



Educational program		გემის მექანიკა Ship's Power Plant		
Higher education stage	I Stage (Bachelor's programme)	Teaching language	English	
Sector standards	Sector Benchmarks of the Higher Education “Maritime Engineering ” (Georgia)	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/95, as amended in 2010 (STCW-ის A-III/1; III/2 tables)		
Qualification to be awarded	ინჟინერიის ბაკალავრი საზღვაო ინჟინერიაში	Bachelor of Engineering in Maritime Engineering	Qualification code	0716
	National Qualification Framework: 0716 - ძრავიანი სატრანსპორტო საშუალებები, გემები და საჰაერო ხომალდები / Motor Vehicles, Ships and Aircraft (0716.1.2 - საზღვაო ინჟინერია / Maritime Engineering)		ISCED-F-13	0716
Profession	გემის ინჟინერ-მექანიკოსი	Ship's Engineer	ISCO-08	3151
Programme scope	240 ECTS. Academic year is composed of 2 semesters and includes 60 ECTS credits (30 credits in semester). Taking into account of specificity of student' individualized study programme, it is allowed to determine annual workload of a student as less or more than 60 credits but no more than 75 credits (in BNTU 1 credit= 26 hours). Programme duration - 8 semesters. Conferring of Bachelor’s academic degree provided for by this programme is made on the basis of fulfillment of programme requirements, with the collection of no less than 240 credits.			
Programme approval act	Decisions of Academic Council: Programme approval (Protocol № 06 – 07.09.2020)			
Additional Information	1. This programme is the analogous to the Georgian-language accredited Bachelor’s educational programme “Ship Mechanics” currently delivered in BNTU (№195 Resolution of Higher Educational Programme Accreditation Council, as of 07. 12. 2018); 2. Sectoral basis of this programme: IMO International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/95, as amended in 2010; STCW Code, A-III/1; III/2 tables); Law of Georgia on Training and Certification of Mariners; Higher education sector benchmark: “Maritime Engineering”; 3. Compliance of the programme/programme resources with International Sectoral Standards (External Audit of BNTU by International Maritime Authority - Panama Maritime Authority (05.09.2016-07.09.2016), Honduras Maritime Authority (29.11.2016 - 01.12.2016; „Russian Register west Georgia, LTD” – ISO 9001:2008, ISO 9001:2015 certification (audit once a year); BNTU passes audit of Maritime Transport Agency of Georgia once a year; EMSA audit once every 3 rd year).			



Admission To Program	In accordance with the effective Law of Georgia, complete general education is a precondition for admission to the programme. Enrollment is made on the basis of Unified National Exams (ranking document) (A necessary condition in case of passing English as a compulsory subject in national exams is overcoming the 50% threshold). Except for the cases, provided for by the Law of Georgia On Higher Education (enrollment without Unified National Exams shall be made in special cases, specified in accordance with the rules, specified under the Law); additional requirement - command of English at minimum B2 level (Confirmation of knowledge of the language at required level is carried out by means of internal examination in BNTU (Prerequisite is to cross the 65% threshold) , or by submission of certifying document – document (diploma/certificate) certifying English-language education obtained abroad/in Georgia, relevant information containing supplement of diploma/certificate etc. issued by foreign country/Georgian higher education institution, certificate, etc. issued by authorized organization/representation, international certificates (TOEFL (TOEFL PBT), TOEFL (TOEFL IBT), English language exams of British Council and Cambridge University (IELTS), English language exams of British Council and Cambridge University (Cambridge Exam), Cambridge University (Cambridge ESOL Examination) and/or other). Continuation of study by this Bachelor's program (hereinafter referred to as the – Program) in accordance with the effective Law of Georgia is possible by mobility for BNTU and other higher educational institution students of the same higher education stage educational programmes (Compatibility of study outcomes already achieved by the students with this programme shall be established in compliance with the regulations, relating to the recognition of education (credits), effective in BNTU in accordance with the Law of Georgia). As well as, in accordance with the Law of Georgia and statutory documents of International Maritime Organization (International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978/95, as amended in 2010), corresponding health condition is a prerequisite for admission to this programme, which is necessary for study of specific programme components and achievement of planned learning outcomes. State of health shall be indicated in corresponding medical certificate, which is issued by medical institution approved by the Agency (see, list of medical institutions at Agency's website www.mta.gov.ge).
Program Structure	The programme is composed of academic components, and its structure (within 240 credits) implies free component (compulsory and elective study courses) and the component aimed at development of subject-specific competences (compulsory study courses, internship and elective study courses). Order of study of programme components (study courses, internships etc. provided for by the curriculum) provides transfer of knowledge in accordance with the principle: "From general to particular, from simple to difficult", and step-by-step development of already acquired knowledge and skills.
Program Applicability And Reason Of Its Offering	Based on increasing requirements of marine industry in global economy, it is necessary to offer educational programmes of maritime field that provide training of highly skilled marine field experts, including ship's engineer, able to meet requirements established by International Maritime Organization (IMO), national legislation and educational standards, who will be able to fulfill obligations and liabilities specified under International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/95, as amended in 2010 (hereinafter referred to as - STCW Convention). This Programme is based on IMO International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/95, as amended in 2010, the Law of Georgia on Training and Certification of Mariners, Law of Georgia On Higher Education, subordinate acts, higher education sector benchmark "Maritime Engineering".
Program Objective	Training of highly skilled, fieldwork-oriented marine field expert –Ship's Engineer with the competences corresponding to the requirements of international education and labor markets and established by STCW Convention regulations, who: 1) has theoretical knowledge and practical skills, required for the professional activity, able to fulfill obligations and liabilities of ship's engineer in accordance with the requirements of STCW Convention regulations, understand peculiarities of profession and obligations to be fulfilled, evaluate and analyze problem and make proper decisions within the scope of his competence, act promptly and in accordance with effective standards/rules, as well as take responsibility for the fulfillment of duties and people onboard; 2) is able to evaluate and analyze situation/information/data using corresponding methods with the high level of independence, identify causes and cause-effect links of technical, professional, social and ethical problems and possible risks, evaluate and analyze complex, difficult/unforeseen problems, select and justify proper solution ways, work in team, select proper model of communication and behavior, select and use technical/technological resources for the performance of work, including IT and communication technologies and specific software; 3) has motivation for personal and professional development; 4) able to understand and protect ethical peculiarities of maritime field and multicultural team; 5) is able to continue study at next level of higher education (Master's degree program), realize his abilities in public or professional activity and gradually obtain next rank of ship engineer of commanding staff of ocean-going and trade ship on the basis of recognized term of service on a ship and corresponding training and hold the position from watch engineer to chief engineer".
Planned outcomes: 1 Graduate has deep knowledge of the area of expertise and activity (Ship's Engineer) (STCW Code (A-III/1; III/2 tables), on the basis of which he/she carries out examination, explanation, critical evaluation, interrelation of complex matters (1. Ship's machinery plants; 2. Ship's electrical plants, electrical equipment and control systems; 3. Maintenance and repair; 4. Management of ship's operation and taking care of persons onboard) and their adaption to the existing / created situation / problem and the work to be performed. In particular: • <i>Main principles of engine-room watch keeping</i> – Duties relating to the taking over the watch. Regular duties to be fulfilled during watch keeping. Keeping of engine-room logbook and meaning of read information. Duties, relating to the giving over the watch. Safety and emergency response procedures. Transition of all systems from remote/automated to local control. Safety measures to be taken during watch-keeping in case of fire or accident, especially emergency measures in case of fire relating to the fuel systems;	



- *Management of engine room resources* - Allocation, distribution and prioritization of resources. Effective communication, leadership, management, team-working, receipt and consideration of information about situation ;
- *Standard English communication phrases of International Maritime Organization (IMO) and those relating to the fulfillment of duties of ship's engineer;*
- *Onboard internal communication system* - Watch-keeping instructions; Communication systems, their peculiarities, application possibilities and rules. Registration of notifications, registration requirements;
- *Ship structure, main principles of structure of ship's mechanical systems and their operation (including,, thermodynamics and thermal transmission, mechanics and hydromechanics), cargo hoisting devices and deck machinery, including* - 1. Main principles of structure and operation of mechanical systems and design characteristics of related auxiliary devices, including the follows: ship diesel engine and fuel; ship steam turbine; ship air turbine; ship boiler device; propelling plants, including propulsive screw; other auxiliary facilities, including various pumps, air compressor, separator, fresh water unit, heat transmitters, refrigerators, air conditioning and ventilation systems; steering device; automated control systems; liquids and characteristics of lubrication, liquid fuel and refrigerating systems; deck machinery. Safe and emergency operating procedures of actuation mechanisms and control systems. Preparation, maintenance, detection of defects and required measures to be taken for the purpose of the following damage of mechanisms and control systems: Main engine and relating auxiliary mechanisms; Steam boiler and related auxiliary mechanisms and steam systems; Standby drives and related auxiliary systems; other auxiliary mechanisms including refrigerating, air conditioning and ventilation systems. 2. Thermodynamics and thermal transmission, mechanics and hydromechanics: specifications of diesel engines, steam and air turbines, including speed, power and fuel consumption. Cycle of thermal power plant, thermal efficiency and thermal balance of the following devices: ship diesel engine; ship steam turbine; ship air turbine; ship steam boiler; refrigerating machinery and refrigeration cycle. 3. Physical and chemical properties of fuel and lubrication materials. Materials technology 4. Ship architecture and structure including fault management. Start and shut down of ship's main actuating gear and auxiliary devices, including related systems. Operating limitations of actuating gear and auxiliary devices. Effective operating of actuating gear, observation, evaluation of operation and provision of safety. Functions and automated control mechanism of main engine. Functions and automated control mechanism of auxiliary devices: generator distribution systems; steam boilers; oil and fuel strainer; refrigerating system; pump and pipeline system; steering control unit; cargo hoisting devices and deck machinery;
- *Pumps, pipeline systems, performance parameters of control systems* - performance parameters of pumps, pipeline systems and their control systems. Operation of pumping systems: regular operations of pumping systems; operation of cargo hold, ballast and cargo pumping systems; requirements of oily water separators (or similar equipment), and their operation. Operation and maintenance of mechanisms, including pumping and pipeline systems;
- *Basic configuration and operating principles of electric, electronic and control devices* – electrical plants: Generator and distribution systems; Preparation and starting of generators, their parallel connection, and switching from one to another generator; electric engines, including their starting methods; high-voltage devices; sequential control circuits and related system devices;
- *Electrical equipment* – Characteristics of basic elements of electrical circuit. Scheme of automated and control systems. Functions, characteristics and features of particular machinery, including main propelling mechanism control unit and automated control facilities of steam boilers;
- *Control systems, naval electronics, electronic and electrical devices* - 1. Control systems: Various methods and characteristics of automated control; related devices for the purpose of proportional, integral and derivative control (PID) and process management. 2. Naval electronics, electronic and electrical devices, automated control systems and protective devices. Design characteristics and system configuration of automated control and protective devices: main engine; generator, distribution system; steam boiler. Design characteristics and system configuration of operating control apparatus of electric engines. Design characteristics of high-voltage devices. Characteristics of hydraulic and pneumatic control devices;
- *Safety requirements of work with ship electric systems*– 1. Safety requirements of work with electric systems, including safe shutdown of electrical plants, which is necessary before issuance of permits to the personnel for work with such devices. Maintenance and repair of equipment of electric systems, distribution switchboards, electric engines, generator and direct current electrical plants. Detection of electric faults, identification of defect locations, defect prevention measures. Structure and operation of electric control and measurement equipment. Testing of functioning and operation of the following devices and their configuration: monitoring systems; automated control devices; protecting devices. Reading of electric and simple electronic diagrams. 2. Elimination of defects related to electric and electronic control devices. Operation testing of electric and electronic control devices and protecting devices. Elimination of faults related to monitoring systems. Software control;
- *Materials, used during designing and repair of ships and equipment* - *Features and limitations of materials, used during designing and repair of ships and equipment.* Characteristics and limitations of procedures, used for manufacturing and repair. Features and parameters to be considered during manufacturing and repair. Methods used for safe emergency/temporary repair. Measures to be taken for the purpose of provision safe working conditions and usage of tools, machining devices and measuring instruments. Usage of tools, machining devices and measuring instruments. Usage of various insulation and packaging materials;
- *Safety measures for repair and maintenance* - *Safety measures to be taken during repair and maintenance*, including safe insulation of ship mechanisms and devices, before issuance of permit to personnel for work with these mechanisms and devices. Maintenance and repair of mechanisms and devices, such as their dismantling, repair and re-installation. Usage of corresponding special tools and measuring instruments. Design characteristics of materials for designing of devices and their selection. Reading of mechanism-related drawings and reference manuals. Reading of diagrams of pipelines, pneumatic and hydraulic actuating gears;
- *Operation of ship machinery plants* - Safe and effective management of maintenance and repair works. Planning of maintenance including legally provided inspections and ship type check-outs. Planning of repair;
- *Mechanism-related maintenance diagnostics, fault isolation and fault prevention* - Mechanism-related maintenance diagnostics, fault isolation and measures taken for fault prevention. Inspection and debugging of devices. nondestructive test;
- *Provision of safe working conditions* - Legal requirements, practical experience, permit to work and environmental requirements;
- *Marine pollution prevention and antipollution measures* - Measures to be taken for marine pollution prevention. Pollution prevention measures and related equipment. Significance of practical measures related to protection of the marine environment. International Maritime Law considered in international conventions and agreements, including: Certificates and documents to be kept onboard in accordance with international conventions, their approval rules, and validity term; obligations provided for by the requirements of International Load Line Convention (1966) and its modifications; obligations provided for by the requirements of International Convention for the Safety of Life at Sea (1974) and its modifications; obligations provided for by the requirements of International Convention for the Prevention of Pollution from



	Ships and its modifications; Maritime declaration of health and requirements of International Sanitary Regulation; obligations determined by international documents having an effect on the safety of ships, passengers, crew and cargo; methods and measures for the prevention of pollution from ships; national legislation related to the performance of international agreements and conventions; • <i>Ship stability and structure</i> - 1. Ship stability: Main principles of ship structure. Receipt of information on ship stability and loading schedules, diagrams and calculation devices of ship hull load; basics of displacement tonnage; measures to be taken during partial loss of possibility of navigation in undamaged state. 2. Ship structure: Names of ship's main structural elements and various parts; impact on ship trim difference and stability in case of damage and sinkage of any compartment; Recommendations of International Maritime Organization regarding ship stability; • <i>Fire-fighting and fire-extinguishing means</i> – Specificity of fire-fighting measures. Types and chemical characteristics of fire. Fire-extinguishing system. Measures to be taken in case of fire, including fire in fuel systems; • <i>Salvage of life</i> - Ability of abandon ship organization and usage of collective rescue equipment and rescue boats, as well as their launching devices and facilities, their equipment, including radio installations, satellite EPIRB, search and rescue transponders of rescue means, survival suits and heat-protective means. Regulations relating to rescue means (International Convention for Safety of Life at Sea). Fire-fighting and organization of ship abandon. Provision of serviceability of rescue means and equipment, fire-fighting and other safety systems. Measures to be taken for safety of persons onboard in case of emergency situation. Measures for minimization of ship damage due to fire, explosion, collision or vessel grounding, and for rescue. Ship structure, including damage control. Fire prevention, detection and extinguishing methods and means. Function and usage of rescue facilities. Measures to be taken for the safety of people; • <i>Medical aid</i> – Application of medical manuals and medical consultations via radio, taking relevant measures during accidents or diseases specific in ship conditions; • <i>Corresponding conventions of International Maritime Organization (IMO) on Safety of Life at Sea and Protection of Marine Environment</i>; • <i>Aspects of staff management and training onboard</i>; corresponding international maritime conventions and recommendations, as well as requirements of national legislation - requirements of corresponding international maritime conventions and recommendations, national legislation. Management methods of tasks and workload, including: planning and coordination; appointment of corresponding personnel; shortage of time and resources; determination of priorities. Methods of effective management of resources: distribution of resources, determination of obligations and prioritization; establishment of effective communication onboard and onshore; peculiarities of individual and team working, formation of corporate culture, interpersonal communication, making of decisions taking into consideration of team-working experience; self-confidence, leadership, motivation, delivery of information about existing situation. Decision-making methods and possibility of decision-making: evaluation of situations and risks; determination and review of examined choices; selection of operative directions; evaluation of effectiveness of outcomes. Elaboration, implementation and monitoring of standard operating procedures.
2	Graduate has practical skills established under STCW Code (A-III/1; III/2 tables) and fulfills corresponding liabilities and obligations (1. Ship's machinery plants; 2. Ship's electrical plants, electrical equipment and control systems; 3. Maintenance and repair; 4. Management of ship's operation and taking care of persons onboard), independently selects proper way for the solution of complex, difficult/unforeseen problems, takes responsibility for the performance of duties, persons subordinated to him and being onboard, acts promptly on accordance with established standards/rules. In particular: • <i>Main principles of engine-room watch keeping</i> – proper execution and keeping of documentation in engine-room; watch keeping rules; switching of all systems from remote to local control; usage of fire-extinguishing systems and protective equipment; • <i>Management of engine room resources</i> - establishment of effective communication, selection of individual behavior, team-work, formation of corporate culture, consideration of complex issues of interpersonal communication, demonstration of leadership and management skills; • <i>English</i> – use of English-language technical publications relating to the duties of ship's engineer; proper understanding of information and notifications relating to the safety and operation of ship; verbal and written communication during fulfillment of duties, using standard colloquial marine phrases; • <i>Onboard internal communication system</i> – application of communication systems; • <i>Ship structure, main principles of structure of ship's mechanical systems and their operation (including, thermodynamics and thermal transmission, mechanics and hydromechanics), cargo hoisting devices and deck machinery</i> - effective operation of ship's auxiliary mechanisms, maintenance, troubleshooting, performance of works relating to operation and maintenance; effective operation and maintenance of steam boilers and their systems, effective operation and maintenance of steam and air turbines, troubleshooting, control of operating characteristics of ship's combustion engines and general conditions of mechanisms, detection and elimination of faults; effective operation of ship refrigerating devices and air-conditioning systems, optimal control of thermodynamic processes in thermal machines, as well as, effective usage of fuel and power resources; • <i>Pumps, pipeline systems, performance parameters of control systems</i> – Maintenance of deck equipment and systems (start, maintenance and stop); • <i>Basic configuration and operating principles of electric, electronic and control devices</i> - Preparation and starting of generators, their parallel connection, and switching from one to another generator. Observance of operating regulations relating to high-voltage; • <i>Electrical equipment</i> – Effective operation of electrical plants and electrical equipment. Troubleshooting • <i>Control systems, naval electronics, electronic and electrical devices</i> – Maintenance and operation of equipment and tools of ship propulsive machinery system. Reading and usage of schemes. Usage of hydraulic and pneumatic systems; • <i>Safety requirements of work with ship electric systems</i>- Safe maintenance of electrical plants and their systems, usage of measurement and control and measuring instruments; • <i>Materials, used during designing and repair of ships and equipment</i> – Proper processing and application of metals and other material with required properties during maintenance and repair of mechanisms and systems; • <i>Safety measures for repair and maintenance</i>- Evaluation and analysis of expected risks, fulfillment of general requirements of maintenance and repair and safety measures, detection of defects of mechanisms, planning of repair, drawing up of repair documents, supervision on repair; • <i>Operation of ship machinery plants</i> –Planning of repair works in accordance with international requirements;



	• <i>Mechanism-related maintenance diagnostics, fault isolation and fault prevention</i> – Detection of faults/defects of ship mechanisms and related systems, fault diagnosis and elimination; • <i>Provision of safe working conditions</i> – Carrying out of works taking into account of requirements relating to safe work and environment; • <i>Marine pollution prevention and antipollution measures</i> - Main International Conventions and national statutory documents; Rules of personal safety and provision of public liability; International Safety Management Code (ISM Code); environmental protection systems and equipment in accordance with MARPOL; • <i>Ship stability and structure</i> - Determination, maintenance and control of stability using main principles of ship structure and stability; • <i>fire-fighting and fire-extinguishing means</i> – Fire prevention and fire-fighting, determination of fire danger rating and usage of corresponding firefighting equipment; • <i>Salvage of life</i> – Usage of individual and collective rescue equipment onboard; • <i>Medical aid</i> – Organization of first medical aid onboard and taking of relevant measures; • <i>Corresponding conventions of International Maritime Organization (IMO) on Safety of Life at Sea and Protection of Marine Environment</i> – Usage of relevant theoretical knowledge of conventions of International Maritime Organization and taking of corresponding actions; • <i>Aspects of staff management and training onboard ; corresponding international maritime conventions and recommendations, as well as requirements of national legislation</i> – Consideration of complex issues relating to the staff motivation, individual behavior, team-work, formation of corporate culture, interpersonal communication, application of leadership and managerial skills.
3	Graduate analyzes and evaluates information/data/situation by means of consolidation of theoretical and practical aspects, determines causes and cause-effect links of technical/professional etc. problems, identifies and evaluates expected outcomes and possible risks, forms and justifies conclusion, selects the best ways for problem solution, determines stages and resources for work to be done, takes responsibility for decision made, performed work, including activities of persons under his supervision (team/crew members) and results thereof. In particular: • collection, grouping, examination and analysis of data and information for the purpose of checking of general conditions of ship's technical equipment and monitoring of operational parameters using standard and other prominent methods, identification and elimination of malfunctions and defects arouse in ship's operation process, determination of their causes, selection and use of methods of examination of existing defects, collection and analysis of information/data by means of measurement and test tools, understanding of cause-and-effect relationship of different factors, evaluation of results and possible risks, formation of justified conclusion, determination of ways for the elimination of defects, planning of activities for the purpose of elimination of defects and determination of repair methods. correct evaluation of physical and chemical processes affecting technical conditions and motion of ship's, factors, having impact on mechanical and thermal processes, analysis of situation, formation and consideration of results during justification of conclusion; • taking into consideration of specificity and peculiarities of particular problem, identification, description of causing factors and corresponding evaluation of their relevance, examination and analysis of current processes and situations, collection, processing, evaluation and analysis of information/data using standard and other prominent methods, evaluation of causes and outcomes, understanding of their relationship, formulation of expected results, determination, evaluation and explanation of possible risks, making justified decision, selection of effective ways for the solution of problem, offering justified recommendations, making corresponding decisions within the scope of his competence for the purpose of solution of problem; • evaluation of effect of external factors in emergency situations, analysis of situation, forecasting possible scenario, identification existing and possible risks, evaluation of effectiveness of safety measures and justification of conclusion; • identification of social, professional and/or ethical problems, arouse in working process, evaluation of situation, analysis of causes of critical or conflict situations, analysis of facts and events, reasonable methods to solve psychological conflicts or critical situations, select proper behavioral strategies for the purpose of adaptation in different social, cultural, ethnic etc. environment. • Evaluates occurred practical problem, analyzes its specificity, causes and current processes (including influence of factors, affecting mechanical and thermal processes, effect of physical and chemical processes on ship's technical state and run), identified cause-effect links between various factors and evaluates their importance, predicts outcomes and assesses possible risks, defines ways for defect elimination/solution of problems, forms justified conclusion; • Defines optimal methods and resources for problem solution/work execution, determines stages and resources for work to be done, within the scope of his/her competencies makes justified decision, takes responsibility for decision made, including activities of persons under his supervision (team/crew members) performed work and results thereof.
4	Graduate forms and justifies own view/position, transfers and explains information/data, establishes written and verbal communication, uses standard communication phrases of International Maritime Organization (IMO) and those relating to the fulfillment of duties of ship's engineer, properly uses English and Russian language grammatical and lexical constructions, legal and maritime terms. In particular: • Establishes written and oral communication, receives, transmits, explains and summarizes information / data, formulates, substantiates and explains his / her opinions on grammatical and lexical constructions of English (level C1.2) and Russian (level A2), by correctly using maritime and legal terminology; • establish written and verbal communication using standard communication phrases of International Maritime Organization (IMO) and those relating to the fulfillment of duties of ship's engineer, draw up documentation, read special literature, instructions, documents, orders, recommendations etc. translate from English into Georgian and vice versa, properly understand and interpret, accurately deliver it to ship's crew, participate in rescue operations; communicate via radiophone and establish communication during rescue operations; describe facts, events, situations; receive, deliver and interpret data/information; form offers and suggestions regarding solution of existing problem; express his/her own opinion; argue in favor of or against different opinions; freely communicate with ship's multinational crew, deliver information to both, marine experts and non-experts;
5	Graduate uses IT and communication technologies, including industry-specific software and systems for the purpose of performance of duties of ship's engineer provided for by STCW Code. In particular: • Uses special software for the purpose of performance of duties of ship's engineer provided for by STCW Code; • Uses IT and communication technologies for the purpose of communication, retrieval, processing, receipt and transferring of information;



	uses software to perform work and solve specific tasks, processes information, builds graphical images and ensures graphical provision of work, prepares reports, works with e-documents, tables and data bases, provides data protection at basic level.
6	Graduate establishes needs for personal and professional development, selects and uses methods of improvement of achieved competencies with the high level of independence. namely: • Understands necessity of consideration of innovations, knowledge updating and continuous development of professional competences for successful professional activity (ship's engineer) and career progression; • Makes self-evaluation, defines needs, directions and ways for personal and professional development and further education; • For the purpose of self-development, seeks various resources (information sources, industry/ special literature, etc.) and uses them with minimum assistance.
7	Graduate considers industry-related legislative and ethical norms, understands importance of carrying out of activity, responsibility, mutual respect, mutual support and team-work taking into account of social, cultural, ethnic etc. peculiarities of work environment. Namely: • Knows legislative, ethical and professional standards and traditions effective in maritime industry; • Has team-working and cooperation skills, compares and correlates different points of view, identifies difference and similarities, considers influence of personal motivation, personal qualities and relationships in working environment on person's behavior; • Identifies social, professional and/or ethical problems, arouse in working process, defines and analyzes critical or conflict situations, facts and events; • Selects and uses adequate methods and relevant behavioral strategies to solve problem /regulate conflict / critical situations, and adapt in different social, cultural, ethnic etc. environment; • Understands necessity of consideration of different ethnic, cultural, social etc. values and peculiarities of multicultural team/crew in professional activity and importance of protection of social and ethical standards.

General Rule Of Student Evaluation	Level of achievement of learning outcomes by a student is evaluated by 100-points (max 100 points) system. Bachelor's educational program is composed of academic components and their evaluation includes two forms – interim evaluation (max 60 points) and final evaluation (max 40 points); minimum competency limit is fixed for both forms (stated in program component syllabuses). Assignment of credit in educational component using only one form of evaluation (interim or final) shall not be allowed. Final evaluation (grade point) of program component is a sum of grade points received in interim and final forms of evaluation (Grade point obtained as a broken number is rounded up to whole number in accordance with the rounding rule: 4 and less - and less – rounded down, 5 and more – rounded up). In accordance with the effective Law of Georgia, 100-points system of evaluation of students in BNTU allows 5 good and 2 bad evaluation marks.			
	Programme components	max 100 points	Evaluation forms	
	Academic components: Academic courses Internship Bachelor's thesis	100	60	Interim evaluation
			40	Final evaluation

Evaluation system			max 100 points
Good grades			
1	Excellent	A	91 and more points
2	Very good	B	81-90 points
3	Good	C	71-80 points
4	Sufficient	D	61-70 points
5	Insufficient	E	51-60 points
Failing grades			
1	Did not pass	FX	41-50 points
2	Fail	F	40 and less

Fx grade means that student needs more work and he/she is allowed to pass the additional exam once again within the same semester by individual work; in case of Fx grade, additional exam is scheduled no later than within 5 calendar days after announcement of final exam results. Grade, received at additional exam is a conclusive evaluation and set forth in final evaluation of program component. In case of 0-50 points in final evaluation of program component, taking into consideration of points of additional exam, F grade (0 points) is assigned to a student. "F" grade means, that work done by a student is not sufficient and he/she shall restudy program component. Credit may be received only in case of one of the good grades in accordance with the Law.

Program Material Resources	Provision of programme with the resources established by "Maritime Engineering" sector benchmark: 1. On the basis of contract - Training and work experience internship. 2. BNTU owned material and technical resources, corresponding to ISO 9001:2015 International Standard, including: • classrooms, computer classes, language room, navigation, logistics etc. rooms; • Library book collection (printed and on electronic media), video- and audio - collections, visual materials, International Witherbys Library; • Laboratories: ○ chemistry;
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- physics;
- high-voltage laboratory.
- Work-shops:
 - Engineering workshop (fitting, turning, welding);
 - Machine room - (hall of ship's units: serviceable stands of pneumatic, hydraulic, automatic mechanism, refrigerating device);
- Training devices:
 - Joint rescue equipment training device;
 - Land-based fire-fighting training device;
 - Fire-Fighting Training Facility (Onshore fire-fighting training device);
- Simulator center Navi-Trainer RADAR/ARPA/ECDIS, which includes the following equipment:
 - Engine Room Simulator;
 - Liquid Cargo Handling Simulator (LCHS 4000/5000);
- Training Center:

Simulators:

 - Engine Room Simulator 5000;
 - Lifeboat Simulator.

Rooms:

 - Engine Team and Resource Management;
 - Elementary First Aid;
 - Fire prevention and Fire Fighting;
 - Personal Safety and social responsibilities;
 - Personal Survival Techniques.
- 3. Mechanic Workshop;
- 4. Training ship Elite.
- 5. Students take internship provided for by the programme curriculum at training vessel Elite, in the company – BNTU partner-institutions, and at ocean-going vessels with the assistance of navigation and crewing companies.