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Maritime University of Szczecin

Courses in English for Erasmus Students

General Subjects&

Faculty of Economics and Transport Engineering

academic year 2021/2022

winter semester

Szczecin 2021

	Type of the subjects	Name of the subject	Code	Semester
1	GENERAL	INTRODUCTION TO MARITIME SOCIOLOGY	FN	Winter semester
2	GENERAL	INFORMATION TECHNOLOGY semester 1	FN	Winter semester
3	GENERAL	MATHEMATICS semester 1	FN	Winter semester
4	GENERAL	MATHEMATICS semester 3	FN	Winter semester
5	GENERAL	PHYSICS semester 1	FN	Winter semester
6	GENERAL	COMPUTER SCIENCE semester 1	FN	Winter semester
7	GENERAL	AUTOMATION FN	FN	Winter semester
8	GENERAL	ELECTRICAL AND ELECTRONIC ENGINEERING semester 1	FN	Winter semester
9	GENERAL	MACHINE CONSTRUCTION AND ENGINEERING GRAPHICS semester 1	FN	Winter semester
10	SPECIALIZED	INTELLIGENT TRANSPORTATION SYSTEMS	FETE	Winter semester
11	SPECIALIZED	ENTREPRENEURSHIP	FETE	Winter semester
12	SPECIALIZED	BUSINESS PROCESSES MODELING IN TRANSPORT	FETE	Winter semester
13	SPECIALIZED	LOGISTICS OF TRAVEL SERVICES	FETE	Winter semester

GENERAL SUBJECTS

INTRODUCTION TO MARITIME SOCIOLOGY	
Semester	Winter semester
Number of ECTS	1
Number of classes	LECTURE 15h
Description	1Sociology as a scientific discipline. Diversity of research aims in sociology. Characteristics of research methods in sociology: experiment, questionnaires and polls, observation, historical research. 2. Major related, economic and cultural bases of social life. Social inequalities. Inequality in access to economic resources. Influence of the social environment on an individual. 3. Race, nationality, nation: discrimination and ethnic prejudice. Characteristics of basic symbolic systems in society: language, systems of values, belief systems, systems of norms and knowledge resources. Cultural differences and prejudices. 4. Globalization and its international determinants. Social dimension of globalization in maritime economy. Leadership and Teamwork; Human Element, Leadership and Management (HELM) – STCW 2010, Manila Amendments 5. Working environment and life on a ship. Specifics of seafarer's and fisherman's jobs. Conditions of work at sea. Ship as an enclosed institution. 6. Intercultural communication at work at sea. Awareness of cultural difference, inborn traits, attitudes, behavior and intercultural interactions. 7. Types (and kinds) of social bonds. Social bonds on a ship. Ship's crew as a small integrated social group. Informal social structures on a ship. 8. Sociological aspects of managing and conning a sea-going ship, team work. 9. Professional preparation for work at sea. Job adaptation of seaman and fisherman. Motivations and needs of a seafarer on a ship versus stress and job adaptation. 10. Psychosocial factors of occupational accidents of seamen and fishermen. Human error, situational awareness. Awareness of automation of performed actions. 11. Specifics of seamen and fishermen jobs and their social consequences in life on land, including family life. 12. Influence of work at sea on personality. Free time of seamen and fishermen. Complacency, boredom.

INFORMATION TECHNOLOGY – module 1	
Semester	Winter semester
Number of ECTS	1
Number of classes	LECTURE 15h
Description	1.Sources of information – quantity of information, coding, compression, decompression, archiving of information. 2. Means and standards of communicating information. Formats of data. 3. Standards of data transmission. Solutions used in data transmission. Methods of sound transmission. Methods of image transmission. 4. The subject and methods of information technology. Basic concepts. 5. Information society: knowledge society, digital world, digitized documents, systems of document circulation. 6. Hardware. Classification of hardware. Representation of data in computer systems. Hardware classification. 7. Hardware items. 8. Computer networks. The Internet. Network services. 9. System software. 10. User software. Programming – phases of programming. 11. Programming and its phases. 12. IT systems. Structure of IT system creation process. 13. IT applications in the maritime economy. 14. Selected legal issues: copyright, data security. 15. Development trends in information technology.

MATHEMATICS– module 1	
Semester	Winter semester
Number of ECTS	7
Number of classes	LECTURE 15h + CLASSES 30h
Description	1.Differential calculus of single real variable function: supplementary knowledge of cyclometric functions, limits of sequences and functions, function derivative and differential, derivatives and differentials of higher orders, theorems on mean value, Taylor formula, monotonicity, extremes, convexity and concavity, points of inflexion, asymptotes, deL'Hospital rules, investigation of a behaviour of a function. 2. Integral calculus of single real variable function: indefinite integral, fundamental integration methods and theorems, integration of rational, irrational and trigonometric functions, definite integral (Riemann's definition), fundamental theorems and properties of definite integral, Newton-Leibnitz theorem, improper integrals, use of definite integral in geometry. 3. Differential and integral calculus of multi-variable function: definition of two-variable function, boundary and continuity of two-variable function, partial derivatives, derivatives of the composite function, exact differential, partial derivatives and exact differentials of higher orders, Taylor formula, multi-variable function extremes, definition and properties of double integral and triple integral, reduction of multiple integrals to iterated integrals, curvilinear directed and undirected integrals, Green's theorem

MATHEMATICS– module 3	
Semester	Winter semester
Number of ECTS	7 ECTS
Number of classes	LECTURE 15h+ CLASSES 15h
Description	1.Ordinary differential equations: selected types of first order equations, selected types of second order differential equations: particular cases, linear differential equations of second order with constant coefficients; 2. Probability calculus: elementary events, random events, definition of probability, properties of probability, conditional probability, independence of random events, Bernoulli scheme, total probability, Bayes formula, random variables, probability distributions of random variables, parameters of random variables, 2D discrete and continuous random variables, covariance, correlation coefficients, correlated random variables, independence of random variables. 3. Fundamentals of mathematical statistics: basic terms and theorems, some probability distributions occurring in mathematical statistics, estimators, confidence intervals, statistical hypotheses and their verification, statistical tests.

PHYSICS – module 1	
Semester	Winter semester
Number of ECTS	5
Number of classes	LECTURE 15h+ CLASSES 15+ LABORATORIES 15h
Description	1.Determination of gravitational acceleration by a Kater's pendulum. 2. Determination of the heat of fusion and vaporization. 3. Examination of free vibrations of a string by the resonance method. 4. Determination of the rigidity modulus using a torsional pendulum. 5. Determination of gyroscope moment of inertia. 6. Determination of cp/cv ratio. 7. Determination of logarithmic decrement of damping. 8. Determination of the speed of sound in the air. 9. Measurement of dynamic viscosity and the dependence of viscosity on temperature.

COMPUTER SCIENCE – module1	
Semester	Winter semester
Number of ECTS	2
Number of classes	LABORATORIES 30h
Description	1. Construction of a PC. 2. Operating systems – structure and configuration. 3. Operation of selected utility programs. 4. Operation of selected application programs. 5. Word processor MS Word. 6. Computer networks – LAN. 7. Computer networks – Internet, WWW, FTP, e-mail, browsing for information. 8. Spreadsheet MS Excel. 9. Databases – MS Access. 10. E-mail.

AUTOMATION FN	
Semester	Winter semester
Number of ECTS	2
Number of classes	LECTURE 15h + LABORATORIES 15h
Description	1, Basic concepts of automation. Structure, principle of operation, and block diagram of a ship's heading automatic control system. 2. Signal conversion in automation. Operator and spectral transfer functions, time-varying characteristics of elements and systems. 3. Characteristics and properties of basic linear elements. 4. Analogue continuous controllers - characteristics, properties, settings. 5. Requirements for control systems (stability and control quality). 6. Basic concepts of digital technology in automation. 7. Marine computer automatic control systems

ELECTRICAL AND ELECTRONIC ENGINEERING module 1	
Semester	Winter semester
Number of ECTS	2
Number of classes	LECTURE 15h + LABORATORIES 15h
Description	1.General: voltage, intensity, electromotive force of a source of voltage; direct current (DC) circuits - Ohm's and Kirchoff's laws; energy and power in DC circuits. 2. Marine batteries: types, principle of operation and use/maintenance. 3. AC circuits - basic concepts, RLC circuits, reactance, impedance, active / reactive power, complex and apparent power, AC effective (rms) and mean values, electromagnetic induction and self-induction. 4. Three-phase circuits: inland and shipboard power grids, their parameters types of connection, power of three-phase receivers. 5. Electrical measurements: notations, principle of operation of basic measuring instruments; measurement of electrical parameters of RLC elements in electric circuits. 6. DC machines: construction and principle of operation, types and basic characteristics of DC machines. 7. AC machines: asynchronous machine, construction and principle of operation, its motoring operation; synchronous machine, construction and principle of operation, generator operation. 8. Transformers: construction and principle of operation, working modes of transformers. 9. Marine electrotechnology. 9.1. Generation and distribution of electric power on a ship. 9.2. Emergency power supply, starting up an emergency generating set. 10. Protection against electrocuting: risks and protective measures in: a) grounded networks; b) insulated networks.

MACHINE CONSTRUCTION AND ENGINEERING GRAPHICS	
Semester	Winter semester
Number of ECTS	3
Number of classes	LECTURE 15h + CLASSES 15h + LABORATORIES 15h
Description	1.Principles of rectangular projection. 2. Cross-sections and intersection of solids, axonometry. 3. Simplified representation. 4. Sequence of dimensions recording. 5. Temporary and permanent joints. 6. Characteristics of working and assembly drawings. 7. Use of CAD programs for creating and edition of construction drawings. 8. The concept of a machine, classification of machines by use.

SPECIALIZED SUBJECTS -description

FACULTY OF ECONOMICS AND TRANSPORT ENGINEERING – specialized classes

INTELLIGENT TRANSPORTATION SYSTEMS	
Semester	Winter
Number of ECTS	2
Number of classes	Lectures 15h + Laboratories 30h
Description	Knowledge about the Intelligent Transport Systems functionalities. Selection skills for technologies and practical solutions in the field of ITS. Requirements: Basic knowledge about network and computer systems. Knowledge about transport system functions.

ENTREPRENEURSHIP	
Semester	Winter
Number of ECTS	4
Number of classes	Lectures 15h + Classes 15h
Description	Acquiring entrepreneurial competences. Education of leadership skills and organization management, assessment of changes in the environment and their impact on the organization. Requirements: Economic fundamentals and statistics.

BUSINESS PROCESSES MODELING IN TRANSPORT	
Semester	Winter
Number of ECTS	2
Number of classes	Lectures 15h + Laboratories 15h
Description	Methodology for business processes modeling in transport. IT systems supporting business process modeling. Requirements: Information Technology. Telematics in transport.

LOGISTICS OF TRAVEL SERVICES	
Semester	Winter

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Number of ECTS	2
Number of classes	Lectures 15h + Classes 15h
Description	Logistics rules for tourist products. Decision-making rules for the organization of logistics projects. Requirements: Basic logistics knowledge and skills

Vocabulary

(A)	Lectures:	The lecturer teaches students interrelated contents of a subject based on his / her knowledge, using various teaching methods.
(C)	Classes:	knowledge and skills are acquired by solving computing problems. The teacher directs students and supervises the classes.
(L)	Laboratories:	knowledge and skills are acquired by performing practical or experimental work. The teacher directs students and supervises the lab classes. Students do practical work or make experiments.
(P)	Project:	The work relates to engineering developments and seeking solutions to technical problems.