"Gheorghe Asachi" Technical University of Iasi

Faculty of Machine Manufacturing and Industrial Management

List of courses available for Erasmus incoming students

No.	Name of the course and main chapters	Code from the Study Plan	Field of study	Program of study	Professor (please mention the email address)	Level of study (UG/MSc)	Year of study	Semester (1/2)	No. of ECTS	Support materials for the course (please mention written materials / link address for online materials and also the language of these materials: EN/FR/DE/ES/PT/IT etc)	Individual or group meetings (Please mention Yes or No and the language used during these meetings: EN/FR/DE/ES/PT/IT etc)	Assessment (Please mention the language for the assessment: EN/FR/DE/ES/PT/IT etc)
1	CHEMISTRY "Introductory notions (atoms and molecules; chemical bonds; substances and mixtures of substances; laws of chemistry); Chemical thermodynamics; Chemical kinetics; Chemical equilibrium; Electrochemistry; Corrosion and corrosion protection; Chemistry of lubricants; Water: industrial water and wastewater; Macromolecular compounds applied in the technics"	CMMI-L-1.05	Mechanical engineering, Industrial engineering, Engineering and management	all study programs of faculty	Professor PhD chem. habil. Margareta Gabriela CIOBANU gciobanu03@yahoo.co.uk	UG	1	1	2	Written materials / EN	Yes / EN	EN
2	Theoretical Mechanics 1 Systems of forces; center of mass; statics of particle, statics of the rigid body statics of systems; particle kinematics; rigid body kinematics; dynamics of the particle; rigid body dynamics (Getting Started)	CMMI-L-2.04	Mechanical engineering, Industrial engineering, Engineering and management	all study programs of faculty	Professor Radu Ibanescu radu.ibanescu@academic.tuiasi.ro	UG	1	2	6	Written materials (books) available on PDF/EN	Yes / EN	EN
3	Theoretical Mechanics 2 Rigid body dynamics (physical values, principles, theorems); moments of inertia; particular dynamics of rigid body motions; elements of analytical mechanics - D'Alembert dynamic equilibrium equations.	CMMI-IMEC-3.04	Mechanical engineering	all study programs of the field	Professor Radu Ibanescu radu.ibanescu@academic.tuiasi.ro	UG	2	1	3	Written materials (books) available on PDF/EN	Yes / EN	EN
4	Theoretical Mechanics 2 Rigid body dynamics (physical values, principles, theorems); moments of inertia; particular dynamics of rigid body motions; elements of analytical mechanics - D'Alembert dynamic equilibrium equations.	CMMI-IIND-3.04	Industrial engineering	all study programs of the field	Professor Radu Ibanescu radu.ibanescu@academic.tuiasi.ro	UG	2	1	3	Written materials (books) available on PDF/EN	Yes / EN	EN
5	Fluid Mechanics (1) 1. Physical properties of fluids. 2. Basics of tensor calculus in orthonormal bases. 3. Fluid kynematics. 4. Fundamental equations of fluid mechanics. 5. Fluid statics. 6. Fluid dynamics	CMMI-L-4.03	Mechanical engineering, Industrial engineering, Engineering and management	all study programs of faculty	Theodor Popescu theodor.popescu@academic.tuiasi.ro	UG	2	2	5	Written materials / EN	YES / EN	EN
6	ENGINEERING THERMODYNAMICS: Introduction (Systems. Thermodynamic state and properties. Thermodynamic equilibrium. Reversible and irreversible processes); The first law (Different statements of the first law. The first law for closed and open systems); The ideal gas (Ideal gas laws. Specific heats. Ideal gas mixtures. Analysis of ideal gas processes); The second law (Cycles, balance equation, efficiency of direct and reverse cycles. The Carnot cycle. Different statements of the second law. Entropy and the second law for reversible and irreversible processes); Real gases (Andrews isotherms. Compressibility factor. Generalized compressibility chart. Virial equations of state); Vapor cycles (Saturated liquid, saturated vapor and superheated vapor properties. Phase diagrams. Vapor power and refrigeration cycles); Ideal gas cycles (Internal combustion engines. Vapor-compression refrigeration cycle. Gas turbines); Humid air (Properties. Mollier diagram. Air conditioning processes)	CMMI.L-4.08	Mechanical engineering, Industrial engineering, Engineering and management	all study programs of faculty	Carmen Ema Panaite, carmen-ema.panaite@academic.tuiasi.ro	UG	2	2	3	written materials / EN	Yes / EN	EN
7	Electrical engineering and applied electronics: Direct current electrical circuits, elements of electrodynamics, magnetic materials, magnetic field, alternative current, elements of circuits in a.c., electric transformers, electric machines in c.c and a.c. Electronic devices, semiconductor diode, bipolar transistor, thyristor,amplifiers, logic integrated circuits definitions, logical functions, combinational logic circuits.	CMMI-L-5.07a	Mechanical engineering, Industrial engineering, Engineering and management	all study programs of faculty	Sebastian Teodor Aradoaei email:arsete@tuiasi.ro	UG	3	1	6	http://www.eth.ieeia.tuiasi.ro/index.php/personal/sebastian-aradoaie/cursuri/	Yes/ EN	EN
8	Aerodynamics of Airfoil Cascades (1) 1. Theoretical bases of potential flows 2. Steady plane potential flows 3. Steady hydrodynamics of isolated airfoils	CMMI-MSHP-5.05	Mechanical engineering	MSHP	Theodor Popescu theodor.popescu@academic.tuiasi.ro	UG	3	1	3	Written materials / EN	YES / EN	EN
9	Aerodynamics of Airfoil Cascades (2) 1. Introduction in vortex theory 2. Aerodynamics of finite wing 3. Bases of hydrodynamics of airfoil cascades 4. Steady hydrodynamics of linear airfoil cascades	CMMI-MSHP-6.04	Mechanical engineering	MSHP	Theodor Popescu theodor.popescu@academic.tuiasi.ro	UG	3	2	4	Written materials / EN	YES / EN	EN

No.	Course	Code	Field	Abbr.	Contact	Level	C	S	Cr	Materials	Exam	Lang
10	Sheet Metal Cold Forming Technology I	CMMI-TCM-6.04	Industrial engineering	TCM	Gheorghe Nagit, nagit@tcm.tuiasi.ro	UG	3	2	5	Writen materials / EN	YES / EN	EN
11	Sheet Metal Cold Forming Technology II	CMMI-TCM-7.03	Industrial engineering	TCM	Gheorghe Nagit, nagit@tcm.tuiasi.ro	UG	4	1	5	Writen materials / EN	YES / EN	EN
12	Manufacturing Technologies on Numerical Controlled Machines Topics: Introduction in numerical command, Basic elements of numerical command, Programming of the movement commands, Parametric programming, Fixed cycles, Mirroring, Sub-programming, Automatic design systems of technologies used in programming the numerical controlled machines tool.	CMMI-TCM-7.06	Industrial engineering	TCM	Lecturer Mihalache Marius Andrei; andrei.mihalache@tuiasi.ro	UG	4	1	5	PDF file, written material, EN	Yes / EN	EN
13	Computer aided design	CMMI-IEDM-7.05	Engineering and management	IEDM	Lecturer, Ph.D, Mariana CIORAP, mariana.ciorap@academic.tuiasi.ro	UG	4	1	5	Written materials / EN	Yes individual group / EN	RO/EN
14	Computer aided design of the manufacturing systems 1	CMMI-SPD-7.06	Industrial engineering	SPD	Lecturer, Ph.D, Mariana CIORAP, mariana.ciorap@academic.tuiasi.ro	UG	4	1	3	Written materials / EN	Yes individual group / EN	RO/EN
15	Pumps, Blowers and Fans 1: Generalities; Basic notions regarding turbo-pumps. Similitude and modeling of hydraulic machines. Fundamentals of hydrodynamic processes in turbo-pumps. Centrifugal pumps. Axial pumps.	CMMI-MSHP-7.03	Mechanical engineering	MSHP	Bogdan Ciobanu bogdan.ciobanu@academic.tuiasi.ro	UG	4	1	4	Written materials / EN	Yes / EN	RO/EN
16	Pressure Welding Tehchnology 2: General presentation of the welding pressure processes, Classification of the welding processes, Presentation of the main welding pressure processes (Resistance spot welding, Resistance seam Welding, Projection welding, Seam Welding, Friction Stir Welding, Duble Head Friction Welding, Fash Welding), Weldinfg defects, Development and approval of the Welding Procedure Specifications.	CMMI-IS-7.03	Industrial engineering	IS	BOCA Mihai, mihai.boca@academic.tuiasi.ro;	UG	4	1	3	Written materials / EN	YES / EN	EN
17	Pumps, Blowers and Fans 2: Specific force on turbo-pumps elements and their equilibration. Characteristic curves of turbo-pumps. Cavitations in turbo-pumps. Basic notions regarding fans and turbo-blowers. Fundamentals of gas-dynamic processes in fans and turbo-blowers. Centrifugal and axial fans and turbo-blowers. Cross-flow fans. Characteristic curves for fans and turbo-blowers. Fan noises. Lobe blowers (Roots).	CMMI-MSHP-8.01	Mechanical engineering	MSHP	Bogdan Ciobanu bogdan.ciobanu@academic.tuiasi.ro	UG	4	2	6	Written materials / EN	Yes / EN	RO/EN
18	Computer aided design	CMMI-MFNT-8.01	Mechanical engineering	MFNT	Lecturer, Ph.D, Mariana CIORAP, mariana.ciorap@academic.tuiasi.ro	UG	4	2	5	Written materials / EN	Yes individual group / EN	RO/EN
19	Computer aided design of the manufacturing systems 2	CMMI-SPD-8.05	Industrial engineering	SPD	Lecturer, Ph.D, Mariana CIORAP, mariana.ciorap@academic.tuiasi.ro	UG	4	2	3	Written materials / EN	Yes individual group / EN	RO/EN
20	Name of the course: Hydroelectric power plants. Main chapters: 1) Power engineering basics. 2) Hydrology and hydraulics basics. Hydrological circle. 3) Types of hydropower plants and integration of hydroelectric power plants in the electric power system. Pumped storage plants. 4) Electro-Hydromechanic components of a hydropower plant : turbines, valves, generators, transformers. Selection of the turbine, according to operating conditions. 5) Main components of hydropower structures: dams, gates, spillway, reservoir, water intake, headrace, pressure shaft/surge chamber, penstock, powerhouse, dissipation structures, fish passage, tailrace. 6) Monitoring and control of hydropower plants.	CMMI-MSHP-8.04	Mechanical engineering	MSHP	Daniela Popescu. Email: daniela_popescu@tuiasi.ro	UG	4	2	4	1) EUREC. Hydropower Europe. Hydropower technologies. The state of the art. https://hydropower-europe.eu/uploads/news/media/The%20state%20of%20the%20art%20of%20hydropower%20industry-1600164483.pdf, March 2020 (EN). 2) Erbisti. Design of hydraulic gates, CRC Press, 2nd Edition, 2017 (EN). 3) Hydropower plants. https://www.usgs.gov/special-topic/water-science-school/science/hydroelectric-power-how-it-works?qt-science_center_objects=0#qt-science_center_objects	Individual-EN	EN
21	Advanced Welding Technologies: The role of advanced technologies in the development of humanity: primary technologies, mature technologies and emerging technologies; civilization through technological development. Advanced welding technologies usable in the 21st century. The role of the microprocessor in advanced manufacturing/welding technologies. Advanced welding technologies that use thermal plasma. Advanced welding technologies that use the particle beam. Weldability of new materials and WAAM concept in welding technologies. Econometrics of advanced welding technologies.	TAF-IA-104	Industrial engineering	TAF	BOCA Mihai, mihai.boca@academic.tuiasi.ro	MSc	5	1	4	Written materials / EN	YES / EN	EN
22	Dynamic Systems in Mechanical Enginering Introduction to fundamentals of system modeling. Types of causal models and remarkable properties. Systematic overview of some fundamental laws in Physics. Analogies between various physical domains. Modeling mechanical and hybrid systems by the bond-graph language. Controlled elements in the bond-graph language. Presentation of some specific software (20-SIM, Mathcad, MATLAB) with applications.	TAF-IA-105	Industrial engineering	TAF	Professor Radu Ibanescu radu.ibanescu@academic.tuiasi.ro	MSc	5	1	5	Written materials (books) available on PDF/EN	Yes / EN	EN
23	Computer aided management of the industrial products	CFAC-IA-108	Industrial engineering	CFAC	Lecturer, Ph.D, Mariana CIORAP, mariana.ciorap@academic.tuiasi.ro	MSc	5	2	5	Written materials / EN	Yes individual group / EN	RO/EN
24	Maintenance Management (The management of the "Production - Quality - Maintenance" triplet; The information system of the maintenance management; Dependability strategic management; Maintenance systems; FMECA)	CMMI-IEDM-7.02	Engineering and Management	IEDM	Ion Verzea ion.verzea@academic.tuiasi.ro	UG	4	1	5	Written materials (EN)	Yes (EN)	EN

No	Course Description	Code	Faculty/Department	Program	Contact	Level				Exam	Available	Lang
25	Total Quality Management: Quality management tools, tools and techniques. Standards for quality systems, environmental management systems, occupational health and safety management etc.; Standardization, Certification, Accreditation in Romania and worldwide; Stakeholders and processes within a company. Capability of processes. Six sigma. Benchmarking. Competitive engineering. Designing of experiments. Quality Engineering in Taguchi's vision. Techniques for defect analysis.	AI-IA-107	Engineering and Management	Industrial Entrepreneurship	Oana Dodun (oana.dodun-des-perrieres@academic.tuiasi.ro)	MSc	5	2	4	written materials/EN	Yes/ EN	EN
26	Statistical Data Processing: Elements of descriptive statistics; Types of graphical representations; Normal, poisson, uniform, Weibull, exponential dispersions and percentage calculus; Elimination of data affected by aberrant errors from simple data strings: Chauvenet's criterion, Peirce's criterion; Elimination of data affected by aberrant errors from grouped data series: Cochran's criterion, Bartlett test. Testing of statistical hypotheses; thresholds of significance; interpreting the results. Kolmogorov-Smirnov test, $\chi 2$, T. ANOVA procedure. The correlation between two quantitative variables. Assigning qualitative variables (nominal). Linear, nonlinear regression, other types. Gray's analysis. Time series.	AI-IA-104	Engineering and Management	Industrial Entrepreneurship	Oana Dodun (oana.dodun-des-perrieres@academic.tuiasi.ro)	MSc	5	1	4	written materials/EN	Yes/ EN	EN
27	Conex Welding processes: A new approach to making an welding process	CMMI-IS-7.06	Engineering and Industrial	Welding Engineering	BOCA Mihai, mihai.boca@academic.tuiasi.ro	UG	4	1	4	PDF file, written material, EN	Yes/EN	EN
28	Machine-Tools & Cutting 1 (Cutting Parameters, Chip Formation, Cutting Forces, Wear & Tool's Life, Kinematic Chains, Structural Elements of Machine-Tools, Speed Control Mechanisms	IMec-5.02-DID	Mechanical engineering	MFNT, MSHP	Assoc.Prof. Irina Cozminca (irina.cozminca@academic.tuiasi.ro)	UG	3	1	6	Written materials / EN	Yes / EN	EN
29	Cutting Fundamentals (Surface generation, Kinematics, Cutting Parameters, Chip Formation, Plastic deformation, Cutting Forces, Heat, Wear & Tool's Life, Cutting Surface Quality)	IInd-6.02-DID	Industrial engineering	TCM	Assoc.Prof. Irina Cozminca (irina.cozminca@academic.tuiasi.ro)	UG	3	1	6	Written materials / EN	Yes / EN	EN
30	Nonconventional Technologies (Electrical Discharge Machining, Electrochemical machining, Chemical Machining, Plasma and ion beam manufacturing processes, Ultrasonic manufacturing processes, Laser beam manufacturing processes, Electron beam manufacturing processes, Sand blasting, abrasive water jet cutting, Additive manufacturing, Welding technologies (ultrasonic welding, friction welding, laser, electron beam welding), surface coating technologies.	CMMI-TCM-8.02	Industrial engineering	TCM, SPD	Margareta Coteata (margareta.coteata@academic.tuiasi.ro)	UG	4	2	4	Written materials / EN	Yes/ EN	EN
31	Advanced technologies of mechanical machining and assembling (Integrated manufacturing - IT structures in integrated manufacturing and their inter-relationship, next generation manufacturing and the virtual enterprise. Advanced machining technologies. Advanced finishing and over-finishing technologies. Rapid prototyping technologies. Additive manufacturing. Advanced assembly technologies: DFA- design for assembly and DFMA-design for manufacturing and assembling; types, peculiarities and advantages of fully mechanical assemblies, technologies and advanced equipment for assembling plastic and glass parts, automation and robotization in assembly processes).	TAF-IA-103	Industrial engineering	TAF	Margareta Coteata (margareta.coteata@academic.tuiasi.ro)	MSc	5	1	5	Written materials / EN	Yes/ EN	EN
32	Fundamentals of Scientific Research	MPI, TAF-IA-110	Industrial engineering	MPI	Margareta Coteata (margareta.coteata@academic.tuiasi.ro)	MSc	5	2	6	Written materials / EN	Yes/ EN	EN
33	Optimization of Manufacturing Technologies (The principle of choosing the manufacturing technology process. Existence and uniqueness of the optimal solution without / with restrictions. Algorithms for optimizing problems dependent on a single variable / multiple variables without / with restriction. Dynamic optimization algorithms. General optimization by the Monte Carlo method. Heuristic, metaheuristic algorithms (Greedy type algorithms). Heuristic, metaheuristic algorithms (Tabu Search type algorithms). Combinatorial optimization. The problem of the travel agent. Determining the minimum path. Johnson's algorithm. Optimizing the launch of products in manufacturing. Establishment of reference values for the representative sizes accepted for the optimization criteria.	CMMI-TCM-8.09	Industrial engineering	TCM	Margareta Coteata (margareta.coteata@academic.tuiasi.ro)	UG	4	2	3	Written materials / EN	Yes/ EN	EN
34	Physics	DIMA-109.DF DI	Industrial Engineering	all study programs of faculty	Assoc. Prof. Bacaita Elena Simona (elena-simona.bacaita@academic.tuiasi.ro)	UG	1	1	4	written materials/EN	Yes/EN	EN
35	PHYSICS 1, PHYSICS 2	EDIF 132 Physics 1, EDIF139 Physics 2	Electronic Engineering, Telecommunications and Information Technologies	all study programs of faculty	Lecturer, PhD, Rusu Cristina-Marcela, cristina-marcela.rusu@academic.tuiasi.ro	UG	1	1 and 2	3 for sem. I, and 4 for sem.II	written materials/EN	Yes/EN , INDIVIDUAL GROUP	EN

Dean of the Faculty

prof.Cătălin Gabriel DUMITRAȘ

Erasmus+ Faculty Coordinator

prof. Bogdan CIOBANU