



ORGANIZATIONAL AND PEDAGOGICAL CONDITIONS OF FUTURE MARINE ENGINEERS ACQUIRING PROFESSIONAL COMPETENCIES

Leonid Gerganov ¹, Igor Lipenkov ²

- ¹ Doctor of pedagogical sciences, professor, professor at the department of Engineering Disciplines of the Danube Institute of the National University "Odessa Maritime Academy", Izmail, Ukraine, <https://orcid.org/0000-0003-3467-5244>, e-mail: gerganovleonid@gmail.com
- ² Senior Lecturer at the Department of engineering Disciplines, Danube Institute, Odessa Maritime Academy, Izmail, Ukraine, <https://orcid.org/0000-0003-3095-5353>, e-mail: mr.lipenkov@gmail.com

Abstract.

Relevance: the need to develop and implement in practice the organizational and pedagogical conditions for future marine engineers to acquire basic professional competency in the process of studying the educational component "Marine Engineering Practice" is determined by the provisions of International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) and basic IMO STCW Model Courses (Course 7.02 "Chief engineer officer and second engineer officer", Course 7.03, Course 7.04 "Officer in charge of an engineering watch").

Aim: of the article was to substantiate the organizational and pedagogical conditions for the acquisition of primary professional competency by future marine engineers in the study of the educational component "Marine Engineering Practice" and their impact on further professional activities in the crew of a ship.

Methods: theoretical (logical analysis of research in the field of professional pedagogy and methods of professional training in higher education; logical-structural analysis to determine the nature and structure of the concept of "professional competence" and "professional training of future marine engineers for practical actions on board", substantiating organizational and pedagogical conditions of the specified training); empirical (study and analysis of pedagogical experience of practical training of future marine engineers); experimental (self-assessment – to comprehend the results of professional training for interaction of the ship's crew in dangerous and emergency situations).

Results: organizational and pedagogical conditions for the formation of professional competence in future marine engineers are developed and implemented in the educational process, which contributes to the construction of an effective individual educational trajectory in a higher maritime educational institution and ensures continuity of professional development of future specialists.

Conclusions: it is proved that the introduction of organizational and pedagogical conditions for the acquisition of professional competencies by future ship mechanics in the process of studying the educational component "Marine Engineering Practice", gave students the opportunity to move to higher professional disciplines, as evidenced by independent testing. The effectiveness of the developed organizational and pedagogical conditions is also confirmed by the results of students' tests at the interdepartmental seminar.

Keywords: *future marine engineers, basic (primary) professional competence, institutions of higher maritime education, Marine Engineering Practice, STCW Convention.*

Introduction. The national doctrine of educational development in the XXI century defined the
Professional Pedagogics/1(22)'2021

main goal of educational activities of professional (vocational) schools as the progress of an individual

as a professional, a person of high culture, high qualification, capable of creative work, professional growth, mobility in mastering and implementing new technological processes and technologies. It creates conditions for professional self-realization of the individual and meeting the needs of society and the state in qualified specialists (National Strategy for Education Development in Ukraine until 2021, 2013).

To summarize this approach to the formation of the individuality of a marine specialist, it is worth noting that research on the development of professional competence, in particular the professional competence of crews for shipping companies is an urgent problem. The International Maritime Organization (IMO) has approved a number of documents (Convention and the STCW Code) that regulate the requirements for professional competence (Scope: basic knowledge, understanding and professional skills) as well as professional competence of a ship's crew (Methods of demonstration and criteria for evaluating the results of professional training of seafarers.)

Due to the modernization of the fleet and the introduction of automated control systems on ships, the training and production and methodological base of marine institutions of higher education lags behind not only time requirements but also the demands of shipowners to the professionalism of ship engineers, which completely changed the paradigm of their professional education.

Apart from that, the problem of acquiring basic professional competency by students majoring in ship engineering (level of operation) in maritime institutions of higher education remains insufficiently studied. Given the requirements of the International Maritime Organization (IMO) (The STCW Convention and the Code) and higher education standards, it should be recognized that the training of future engineer officers does not meet modern innovation challenges, which are recorded at the national level. In particular, these are the following national trends: the modern system of education and training of maritime professionals is not able to ensure the innovative development of the transport industry; the national standards for the training of transport specialists remain undefined, the system of their training and retraining is imperfect; EU member states do not recognize documents on education obtained in Ukrainian higher education institutions (individual licenses and certificates) (National Transport Strategy of Ukraine for the period up to 2030 by order of the Cabinet of Ministers of Ukraine, 2018).

Introducing an evidence-based approach to the training of future engineers in the period of getting

their basic professional competency, at the initial stage of their training (year 1-2), provides an opportunity to challenge fundamental theoretical knowledge and practical skills at the level of international minimum standard of competence for engineer officers. Note that this is also due to shipping companies' need to implement ISO 9001-2015 Quality System, without which the operation of the company is impossible, as well as the professional and career growth of its staff and achieving strategic goals in the international transportation market.

Sources. Analysis of the reviewed scientific sources (S. Voloshinov, O. Denderenko, V. Yefentiev, M. Korolchuk, O. Novikov, M. Sherman, O. Sobkevich, V. Topalov, etc.) on the formation and development of professional competency of specialists for high-quality maintenance of modern equipment of the world's fleets confirm that introducing innovative forms and methods of training, information technology, use of training ship and timely changes to the acquisition of the necessary primary competency by cadets – is quite relevant and timely. Considering this, there is a need to lay the foundations of professionalism in cadets at the beginning of acquaintance with the profession, which in the further accumulation of practical experience and theoretical knowledge will be the basis for the formation of professional competence.

According to O. Novikov (1998, pp. 8-10), it is necessary to consider the formation and development of an individual as a philosophical category that "demonstrates the process of movement, change of integral systems. "Characteristic features of this process are: the emergence of a qualitatively new object (or its state) – direction, irreversibility, regularity, unity of both quantitative and qualitative changes, the relationship of progress and regress, the cyclical form that unfolds over time. Internal contradictions are the main source of growth, and the process itself is essentially self-development, as proven by modern science. It is characterized by the deep irreversibility of development, multivariance and alternatives, meanwhile, the "carriers" of progress are complex, open, self-organized systems.

Due to this, we emphasize that the constant improvement of technical equipment of ships, the introduction of new control systems for marine engines using IT technologies, as well as the requirements of the STCW Convention and the Code require to begin the process of training cadets according to an individual syllabus to acquire basic professional competency of future marine engineers, so that in the future they would be able to organize

the process of self-education in their specialty. With this approach there is a possibility of purposeful, motivated acquisition of primary professional knowledge, skills and abilities in the process of communication between the cadet and the teacher in a dual form of learning, using modern information and communication technologies (ICT). The acquired theoretical knowledge, skills and abilities are constantly consolidated during practical and laboratory classes, as well as by working out tasks in the conditions of the educational and production base of the educational institution, or the training vessel.

Aim: of the article was to substantiate the organizational and pedagogical conditions for the acquisition of primary professional competency by future marine engineers in the study of the educational component "Marine Engineering Practice" and their impact on further professional activities in the crew of a ship.

Methods: theoretical (logical analysis of research in the field of professional pedagogy and methods of professional training in higher education; logical-structural analysis to determine the nature and structure of the concept of "professional competence" and "professional training of future marine engineers for practical actions on board", substantiating organizational and pedagogical conditions of the specified training); empirical (study and analysis of pedagogical experience of practical training of future marine engineers); experimental (self-assessment – to comprehend the results of professional training for interaction of the ship crew in dangerous and emergency situations).

Results and discussion. In the international labour market, the competitive ability of personnel is determined by the requirements of the STCW Convention and the Code to the professional competence of seafarers, primarily the level of minimum knowledge, skills and professional skills required for seafarers' diplomas (work diplomas and certificates). Also, the Convention and the EITC Code in the "Scope of Competence" section emphasize that the level of theoretical knowledge on the issues listed in column 2 of Table A-III / 1 (2010, p. 224) should be sufficient for engineers to fulfill their obligations of watchkeeping. Additional requirements are: the ability to learn new knowledge, initiative, professional mobility, extraordinary decision-making, the desire to maintain labor discipline in the ship's crew, etc. ; on ships of foreign companies it is professional competence at the level of international requirements, knowledge of the main provisions of the STCW Convention to perform their professional

duties on ships at the level of operation, proficiency in a foreign language, ability to work in multinational crews, etc. The first educational component that provides the acquisition of primary professional competency in future marine engineers in the first year, in combination with other engineering disciplines (technical mechanics, engineering graphics, materials technology, material resistance, etc.) and technological practice is "Marine Engineering Practice" (MEP). It is a basic and fundamental component for the maritime direction, which for the first time introduces cadets to the concept of not only the marine profession, but also reveals the features of marine engineering, technology, management, responsibility and provides familiarity with marine technical terms, basics of marine engineering, gives the opportunity to learn theoretical material for further study of subjects of technical and special cycles that help in the further study of the structure and operation of the ship's power plant (SPP).

"Marine Engineering Practice" allows young cadets to recognize themselves as part of the maritime society, as well as to understand that the acquired initial professional basic competency for work on ships are significantly different from related professions of coastal specialties. Assimilation of this educational component, first of all, forces the teaching staff to focus more on cadets to study marine engineering concepts and features of their use in the future profession, namely:

– *technical* – the specifics of which is to inform the cadets that the ship during the voyage is at a considerable distance from the shore bases of maintenance, supply and repair, as well as that the number of ship personnel is too limited (reduced crews). Only the chief (senior) engineer officer of the ship himself decides the issue of organizing repair works, access to the necessary modes of operation of the ship's power plant (SPP). In case of any mechanism or details ceasing to work, questions of their repair, replacement, search of necessary materials and tools, are solved only by the efforts of the ship's crew. That's why marine engineers even have a saying: "One part can fail a hundred times, but each time in a special way, and the mechanic solves three problems: how to repair, what to repair and what materials to use." In this case, we have a significant psychological burden not only on the engineer crew, but also on the entire crew of the ship as a whole;

– *social* – multinational crew members, which means: the difference in religion of team members, which seriously affects the behavior, traditions, conditions of staying on board and the diet of the crew during the flight, etc. ; personal political views of the

crew members, and cadets must remember for the future that there is an unwritten law for sailors around the world – the ship's territory is free (neutral) from political and religious views;

– *psychological* – a sailor for a long time is at a considerable distance from family and normal living conditions. During the classes, the teacher (who has enough not only professional experience in marine engineering, but also experience in mixed multinational crews) on the examples of maritime practice and personal experience provides thorough psychological training of cadets to possible conflicts and acquaints them with possible ways out or their neutralization;

– *physiological* – the accumulation of fatigue during long emergency repairs and transitions that require constant presence of the engineer in the engine room (passage of channels, locks, mooring operations, movement of the ship in the ice, etc.), and this puts a significant amount of stress on the sailor, both moral and physical strength. In addition, being in an unstable environment (the influence of the ship's hull, significant transitions of the ship in storms, etc.), extreme conditions of the body, lack of healthy sleep, seasickness in many crew members – are also important components of the crew. However, despite this, cadets at the beginning of training must learn a simple thing – in dangerous situations, you should never lose a sense of humor, which helps to neutralize many negative factors.

According to the results of the study on the educational component of the MEP, in particular – on the acquisition of basic professional competency in engineering specialties in maritime educational institutions of Ukraine (Kherson, Mykolaiv, Mariupol, Odessa), there were some shortcomings of training under the educational program "Management ship technical systems and complexes", specifically:

– acquisition of primary professional competency of specialists to work in the engine room is in accordance with the provisions of the STCW Code (section A – III / 1 columns 1-2) in the form of an educational component, but they do not sufficiently meet the needs of the modern labour market and are not related to their prospects of further employment on ships of foreign companies and further professional becoming;

– professional training of marine engineers in educational institutions doesn't always have the opportunity to carry out high-quality technological and swimming practice on new ships in engine rooms with modern automated equipment, which does not allow to sufficiently develop the level of their professionalism;

– when mastering the minimum standard "Scope of competence" of the STCW Convention and the Code, future engineer officers have too little understanding of theoretical material because they do not have a minimum technical base of terms and practical experience, which significantly reduces the level of mastering material and basic professional competence.

The process of getting the primary professional competency of future marine engineer officers in maritime education institutions for ships of the modern generation in Ukraine is generally acceptable for the maritime states of Europe and the world. This process will continue because Ukraine has signed an agreement on joining the European Competence Scheme, which, unlike the European Qualifications Framework, focuses on specific employment activities. However, it should be noted that the distribution of primary professional competency may differ, which is more related to "national labour systems".

We propose to view the concept of "basic professional competency of future marine engineers" as a pedagogical process of initial professional training of future engineer officers to achieve the level of minimum standards of theoretical knowledge, skills and professional skills defined by section A-III / 1 (Scope of competence) and listed in column 1-2 of the STCW Convention and the Code, which should be sufficient for mechanics to perform their watch-keeping duties.

According to the recommendations for the recognition of basic educational components in the planning of the educational process should, above all, take into account:

– positive motivation of the future marine engineers in the corresponding knowledge and skills in the working professions specified in the ship roles of the engine crew;

– certain professional competencies of labour activity, which can be performed by independently mastering the duties of a marine engineer officer in the process of training;

– physical and psychological stress on seafarers during a long voyage;

– division of professional responsibilities between members of the crew of a seagoing vessel to perform emergency work in the event of dangerous and emergency situations.

Based on the results of studying and analyzing scientific sources and practical experience of working on modern ships, the most significant organizational and pedagogical conditions for acquiring basic professional competency in the process of

studying the educational component of the MEP were identified.

The first pedagogical condition is the formation of positive motivation to learn the basic sea terms, features of work, advantages and disadvantages of professional activity of specialists of the engine department, career growth, advanced training and certification training of seafarers.

The second pedagogical condition – updating the content of vocational training through the introduction into the educational process of primary practical skills in working professions (ship's engineer, ship's electrician, ship's electric gas welder, ship's turner, etc.), whose professional activities are closely related not only to theoretical material but also with work in production workshops, which significantly ensures the integrity of the educational process for the formation of primary professional competency.

The third pedagogical condition is related to the combination of the educational process in the production workshops of the educational institution and the training ship, on which future mechanics in the engine room and in real operation of the ship's engine are on watch and perform work according to the crew plan, which not only activates the cognitive interest in mastering the profession of a marine engineer, but also provides an opportunity to test yourself as a future specialist.

The fourth pedagogical condition – the development and use of educational and methodological complex for the use of training equipment and simulation tools in consolidating the practical actions of cadets in the process of acquiring primary professional competency and providing comprehensive training for further mastery of professional disciplines in unity of goals, content, forms, innovative learning technologies. following courses.

Organizational forms of acquiring primary professional competencies in the process of studying the educational MEP:

– *forms* (lecture with elements of professional orientation, introduction to the speciality; lecture-discussion; work on practical tasks on technological equipment in groups; seminar on solving situational tasks and exercises; performing tasks on training equipment according to the requirements of the STCW Convention; group or individual work by cadets in the workshop or in the engine room of the training vessel);

– *technologies* (processing of materials and alloys; disassembly-assembly of mechanisms, repair of ship mechanisms; training tests; IT-technologies in operation of SPP);

– *methods* of (analysis and resolution of conflict situations, demonstration of competence, assessment, virtual reality);

– *means* of (multimedia, audio, video equipment, graph projectors, posters, schemes, stands, training complexes, demonstration models, models, natural samples, etc.).

A characteristic feature of acquiring primary professional competencies in future first-year marine engineers is the lack of basic technical knowledge and weak general training, which forces the teaching staff of the educational institution to approach this problem comprehensively. Purposeful pedagogical actions based on the laws of development of the cadet's personality taking into account the specific requirements of the profession, as well as the objective and subjective order that form the primary professional knowledge and practical skills in the process of professional training are determined. Acquired primary technical knowledge of the educational component "Materials Technology" and practical skills learned in the workshop of the educational institution according to the program of technological practice – is the first step to study MEP and acquaint cadets with technical and marine terms of the profession. Thus, the introduction of organizational and pedagogical conditions in combination with educational and methodological support of the educational component of MEP (lecture notes, textbooks, technological instructional cards, drawings, etc.) allows cadets to gradually move from the initial professional steps to mastering the profession to higher academic, basic education, strengthening the role of motivation for further growth of their professionalism and increasing their readiness to perform professional duties on board.

Conclusions. Based on the results of the analysis of scientific literature, study of the experience of maritime educational institutions to study educational components (marine engineering practice, engineering graphics, materials technology, technological practice in the training of future ship mechanics) concluded that indicators of quality and efficiency of engineering knowledge and mastery maritime technical terms are significantly increased under the condition of introduction into the educational process of organizational and pedagogical conditions, namely: formation of positive motivation to master the basic sea terms, features of work, advantages and disadvantages of professional activity of specialists of the engine department, career growth, advanced training and certification training of seafarers; updating the content of vocational training through the

introduction into the educational process of primary practical skills in working professions, without mastering which the future marine engineers is not able to take the position of shift mechanic; combination of the educational process in the production workshops of the educational institution and on the training ship, where future ship mechanics in the engine room and the actual mode of operation of the ship engine study the disciplines of the technical direction; development and implementation of educational and methodological complex for the use of training equipment and simulation tools in consolidating the practical actions of cadets in the process of acquiring primary professional competency and providing comprehensive training for further mastering of professional disciplines in the unity of goals, content, forms, innovative learning technologies. is

the basis for the formation of a marine engineer as a specialist with high professional competence, competitive in the international maritime labour market.

It is proved that the introduction of the described organizational and pedagogical conditions for the acquisition of primary professional competencies by future marine engineers in the process of studying the educational component "Marine Engineering Practice" allowed students to move to higher professional disciplines, as evidenced by independent testing. The effectiveness of the developed organizational and pedagogical conditions is also confirmed by the results of students' tests at the interdepartmental seminar. In particular, the quality of mastering technical disciplines is increased by 25% compared to control groups.

List of references

Дендеренко, О. О., 2018. *Формування професійної компетентності майбутніх суднових механіків у процесі інтеграції природничих і загальнотехнічних дисциплін*. Кандидат наук. Національний педагогічний університет імені М.П. Драгоманова.

Ефентьев, В. П., 2005. *Теория и практика управления качеством непрерывной профессиональной подготовки морских специалистов в академическом комплексе*. Доктор наук. Калининград. Балтийская государственная академия рыбопромыслового флота.

Корольчук, М. С. та Крайнюк, В. М. 2006. *Соціально-психологічне забезпечення діяльності в звичайних та екстремальних умовах*. Київ: Ніка-центр.

Національний інститут стратегічних досліджень при президентові України, 2013. Собкевич, О. В., Михайличенко, К. М., та Ємельянова, О. Ю. *Інноваційні перетворення на транспорті як чинник модернізації транспортно-дорожнього комплексу України* [online] Доступно: http://www.niss.gov.ua/articles/1303/#_ftnref3. [Дата звернення 14 Червень 2021].

Міжнародна морська організація, 2012. *Міжнародна конвенція про підготовку і дипломування моряків та несення вахти 1978 року (консолідований текст з манільськими поправками)*. Київ: ВПК «Експрес-Поліграф».

Урядовий портал, 2018. Національна транспортна стратегія України на період до 2030 року. Розпорядження Кабінету Міністрів України від 30 травня 2018 р. № 430-р. [online] (Останнє оновлення 30 Травень 2018) Доступно: <https://www.kmu.gov.ua/npas/pro-shvalennya-nacionalnoyi-transportnoyi-strategiyi-ukrayini-na-period-do-2030-roku> [Дата звернення 15 Червень 2021].

Верховна рада України. Законодавство України, 2013. Національна стратегія розвитку освіти в Україні на період до 2021 року від 25 червня 2013 року № 344/2013. [online] (Останнє оновлення 26 Червень 2013) Доступно: <https://zakon.rada.gov.ua/laws/show/344/2013#Text> [Дата звернення 15 Червень 2021].

Новиков, А. М., 1998. Професійне образование на рубеже третього тисячелетия. *Магістр*, 1, с.59-68.

Топалов, В. П., 2004. *Уроки морських аварій*. Одеса.

Шерман, М. І. та Безбах, О. М., 2015. Структура професійної підготовки майбутніх судноводіїв у вищих морських навчальних закладах у контексті проблем формування інформаційної культури. *Наукові записки*, 141 (1), с.15-19.

Translated & Transliterated

Denderenko, O. O., 2018. *Formuvannia profesiinoi kompetentnosti maibutnikh sudnovykh mekhanikiv u protsesi intehratsii pryrodnychyykh i zahalnotekhnichnykh dystsyplin [Formation of professional competence of future marine engineers in the integration process of natural and general technical disciplines.]*. Kandydat nauk. Natsionalnyi pedahohichnyi universytet imeni M.P. Drahomanova [National Pedagogical Dragomanov University], [in Ukrainian].

Efentev, V. P., 2005. *Teoriya i praktika upravleniya kachestvom nepreryivnoy professionalnoy podgotovki morskikh spetsialistov v akademicheskoy kompleks [Theory and practice of quality management in continuous vocational training of marine specialists in the academic complex]*. Doktor nauk. Kaliningrad. Baltiyskaya gosudarstvennaya akademiya rybopromyislovogo flota [The Baltic Fishing Fleet State Academy], [in Russian].

Korolchuk, M. S. ta Krainiuk, V. M., 2006. *Sotsialno-psykholohichne zabezpechennia diialnosti v zvychnykh ta ekstremalnykh umovakh [Social and psychological security of duality in extraordinary and extreme minds]*. Kyiv: Nika-tsentr, [in Ukrainian].

Natsionalnyi instytut stratehichnykh doslidzhen pry prezidentovi Ukrainy [The National Institute for Strategic Studies], 2013. Sobkevych, O. V., Mykhailychenko, K. M., ta Yemelianova, O. Yu. *Innovatsiini peretvorennia na transporti yak chynnnyk modernizatsii transportno-dorozhnoho kompleksu Ukrainy [Innovative transformations in transport as a factor in the modernization of the transport and road complex of Ukraine]* [online] Dostupno: http://www.niss.gov.ua/articles/1303/#_ftnref3. [Data zvernennia 14 Cherven 2021], [in Ukrainian].

Mizhnarodna morska orhanizatsiia [International Maritime Organization], 2012. *Mizhnarodna konventsiia pro pidhotovku i dyplomuvannia moriakiv ta nesennia vakhty 1978 roku (konsolidovanyi tekst z manilskymy popravkamy [International Convention on the Training and Certification of Seafarers and Watchkeeping, 1978 (consolidated text with Manila amendments)]*. Kyiv: VPK «Ekspres-Polihraf», [in Ukrainian].

Uriadovyi portal [Government portal], 2018. *Natsionalna transportna stratehiia Ukrainy na period do 2030 roku. Rozporiadzhennia Kabinetu Ministriv Ukrainy vid 30 travnia 2018 r. № 430-r. [National transport strategy of Ukraine for the period up to 2030. Order of the Cabinet of Ministers of Ukraine of May 30, 2018 № 430-r]*. [online] (Ostannie onovlennia 30 Traven 2018) Dostupno: <https://www.kmu.gov.ua/npas/proshvalennya-nacionalnoyi-transportnoyi-strategiyi-ukrayini-na-period-do-2030-roku> [Data zvernennia 15 Cherven 2021], [in Ukrainian].

Verkhovna rada Ukrainy. Zakonodavstvo Ukrainy [Verkhovna Rada of Ukraine. Legislation of Ukraine], 2013. *Natsionalna stratehiia rozvytku osvity v Ukraini na period do 2021 roku vid 25 chervnia 2013 roku № 344/2013 [National strategy for the development of education in Ukraine for the period up to 2021 from June 25, 2013 № 344/2013]* [online] (Ostannie onovlennia 26 Cherven 2013) Dostupno: <https://zakon.rada.gov.ua/laws/show/344/2013#Text> [Data zvernennia 15 Cherven 2021], [in Ukrainian].

Novykov, A. M., 1998. *Professyonalnoe obrazovanye na rubezhe treteho tysyacheletyia [Vocational education at the turn of the third millennium]*. *Mahystr [Masters]*, 1, s.59-68, [in Russian].

Topalov, V. P., 2004. *Uroky morskyykh avarii [Lessons from maritime accidents]*. Odesa, [in Russian].

Sherman, M. I. ta Bezbakh, O. M., 2015. *Struktura profesiinoi pidhotovky maibutnikh sudnovodiiv u vyshchykh morskyykh navchalnykh zakladakh u konteksti problem formuvannia informatsiinoi kultury [The structure of vocational training of future navigators in higher maritime educational institutions in the context of problems of information culture formation]*. *Naukovi zapysky [Scientific records]*, 141 (1), s.15-19, [in Ukrainian].

УДК 377:331.5:656.61

ОРГАНІЗАЦІЙНО-ПЕДАГОГІЧНІ УМОВИ ЗДОБУТТЯ ПРОФЕСІЙНИХ КОМПЕТЕНЦІЙ МАЙБУТНІМИ СУДНОВИМИ МЕХАНІКАМИ

- ¹ доктор педагогічних наук, професор, професор кафедри інженерних дисциплін Дунайського інституту Національного Університету «Одеська морська академія», м. Ізмаїл, Україна, <https://orcid.org/0000-0003-3467-5244>, e-mail: gerganovleonid@gmail.com
- ² старший викладач кафедри Інженерних дисциплін Дунайського інституту Національного університету «Одеська морська академія», м. Ізмаїл, Україна, <https://orcid.org/0000-0003-3095-5353>, e-mail: mr.lipenkov@gmail.com

Реферат:

Актуальність: необхідність розроблення та впровадження у практику організаційно-педагогічних умов здобуття первинних професійних компетенцій майбутніми судновими механіками у процесі вивчення освітньої компоненти «Морська інженерна практика» визначається вимогами Міжнародної Конвенції «Про підготовку і дипломування моряків та несення вахти 1978 року (з поправками)» (ПДНВ) та базових Модельних курсів ІМО (Course 7.02 «Chief engineer officer and second engineer officer», Course 7.03 Course 7.04 «Officer in charge of an engineering watch»)

Мета: обґрунтувати організаційно-педагогічні умови здобуття первинних професійних компетенцій майбутніми судновими механіками при вивченні освітньої компоненти «Морська інженерна практика» та їх вплив на подальшу професійну діяльність у складі екіпажу морського судна.

Методи: теоретичні (логічний аналіз наукових досліджень у галузі професійної педагогіки і методики професійного навчання у вищій школі; логіко-структурний аналіз – для визначення суті й структури понять «професійна компетенція» і «професійна підготовка майбутніх суднових механіків до практичних дій на судні», обґрунтування організаційно-педагогічних умов означеної підготовки); емпіричні (вивчення та аналіз педагогічного досвіду практичної підготовки майбутніх судномеханіків); експериментальні (самооцінювання – для осмислення результатів професійної підготовки до взаємодії у складі екіпажу судна в умовах небезпечних та аварійних ситуацій).

Результати: розроблено та впроваджено в освітній процес організаційно-педагогічні умови формування професійної компетентності у майбутніх суднових механіків, що сприяє побудові у вищому морському закладі освіти ефективної індивідуальної освітньої траєкторії та забезпечує безперервність професійного розвитку майбутніх фахівців.

Висновки: доведено, що впровадження в освітній процес організаційно-педагогічних умов здобуття професійних компетенцій майбутніми судновими механіками у процесі вивчення освітньої компоненти «Морська інженерна практика», надало можливість студентам перейти до освоєння фахових дисциплін на більш високому рівні, про що свідчать дані незалежного тестування. Результативність розроблених організаційно-педагогічних умов підтверджують також результати виконання студентами контрольних робіт на міжкафедральному семінарі.

Ключові слова: *майбутні суднові механіки, первинна професійна компетенція, заклади вищої морської освіти, Морська інженерна практика, Конвенція ПДНВ.*

Received: 11 June 2021

Accept: 30 June 2021