OBJECTIVES: The essential aim of the course is to train specialists in economics by accumulating theoretical and methodological knowledge necessary to understand the complexity of real

economic life, economic structures' dynamics and of multiple relationships between economic agents. Another purpose is to arouse interest in economics as an e exciting and useful science. Initiation of students into this science will allow analyzing real economic situation, making the right economic decisions and acting accordingly.

CONTENT: ECONOMICS – FORM OF HUMAN ACTIVITY; ECONOMY AND ECONOMIC SCIENCES SYSTEM; MARKET ECONOMY; CONSUMER BEHAVIOR THEORY; THEORY OF MANUFACTURER, SUPPLY AND DEMAND; MARKET, COMPETITION AND PRICE; INCOME; DISTRIBUTION; MEASURING ECONOMIC ACTIVITY AT MACROECONOMIC LEVEL; LABOR MARKET AND UNEMPLOYMENT; MONETARY MARKET AND INFLATION, FINANCIAL MARKET, INCOME, CONSUMPTION AND INVESTMENTS; ECONOMIC FLUCTUATIONS.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Angelescu, Coralia (coord.) Economie, Ed. Economică, Bucureşti, 2000.

Angelescu C., Dinu M. s.a. Economie, A.S.E., Editura Economica, Bucuresti, 2009.

Aurel Iancu, Tratat de economie, Bucureşti, Ed. Expert, 1992.

Băbăiţă I., Duţă Alexandrina, Imbrescu I., Microeconomie, Editura de Vest, Timişoara, 2004.

Ciucur Dumitru, Gavrilă Ilie, Economie, Ed. Economică, Bucureşti, 1999.

Dobrotă Niţă (coord.), Dicţionar de economie, Ed. Economică, 1999.

Dobrotă, Niţă, Economie politică, Ed. Economică, Bucureşti, 1998.

Dudian Monica (coord.), Economie, Ed. All Beck, Bucureşti, 2005.

Nechita V., Ciupercă L., Iorga A.I., Economie, Ed. Sedcom Libris, Iaşi, 2001.

Pîrvu Gh., Gruescu Costina, Microeconomie: manual universitar, Ed. Sitech, Craiova, 2005.

Vîrjan Daniela, Economie, Editura ASE, Bucureşti, 2009.

Milea Claudia, Economie generală, Ed. Universitaria, Craiova, 2010.

Subject of study: Modelling and simulation of manufacturing system

CODE: D24IEIL655

NUMBER OF CREDITS: 3

YEAR/SEMESTER: 4th year/2nd semester

TYPE OF COURSE: fundamental

OBJECTIVES: The course offers the students basic concepts of the production systems, a knowledge of the modeling and simulation techniques as well as the main methods of reducing the complexity of a simulation model.

CONTENT: Production systems. Types of production systems. Flexible Manufacturing Systems. Flexible manufacturing principles. Integration of computer in process industries. Petri net type models. Modeling of the manufacturing systems using Petri nets. Behavioral and structural properties. Deadlock in systems with shared resources. Performance evaluation of manufacturing systems.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Bibu N. A., Managementul sistemelor flexibile, Editura Sedona, Timisoara, 1998;

Coman D., Modelarea si simularea sistemelor de fabricatie, Note de curs, 2010.

Ivan, N., Sisteme integrate CAD/CAM, Editura Universitaria, Braşov. 1998.

Păstrăvanu O., Matcovschi M., Mahulea C., Aplicaţii ale reţelelor Petri în studierea sistemelor cu evenimente discrete, Editura Gh. Asachi, 2002.

Păstrăvanu O., Sisteme cu evenimente discrete, Editura MatrixRom, Bucuresti, 1997.

Savu T., Modelarea si simularea sistemelor si proceselor de productie, Editura Printech, Bucuresti, 1999;

Savii, G., Luchici, M., Modelare si Simulare, Editura Eurostampa, Timisoara, 2000.

Subject of study: Environmental management

CODE:

NUMBER OF CREDITS: 3

YEAR/SEMESTER: Fourth year /second semester

TYPE OF COURSE: speciality

OBJECTIVES: Discipline "Materials and clean technologies" aims at initiating students on environmental protection and waste management Law 137/1995 on environmental protection and government decisions on waste management track pollution regulations and operation of national and international organizations for environmental protection

The focus is put on acquiring the main methods and clean technologies used in industry.

The main objective is knowledge and characterization of clean energy sources

CONTENT: The monitoring of environmental quality, Introduction to Environmental Impact Assessment. Clean energy and clean energy sources.

Classification of unconventional technologies for energy: Renewable and non-renewable.

Energy sources.

Clean technologies for power generation

Solar energy.

Wind. Construction, types of turbines

Unconventional technologies for obtaining clean energy

a. hydropower

b. Types of turbines

Biotechnology- Classical and modern biotechnology

Geothermal energy.

Construction equipment

XXI Energy century. Nuclear energy and human society

Hydrogen production technologies

Recovery techniques and waste processing

The concept of sustainable development

TEACHING LANGUAGE: Romanian

EVALUATION: Written

BIBLIOGRAPHY (selective):

Demian Mihai – Materiale si tehnologii nepoluante – Notiţe de curs

XXX - Legea 137/1995, privind protecţia mediului şi hotărâri de guvern referitoare la normative de poluare evidenţa gestiunii deşeurilor şi funcţionarea

unor organisme naţionale şi internaţionale pentru protecţia mediului
Rojanschi V., Bran F. “Politici şi strategii de mediu ”, Editura Economică, 2002
Enescu M., -“Tehnologii nepoluante ” Editura Drobeta, 2004
Rojanschi V., Bran F., Diaconu S., Grigore F. “Abordări economice în protecţia mediului ”, Editura ASE Bucureşti, 2003

Subject of study:
Machine organs and mechanisms

CODE: D24NTMFL546 + D24NTMFL651
NUMBER OF CREDITS: 5 + 3
YEAR/SEMESTER: 3nd year/1nd + 2nd semester
TYPE OF COURSE: domain
OBJECTIVES: The course is designed to help students understand the importance of design
- Knowledge of the necessary notions in the representation of machine mechanisms and machinery;
- Knowledge of the application states studied and applied to the machine organs in operation.
CONTENT: Introduction, Mechanism structure, Mechanics kinematics, Dynamic analysis, Mechanics of the mechanism, Camshafts, Helical gear transmissions, Gear transmissions, Belt transmissions, Chains transmissions, Demountable assemblies, Non-assembled assemblies, Axles and shafts Pivots, Friction gears, Mechanical drives, Couplings, Elastic couplings
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1.Dumitru N., Margine A., Organe de maşini. Asamblări. Elemente elastice. Proiectare asistată de calculator. Editura Universitaria Craiova, 2002.
2.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.
3.Dumitru, N. Margine, A.,Asamblări. Elemente elastice. Proiectare asistată. Editura Universitaria, Craiova, 2002.
4.Dumitru, N., Angrenaje cilindrice. Proiectare asistată de calculator, Ed.Universitaria,Craiova, 2000
5.Dumitru, N., Nanu, Gh., Mecanisme şi transmisii mecanice, Editura Universitaria , Craiova, 2008.
6.Dumitru, N.,Organe de maşini.Angrenaje. Elemente de proiectare, R. Univ. Craiova, Craiova, 1996.
7.Dumitru, N., Organe de maşini. Transmisii mecanice, R. Univ. Craiova, Craiova,1996.

Subject of study:
Environmental management

CODE: D24IEIL657
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 3nd year/1st semester
TYPE OF COURSE: domain
OBJECTIVES: - Limited interpretation of the concepts, approaches, theories, models and basic methods used in well-defined exploitation issues that take place in the treatment and depollution of environmental factors
- Interpretation of basic theories, models and methods used in well-defined technological calculations of depollution installations
- Explain basic theories, models and methods specific to pollutant monitoring programs in industrial installations
- Applying fundamental concepts and theories in the field of communication and management for professional development regarding the reduction of environmental impact of industrial pollutants
- Defining elementary concepts related to environmental quality control, risk assessment and low-impact technology development
- Selection of concepts, approaches, theories, models and basic methods for the development and operation of pollutant monitoring programs in industrial installations
CONTENT: National Strategy for Sustainable Development of Romania.
Horizons 2013-2020-2030. The general foundations of management.
Defining the environmental management system (EMS). Characteristics of EMS
Environmental management systems according to ISO 14001
Components of EMS. Environmental policy. Environmental inspection.
EMAS - European Union Environmental Management System
Integrated quality-environment management systems
Integrated management systems
quality - environment - occupational health and safety
Process-based approach - Life Cycle Analysis
Process Approach - Eco-Design
Labels and environmental statements
Assessment of environmental performance
Waste management is an integral part of organic management
TEACHING LANGUAGE: Romanian
EVALUATION: Written examination
BIBLIOGRAPHY (selective):
1. Demian M., Ciobanu, M., Management ecologic – Note de curs
2. Apostol, T., s.a. – Managementul sistemelor de mediu, Ed. Politehnica Press, Bucureşti, 2005
3. Apostol, T., Managementul sistemelor de mediu, Ed. Politehnica Press, Bucureşti, 2005
4. Maior, C., Grec, A, Managemnt ecologic, Editura Vasile Goldis University Press, Arad 2008
5. Baron, V. Practica managementului de mediu ISO 14001, Editura Tehnica, 2001
6. Inculescu, S., Nisipeanu, S., Stepa, R., Management Mediului in conformitate cu seria ISO 14000,Matrixrom, Bucuresti, 2002

Subject of study:
Accounting

CODE:
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 3nd year/2nd semester
TYPE OF COURSE: domain

OBJECTIVES: -knowledge, understanding and deepening of the notions of general economy;
- Appropriate use of these in the study of economic disciplines;
-Developing some practical skills for evaluating the patrimonial elements, some skills necessary for drawing up some documents, performing the inventory of patrimonial elements;
- To acquire the necessary methods and techniques in studying and analyzing economic phenomena and processes: supply, production, sales.
CONTENT: 1 Subject and method of accounting
2 Joint Research Processes in Economic Sciences
3 Methods specific to accounting
4 Content and importance of costing
5. The accounting analysis of the main economic operations taking place in an economic entity
LANGUAGE: Romanian

EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1. Avram, M. şi colectiv, Bazele Contabilităţii, Editura Universitaria, Craiova, 2006;
2. Avram, M., Contabilitatea întreprinderii armonizată cu Directivele Europene şi Standardele Internaţionale, Editura Universitaria, Craiova, 2005
3. Avram, M. Contabilitate manageriala, Editura Universitaria, Craiova, 2009
4. Avram, M., Contabilitatea financiara a firmei, Ed. Universitaria, Craiova, 2009
5. Criveanu, M. – coord. Bazele contabilitatii, Ed. Universitaria, Craiova, 2012

Fourth year of study:

Subject of study:
Product Life Cycle Management

CODE: D24IEIL887
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year / 2nd semester
TYPE OF COURSE: Speciality
OBJECTIVES:
Dissemination of information regarding the fundamental principles of a planning-organizing-control of phases and resources processes specific to implementation of projects.
CONTENT:
Project – life cycle, components, applications, elaboration proposal
Management – characterization of management system, relations of management, modernization of management system
Project Management – feasibility study, business plan, evaluation
Management of the material resources in project
Management of risk of project implementation
Management of quality of project implementation
TEACHING LANGUAGE:
Romanian
EVALUATION:
Elaboration project and written examination
BIBLIOGRAPHY (selective):
COVRIG Mircea; OPRAN Constantin; 2002; Managementul proiectelor ; Agenţia Managerială pentru Cercetare Ştiinţifică Inovare şi Transfer Tehnologic - POLITEHNICA; Editura Pritech 2000; Bucureşti.
MITONNEAU Herri; 2000; Iniţiere în auditul calităţii; Traducere de Maria Ciobanu; Editura NICULESCU; Bucureşti, Romania
MOCKLER L.Robert; 2001; Management strategic multinaţional, un proces integrativ bazat pe contexte; Editura Economică; Bucureşti, Romania.
NICOLESCU Ovidiu ; 2000; Sistemem metode şi tehnici manageriale ale organizaţiei; Editura Economică, Bucureşti, Romania.
OPRAN Constantin; STAN Sergiu; 2003; Planificarea, elaborarea şi implementarea proioectelor; Şcoala Naţională de Studii Politice şi Administrative, Facultatea de Comunicare şi Relaţii Publice “David Ogilvy”, Departamentul ID, editura comunicare.ro
OPRAN Constantin; STAN Sergiu; 2003; Planificarea, elaborarea şi implementarea proiectelor; Editura comunicare.ro; Bucuresti, Romania
OPRAN Constantin; STAN Sergiu; 2004; Managementul proiectelor; Editura comunicare.ro; Bucuresti, Romania.

Subject of study:
Research and design activities

CODE: D24IEIL894
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year/first semester
TYPE OF COURSE: Specialty
OBJECTIVES: The course offers students the theoretical and practical aspects of product design (design, ergonomics, aesthetics).
CONTENT: Introduction to product design; Specifications of a product design; Methods of generation / selection of concepts; Design and obtaining forms; Product modeling; Detailed design; Operational management of design; Industrial product design; Shape and color of products; Aesthetic evaluation methods products; Technical engineer and creator of beautiful.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Dumitru, C., Ingineria produselor. Principii de proiectare, management şi desing, Editura Universitaria, Craiova, 2002;
Creţu, I. - Iniţiere în estetica produselor, Bucureşti, Editura Tehnică, 1973;
Paul, C. - Industrial design, Bucureşti, Editura Merdiane, 1973;
Rognitz, H. - Proiectarea formei, Bucureşti, Editura Tehnică, 1958;
Moldovan, V., Şaramet, G. - Formă şi culoare în construcţia de maşini, Cluj-Napoca, Editura Dacia, 1988;
Ionescu, M. - Tehnologia cercetării aplicative de produs, Bucureşti, Editura Tehnică, 1981;

Proiectarea în plan cu Autocad R14, Roşca A. ş.a., Editura CERTI 1995.

Subject of study: Production systems engieneering

CODE: D24IEIL881
NUMBER OF CREDITS: 3 + 4
YEAR/SEMESTER: 4th year/1st and 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course gives to the students the main tools of the production management and production processes design, strategic problems of the production (productivity, competitive, quality assurance of the products etc.). Also, the students will be able to know the manufacturing system, enterprise topology, and study and analysis of the methods and techniques of the production system.
CONTENT: Enterprise- basic component of the production system; The structural organization of the production system; Methods and technique for study and analysis of the production process; Spatial system organization of the enterprise; Organization systems of the auxiliary production units; In time organization production system. Production cycle; The products quality and services in contemporary economy.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Rosca, C., Manolescu, M.J., Managementul productiei, Ed. Universitătii Agora, Oradea, 2002
Rosca, C., coordonator, Economia si organizarea ergonomică a muncii, Ed. Diactică si Pedagogică, Bucuresti, 1982
Nicolescu, O., Ghidul managerului eficient, Ed. Tehnică, Bucuresti, 1993
Ionescu, S., Păunescu, I., Managementul productiei, Ed. Eficient, Bucuresti, 2001
Bărbulescu, C., Managementul producţiei industriale, Vol. I-III, Editura Sylvi, Bucureşti, 200
Dima, I. C., Management operaţional, Editura ARVES, Colecţia ″Ştiinţele educaţiei″Craiova, 2007.
Dima, I.C., Management industrial, Lucrări practice şi studii de caz, Editura AGIR, Bucureşti, 2007.
Dumitru Marin, Managemntul logisticii, Elemente teoretice şi practice, Editura Sitech, Craiova, 2005.
Badea, Fl., ş.a., Managementul producţiei, Studii de caz şi proiect economic, Editura ASE, Bucureşti, 2006

Subject of study: Manufacturing technologies

CODE: D24IEIL885
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students theoretical and practical concepts regarding machinability of the parts, precision as well as knowledge to design a machining process
CONTENT: Machinability of the parts, Machining precision.The quality of machined surfaces. Calculus of the cutting regime parameters. Cutting process of the flat surfaces. Cutting process of the revolution surfaces
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Aelenei, M., Ghergia, I., - Probleme de maşini unelte şi aşchiere, vol. I, II, Editura Tehnică, Bucureşti, 1985
Benga G., Ciolacu, F.G., - Prelucrări mecanice şi control dimensional, Ed. Universitaria, Craiova, 2003.
Botez, E., - Bazele generării suprafeţelor pe maşini unelte, Ed. Tehnică, Bucureşti, 1966
Picoş, C., - Proiectarea tehnologiilor de prelucrare mecanică prin aşchiere, Editura Universitas, Chişinău, 1992
Popovici, C., Savii, Gh., Killman, V., - Tehnologia construcţiilor de maşini, Ed. Tehnică, Bucureşti, 1967
Trent, E.M., - Metal Cutting, Editura Butterworth-Heinemann, Fifth Edition, 2002.

Subject of study: Reconditioning technologies

CODE: D24IEIL884
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4year/ 2 semester
TYPE OF COURSE: optional
OBJECTIVES:
Discipline shows students how the recovery and recycling of reusable materials with direct involvement in the design of technologies and equipment that lead to obtaining raw materials from waste.
CONTENT:
Effective management of waste.
Recovery and recycling metalice.Procese specific technology. Recovery of waste iron and steel. Waste recovery and metal alloys. Recycling swarf from grinding. Recovery and recycling of textile fibers and glass fibers. Paper recovery and recycling of waste paper. Recovery and recycling of plastics. Recovery and recycling of polymers from rubber tires. Recovery and recycling of waste. Recycling parts by reconditioning, regeneration reshuffle. The wearing of tree, bush, housing.
TEACHING LANGUAGE: romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Radu, St. - Recovery, recycling and recycling materials - Course Notes
Şontea, S.,Mangra, M.,Didu, M.,Văduvoiu, Gh.,s.a.- Processing of recyclable materials to obtain raw materials, Universitaria Publishing Craiova 1998
Rusu, M.,s.a.,- Capitalization of secondary polymer, Technical Publishing House Bucharest 1989
Antonescu, N., s.a, - Energy recovery from waste, Technical Publishing House Bucharest 1988
Berinde, V., - Recovery reconditioning and reuse parts. Technical Publishing House Bucharest 1986.

Subject of study: Selection and utilization of the materials

CODE: D24IEIL768
NUMBER OF CREDITS: 4
YEAR/SEMESTER: third year / first semester
TYPE OF COURSE: speciality
OBJECTIVES: Discipline "Selection and utilization of the materials" aims to familiarize students with the main metallic materials and their equilibrium diagrams. The focus is laid on steel and cast Fe-C

diagram shown in going through the elements of heat treatment and non-ferrous materials.
This knowledge, provided students are required to understand the main qualities that a product must meet. Also, the knowledge gained may allow improvement of technological processes.
The main objective is the acquisition mode selection for a particular product.
CONTENT: Properties of metallic materials, physical properties, mechanical properties, technological properties, structure-property Interdependence, steels and cast irons, Classification, Influence of alloying elements, typing, choice of materials metal of choice criteria, factors to be considered in the design, form part properties of metallic materials, external factors, chemical composition of materials and recommendations metalicePrincipii industries, welded structures, tanks, boilers, parts and MO heat treated equipment working in corrosive / oxidizing machinery working in environments with hydrogen Springs, Parts ambutizare principles and recommendations made by the fields
- Welded structures, tanks, boilers
- Parts and O.M. annealed
- Equipment working in corrosive / oxidizing
- Equipment working in environments with hydrogen
- Springs
- Parts formed by ambutizare
- Bearings
- Fasteners
- Valves
- Tools

TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral
BIBLIOGRAPHY (selective):
Al. Domsa, S. Domsa – Materiale metalice in construcţia de maşini, Ed. Dacia, 1981
M., Truşculescu "Studiul Metalelor" Editura Didactică şi Pedagogică Bucureşti, 1982
M. Demian - Alegerea Şi Utilizarea Materialelor, Notiţe de curs
M. Demian - Alegerea Şi Utilizarea Materialelor, Îndrumar proiectare. Notiţe
M., Truşculescu, "Analize si Încercări ale materialelor metalice" Timişoara 1992

Subject of study:
Thermal and surface treatment

CODE: D24IEIL890
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4nd year/2nd semester
TYPE OF COURSE: mandatory
OBJECTIVES: Knowledge of the specific thermal, thermo-chemical and surface treatments applicable to ferrous alloy parts in the machine and appliance industry, the development of knowledge in the field, the development of communication skills and the formation of a creative attitude. Understanding the application of thermal and surface treatments to improve the mechanical properties of materials used in machine tool manufacturing.
Explanation and interpretation of thermal, thermo-chemical and surface treatment techniques applicable to parts made of ferrous alloys.
CONTENT: 1. Diagram of Fe3C; The importance of surface treatments in the practice of thermal treatments (structure and properties of iron, Fe-Fe3C metallist system balance diagram, phases and constituents in the Fe-Fe3C alloy system, structure of carbon steels and white pigments, primary and secondary crystallisation, classification of treatments thermal, the importance of surface treatments in the practice of thermal treatments);
2. Theory of thermal treatments (structural changes in steels, critical points, transformations to steel heating, transformations to steel cooling)
3. Thermal treatment technology (parameters of thermal treatments and used equipment, heating, heating speed and duration, heating media, maintenance, thermal equalization duration, structural transformation duration, cooling, cooling rates and cooling times, cooling media)
4. Thermal quenching treatments
- Volumizing
- surface quenching (superficial: superficial flame healing, superficial induction hardening, superficial quenching in the electrolyte)
5. Thermochemical treatments (carburizing, nitriding, carbonitrulation)
6. Metal diffusion deposition (alloying, chromium plating, nickel plating, silicification, titanisation, sherardization and zinc coating, boring)
7. Modern superficial treatments and thermal treatments specific to powder metallurgy (treatments in water vapor, thermosonic treatments, microwave treatments, laser treatments, specific powder metallurgy treatments)
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1.S.Şontea, D.Tărâţă – Tratamente termice şi termochimice, Editura Scrisul Românesc, Craiova, 2001,
2.Mihail Mangra – Tratamente termice şi de suprafaţă, Curs, Tipografia Universităţii din Craiova, 2003,
3.Traian Popescu – Tratamente termice şi de suprafaţă, Tipografia Universităţii din Craiova, 2005
4.Traian Popescu –Experimente în tratamente termice, Editura Universitaria din Craiova, 2007
5. Traian Popescu – Tratamente termice în metalurgia pulberilor, Editura Universitaria din Craiova, 2008

Subject of study:
Labor law

CODE:
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: domain
OBJECTIVES: Transmission to students of basic, theoretical and practical knowledge of labor law
1. Understanding the need to develop the role of labor law as a tool for strengthening the rule of law;
2. The need to respect the social values protected by labor law;
3. Compliance with the rules of professional deontology of those involved in the work process and in the settlement of disputes between employers and employees;
4. Strengthening constitutionality and legality in the work of employers and employees.

CONTENT: 1. The object, definition, features and sources of labor law.
2. Individual labor contract.
3. Working time and rest time.
4. Payroll system
5. Safety and health at work. Work inspection.
6. Liability.
7. Individual labor conflicts and labor jurisdiction.
8. Social Partners.
9. Collective labor agreements.
10. Collective labor conflicts.
LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1. Al. Athanasiu - Supliment la Codul muncii. Comentariu pe articole, Ed. C.H. Beck, Bucureşti, 2011;
2. Al. Athanasiu, M. Volonciu, L. Dima, O. Cazan – Codul muncii. Comentariu pe articole. Vol. I. si II , Ed. CH Beck, Bucureşti, 2010;
3. Cl. A. Moarcăș Costea - Dreptul colectiv al muncii, Ed. C.H. Beck, Bucureşti, 2012;
4. I.T. Ştefănescu – Tratat teoretic şi practic de drept al muncii, Ediţia a III-a, revăzută și adăugită, Ed. Universul Juridic, Bucureşti, 2014.

Subject of study:
Coin credit banks

CODE:
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: domain
OBJECTIVES: To explain the phenomena and the monetary and credit processes in the light of the factors that determine them, in order to identify the directions of action for influencing them. To acquire and apply knowledge, methods, techniques and tools to enable them to perform financial transactions and transactions
1. to provide a basis for understanding and to become familiar with the main activities related to the financial and monetary sphere;
2. to present the configuration of the monetary systems and the payment system;
3. to capitalize on the financial instruments in order to substantiate the decisions aimed at rationalizing the monetary and credit activities;
4. Identify and describe the operations performed by financial-banking institutions;
5. to analyze and to interpret the phenomena and processes in the financial-banking field;
6. simulate transactions or financial-banking transactions;
7. Explain the nature and configuration of anti-inflationary policies.
CONTENT: The Role of the Coin in the Contemporary Economy.
The genesis of the coin. Coin definition. Definition of money. Coin Forms in Contemporary Economies. The functions of the coin. Money Features.
The concept of monetary system. European Monetary System. Romanian Monetary System.
Monetary mass
Contents and structure of monetary mass. Monetary situation analysis based on monetary components. Currency counterparties.
Bank deposit, credit and interest
Definition, forms and role of deposits. Definition, forms and role of credit. Functions and forms of interest in the market economy.
Modalities and payment instruments
General considerations on the means of payment. Payments by transfer. Electronic funds transfer system
Banks and banking
The genesis of banks. The content and structure of the banking apparatus. Commercial banks. Issuing banks. Banks and specialized credit institutions
Monetary policy
Monetary policy: concept and objectives. Excise fee. Mandatory reserve system. Open-market operations. Other monetary policy instruments. Banking regulations.
Monetary equilibrium and inflation.
The concept of monetary equilibrium. Concepts and theories on inflation. Causes and consequences of inflation. Anti-inflationary policies..
LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
1. Basno C., Dardac N., *Sisteme de plăţi, compensări şi decontări,* Editura Didactică şi Pedagogică, Bucureşti, 2003;
2. Dardac N., *Monedă şi credit,* Editura ASE , Bucureşti, 2008;
3. Netoiu L., Meita L., Netoiu T., *Moneda si Credit*, Editura Sitech, Craiova, 2013;
4. Opriţescu M., Popescu J., Manta A., *Monedă, credit, bănci*, Editura Sitech, Craiova, 2012;
5. Petruse I., *Moneda si Credit*, Editura Eftimie Murgu, Resita, 2014;
6. Pop N., Ioan-Franc V., *Spre o monedă globală,* Editura Expert, Bucureşti, 2012;
7. Trenca I., *Tehnică bancară*, Editura Casa Cărţii de Ştiinţă, Cluj Napoca, 2006;
8. Turliuc V. şi colab*., Moneda si credit,* Editura Universităţii „A.I. Cuza", Iaşi, 2013;
9. Voinea Ghe. (coord)*, Economia financiar-monetara internationala si unele probleme ale lumii contemporane* (editia a II-a), Editura Tehnopres, Bucuresti, 2014.