

## SELF-EVALUATION REPORT

### OF THE DESIGNED JOINT MASTER PROGRAM IN SUSTAINABLE TRANSPORT ENGINEERING

Institutions of higher education	<b>National Aviation University Vilnius Gediminas Technical University University of Žilina</b>
Educational program	<b>Sustainable Transport Engineering</b>
Level of higher education	<b>Master Degree</b>
Field	<b>Transport</b>

#### *List of abbreviations:*

<b>ID</b>	identification
<b>SSU</b>	separate structural unit
<b>ECTS</b>	European credit transfer and accumulation system
<b>IHE</b>	institution of higher education
<b>EP</b>	educational program

### General Information

#### 1. General information about EP

Name of EP	<b>Sustainable Transport Engineering</b>
Field	<b>Transport</b>
Level of higher education	<b>Master's degree</b>
Level of higher education	<b>Educational and scientific</b>
Admission to the educational program is based on degree (level)	<b>Bachelor Degree</b>
Structural unit (department or other unit)	<b>Air Transportation Management Department (National Aviation University),</b>

responsible for EP implementation	<b>Department of Logistics and Transport Management, (Vilnius Gediminas Technical University), Air Transport Department (University of Žilina)</b>
Address of educational activity under EP	<b>Liubomyra Huzara avenue, building 1, Kyiv 03068, Ukraine; Saulėtekio al. 11, Vilnius LT-10223, Lithuania; Univerzitná 8215/101026, Žilina, Slovakia</b>
Language	<b>English</b>

<b>Forms of education at EP</b>	<b>Training period</b>
full-time	2 years

## **2. General information about EP, the history of its development and implementation**

Transport is one of the main spheres of collaboration between the EU and Ukraine according to the Association Agreement between Ukraine and the EU. Modern philosophy of the world's leading transport networks functioning is based on the tendency to the more reliable, integrated, energy efficient and sustainable transport with low operating and administrative costs. Therefore, it is extremely important to prepare a new generation of specialists in transport engineering with a focus on energy efficiency and sustainability issues.

The EP was developed as a result of Erasmus+ project Design of International Master program in Sustainable Transport Engineering (DIMSTE; EDU-2022-EMJM-DESIGN) under multi-beneficiary grant agreement signed with the European Commission within the framework of the Erasmus+ Program of the European Commission fund for Erasmus Mundus Joint Master Degree programs.

The DIMSTE project was devoted to the designing of such an integrated Master program in Sustainable Transport Engineering for training of a highly qualified transport engineers with a strong focus on so important today energy efficiency and sustainability issues at all kinds of transport and, especially, air transport .

It is to be a two-year program (120 ECTS credits), fully taught in English, which will bring together Transport Engineering; Air Transport and Other Kinds of Transport; Energy and Environment; as well as European and non-European experience. The consortium for realizing this Joint/Double Master program will combine two prestigious European universities (Vilnius Gediminas Technical University (Lithuania) and University of Zilina (Slovakia), having huge experience in holding different EU funded projects and one non-European institution (National Aviation University, Ukraine), one of the leading universities in Ukraine, having 85-year-long history of training specialists for aviation in the field of air transport engineering and logistics. The new course is expected to strongly enhance students' employment opportunities both within the EU and outside it.

### **1. Design and goals of the educational program**

## **What are the objectives of EP? What are the features (uniqueness) of this program?**

Features (uniqueness) of EP are:

- 1) the absence of similar programs among higher education institutions of Ukraine and Europe, which take into account the industry and regional context of the functioning of the aviation sector in the field of sustainable transport technologies and engineering;
- 2) collaboration between National Aviation University and two European universities: Vilnius Gediminas Technical University, University of Zilina; all involved partners have a strong background and teaching history in the proposed area
- 3) upon graduation, graduates of this educational program will receive joint diplomas from three partner universities: National Aviation University, Vilnius Gediminas Technical University, University of Zilina
- 4) mobility of students between partner universities, which is ensured by the educational process, each semester of which will be spent in different partner universities; it will increase the integration of both students and states into the common European space of the educational environment.
- 5) focus on the formation of research competencies in students of higher education to solve current problems of functioning and sustainable development of transport systems and technologies;
- 6) coverage of professional competencies provided for specialists of this profile by international standards of IATA and ICAO, as well as European Union transport development strategies

## **Demonstrate that the EP's goals are consistent with the mission and strategy of the IHE**

OPP corresponds to the missions of IHE - National Aviation University

(<https://nau.edu.ua/en/>), Vilnius Gediminas Technical University

(<https://vilniustech.lt/index.php?lang=2>), University of Žilina

(<https://www.uniza.sk/index.php/en/>) - regarding the contribution to the development of society at the national and international levels through the generation of new knowledge and innovative ideas based on the integration and internationalization of education, research and practice, as well as the provision of high-quality educational and research services in the training of specialists in the transport industry.

The orientation of EP fully reflects the strategic goals and priorities established by IHE, and is specifically aimed at providing students with general higher education and professional training in the field of sustainable transport engineering for further professional activities (careers) related to consulting, development of projects solutions or carrying out research on the problems of the development of transport systems and technologies.

Training of IHE applicants for EP is provided on the basis of defined values, which include: student-centered approach to education; synergistic combination of scientific research and education; multidisciplinary, interdisciplinary and transdisciplinary approaches; partnerships with all external stakeholders at the national and global level; innovation in everything.

## **Describe how the interests and suggestions of the following stakeholders were taken into account when formulating the goals and programmatic outcomes of EP training:**

### **- members of the educational program development team from partner universities**

When developing the EP, the interests, wishes and recommendations of the partner universities were taken into account. So, for example, Prof. Dr. Edgar Sokolovskij, Vice-Dean of the Faculty of Transport Engineering and Professor of the Department of Automobile Engineering at the Vilnius Gediminas Technical University (VILNIUS TECH) proposed the discipline "Supply Chain Management in Sustainable Systems", which corresponds to PLO 11 "Analyze and evaluate the efficiency of "green" supply chains and logistics centers, calculate relevant indicators". Prof. JUDr. Alena Novák Sedláčková, Associate Professor at the University of Žilina (UNIZA) proposed the discipline "European Transport Policy and Innovations" which corresponds to PLO 01 "To identify, address and solve problems in the field of sustainable transport engineering, as well as evaluate and ensure the quality of European integration transport processes". Dr Dmytro Shevchuk, Prof., Head of the Air Transportation Management Department of National Aviation University (NAU) proposed the discipline "Transportation Systems Modeling, Simulation and Analysis" which corresponds to PLO 06 "Develop and analyze graphic, mathematical and computer models of transport systems and technologies"

### **- employers**

When developing the educational program, the interests, proposals and wishes of Ukrainian and European transport companies, with which the departments responsible for training specialists have many years of cooperation, are taken into account. According to the results of the project discussion, the proposals of the head of the air transportation and international cooperation department of the State Aviation Service of Ukraine I.P. Sadlovska were taken into account and included in the program learning outcomes: PLO 1 "To identify, address and solve problems in the field of sustainable transport engineering, as well as evaluate and ensure the quality of European integration transport processes" and PLO 03 "To make effective decisions in the field of transport systems and technologies, taking into account technical, social, economic and legal aspects, generate and compare alternatives, assess the necessary resources and limitations, analyze risks". Taking into account the recommendation of the executive director of "Freight Transport Partners" LLC Vasylenko I.V. program learning outcomes included: PLO 17 "Apply problem-oriented methods of analysis, synthesis and optimization of computer-integrated information systems for managing transport complexes" and PLO 11 "Analyze and evaluate the efficiency of "green" supply chains and logistics centers , calculate relevant indicators".

### **- the academic community**

To ensure quality preparation of EP, the developers practiced exchanging experience with representatives of the academic community, related departments and scientific institutions. So, the development team took part in the following international seminars, cluster webinars and meetings:

- cluster webinar-meeting for winners of the EU Erasmus+ program "Strengthening the Capacity of Ukrainian Education for the European Integration". Link - <https://bit.ly/3HS71yd>
- 35 ERASMUS ANNIVERSARY; the event was attended to celebrate the 35th Erasmus Anniversary, learn about the participants' experiences in Erasmus project implementation, history and thoughts about the program in the future. Link - <https://bit.ly/48bWzfG>
- Swedish-Ukrainian Contact Seminar 2023 to exchange experience with other project developers and promote developed EP. Link - <https://bit.ly/3UGVppD>;
- Meeting with business representatives - Bees Airlines; this meeting was held to involve practical experience in master's program design and advertise it for the potential employers. Link - <https://bit.ly/3SPIPEc>;
- project presentation in National Aviation University (Ukraine) in order to exchange experience with other project developers and promote it for the future students. Link - <https://bit.ly/3HRzDaP>;

### **Demonstrate how the goals and programmatic outcomes of the EP study reflect trends in the development of the specialty and the labor market**

The goals and programmatic results of EP training fully reflect the trends of sustainable development of the transport industry of the European Union and the labor market, which requires specialists with academic and research skills to solve the current problems of the industry. The professional competences learned through the mandatory and optional components of the EP allow students to develop professional knowledge and skills in conducting research, developing and making optimal decisions to ensure the effective functioning and development of transport systems and technologies, the organization of transportation with the use of modern software and technology means of automation, information, intellectual and computer technologies.

The EP is based on general scientific provisions, concepts, results of modern scientific and technical achievements in the field of aviation transport technologies and was developed taking into account the forecast of demand for professionals in the transport sector for the period until 2030, the key directions of the Transport Strategy of Ukraine until 2030, as well as the main provisions European transport development strategies (Sustainable and Smart Mobility Strategy – putting European transport on track for the future).

### **Demonstrate how the sectoral and regional context has been taken into account when formulating the objectives and programmatic outcomes of EP learning**

When developing the goals and PLO EP, the industry context was taken into account and special attention was paid to the formation of HE students' professional competences regarding the ability to conduct research and make optimal decisions in the transport sector. Mandatory components MC1-MC9 reflect the specifics of the functioning of the European transport industry, take into account the peculiarities of international and national regulatory regulation of passenger and cargo transportation, methods, techniques and models of sustainable development of transport systems, as well as provide for the study of modern practical experience in the organization and management of transport technologies in leading European and Ukrainian companies, which in the complex provides an opportunity for the future specialist to solve urgent and complex

problems related to ensuring high-quality, safe, efficient and sustainable operation of transport.

EP was developed taking into account regional and international features of transport development. Developed partnership relations with regional stakeholders and their active involvement in the educational process will provide an opportunity to maximally integrate the theoretical training of future masters with the European labor market. The EP has no analogues in terms of taking into account the sectoral and regional contexts in the field of sustainable transport engineering, which determined the expediency of introducing PLO 01-06 into the EP.

## **2. Structure and content of the educational program**

**What is the volume of EP (in ECTS credits)?**

120

**What is the volume of educational components (in ECTS credits) aimed at the formation of competencies defined by the standard of higher education for the relevant specialty and level of higher education (if available)?**88

**What amount (in ECTS credits) is allocated to disciplines of the choice of higher education applicants?**

24

**Demonstrate that the content of the EP corresponds to the subject area of the major declared for it (majors if the educational program is interdisciplinary)?**

The object of activity of the accredited EP consists in the study of transport systems and technologies, as well as the peculiarities of the organization of transportation and air transport management based on sections of science and technology, which study and combine connections and regularities in the theory of the functioning of transport systems and technologies, which fully corresponds to the European Transport Development Strategy (Sustainable and Smart Mobility Strategy – putting European transport on track for the future).

EP ensures mastery of the subject area of EP through educational components that have a structural connection between each other and fully reflect the general and professional competencies, as well as the programmatic learning outcomes to be obtained by the future master of sustainable transport engineering.

The theoretical content of the EP subject area is implemented through a cycle of professional and practical training (MC1-MC17). In addition, applicants exercise their right to expand and strengthen professional abilities based on studying the disciplines of the selective block.

For the implementation of educational activities under EP, in accordance with the needs of master's students and the implementation of individual MC, modern computer equipment and software of educational and scientific laboratories and auditoriums of partner universities are involved. IHE provides free access to the resources of global and local computer networks, which allows conducting all types of educational activities in a single software and information environment. For the formation of a modern model of a

graduate, a mandatory component is the consolidation of professional competencies during pre-diploma practice, which in the complex ensures the readiness of future specialists to conduct research and solve complex tasks and problems of the transport industry in the field of sustainable transport engineering.

### **How is it possible for students of higher education to form an individual educational trajectory?**

Partner universities have created all the necessary conditions for HE students to exercise the right to form an individual educational trajectory based on the independent choice of types, forms and paces of education for EP, taking into account his abilities, personal interests, needs, motivation, opportunities, as well as available experience. The individual trajectory of the HE acquirer is reflected in his individual study plan, which is mandatory.

### **Write how the EP and the curriculum provide practical training for students of higher education, which allows you to acquire the competencies necessary for further professional activity**

Pre-diploma practice covers IC, GK1-GK8, PC1-PC14, which form the future specialist's ability to solve complex tasks and make independent informed decisions in real production conditions and further professional activities.

### **3. Access to the educational program and recognition of learning outcomes**

#### **Provide a link to a web page that contains information about the EP**

<https://atmd.nau.edu.ua/project-erasmus-munsdus/>

#### **Explain how the admissions rules and requirements for applicants take into account the peculiarities of EP?**

The competitive selection of candidates for admission to the master's program takes place in accordance with the established procedure of the Admission Rules

(<https://atmd.nau.edu.ua/project-erasmus-munsdus/>).

#### **What document regulates the issue of recognition of learning outcomes obtained at other IHEs?**

Procedures for recognizing learning outcomes are regulated by the EMJM Partnership Agreement, which covers all academic, operational, administrative and financial aspects (<https://atmd.nau.edu.ua/project-erasmus-munsdus/>) and are transparent and accessible.

Admitted students register and enroll at the NAU, in agreement with the regulations of that institution and national legal requirements. In Semester 2 students are automatically registered and enrolled at the VILNIUS TECH. In Semester 3 students who have satisfied the assessment and examination requirements set out below are automatically registered and enrolled at the UNIZA. In Semester 4 students who have satisfied the assessment and examination requirements set out below are automatically registered and enrolled at the NAU.

## **Which IHE document regulates the recognition of learning outcomes obtained in non-formal education? How is its accessibility ensured for the participants of the educational process?**

During EP training on a voluntary basis, the applicant has the right to expand his/her competences in an informal educational environment. To facilitate this opportunity, NAU provides applicants and AS with free access to courses on the educational platform Coursera and Udemy (<https://bit.ly/3lWQCkg>). The learning results obtained by the student in an informal environment are recognized in full or in part only according to the normative disciplines of the EP in the amount of no more than 25% of the total amount of MC provided by the EP. The re-enrollment of the results of non-formal education is carried out by a commission consisting of at least 3 people (deputy dean, head of the department, AS, who ensure the teaching of the discipline) on the basis of: a statement from the applicant; a document confirming acquired competences (in English); description of activities/institution, content and obtained results.

### **4. Learning and teaching according to the educational program**

#### **Demonstrate how the forms and methods of learning and teaching at EP contribute to the achievement of program learning outcomes?**

Teaching and learning methods are chosen based on the principles of academic freedom and professional views of AS, taking into account the characteristics and theoretical content of MC.

Implementation of EP will be carried out on the basis of problem-oriented learning with the use of explanatory and illustrative, heuristic, general scientific, analytical, numerical, experimental, interactive methods (group work method, synectics, discussions, business games, case method, portfolio method, project method), and visual methods (elements of "presentation", slides, diagrams), as well as modern information technologies, work with databases of bibliographic, statistical and other types of data. EP provides practice-oriented training through practice (pre-diploma), which is organized according to the principle of continuity. Design technologies in the educational process are implemented through course projects and master's qualification work.

#### **Demonstrate how forms and methods of learning and teaching meet the requirements of a student-centered approach? What is the level of satisfaction of students of higher education with the methods of learning and teaching according to the results of EP tests?**

EP is developed on the basis of a student-centered approach, which involves the formation of a favorable environment. In IHE, for applicants to receive quality educational services based on the provision of the opportunity to independently design an individual learning trajectory, taking into account existing interests, needs, abilities and experience. In order to ensure the quality of the educational process and to improve it, it is planned to conduct an annual survey (questionnaire) among HE applicants to determine the level of satisfaction with the teaching of educational components, forms and methods of education, objectivity of assessment and forms of conducting control measures, etc.

## **Demonstrate how the EP's teaching and learning methods are aligned with the principles of academic freedom**

The academic freedom of AS, which provides training under EP within the limits of individual educational components, provides for the ability of the teacher to freely choose methods, technologies of learning and teaching, to form theoretical content and to fill educational and methodological materials from the discipline taking into account the results of his own scientific research and professional experience, to choose the form and place of advanced training (internship). Exercising their right to academic freedom, HE applicants, depending on their needs, interests, experience, independently form an individual educational trajectory, which involves a free choice to study elective disciplines, places of industrial practices, topics and supervisors of qualification works, directions of research and methods of their approval, participation in academic mobility programs, etc.

## **Describe how and at what time the participants of the educational process are provided with information about the goals, content and expected learning outcomes, the procedure and evaluation criteria within individual educational components \***

Before starting the study of educational disciplines, HE applicants and other participants of the educational process are provided with information about the goals, program learning outcomes, theoretical content, procedure and evaluation criteria of individual educational components EP will be posted on the project web page -

<https://atmd.nau.edu.ua/project-erasmus-munsdus/>.

Detailed information on the goals, methods and expected learning outcomes, criteria and forms of control measures of each educational component is provided by the teacher to whom it is assigned in the first classroom session.

## **Describe how teaching and research are combined during EP implementation**

A synergistic combination of training and research is provided for the formation of EP "Sustainable Transport Engineering" academic and research competences in solving current problems of functioning and sustainable development of transport systems and technologies. The integration of education and research takes place throughout the entire period of EP master's training within the framework of mastering separate MC mandatory and optional blocks when performing research tasks during laboratory (practical) classes, independent work, preparation of coursework and qualification papers (projects), completion of pre-diploma practice, participation in academic and practical discussions, webinars, round tables, conferences, etc.

The research skills of the future master in transport technologies are expanded and consolidated during the pre-diploma practice (MC17), as a result of which the applicants should master the abilities of conducting research, development and making optimal decisions according to the EP profile with the use of modern software and technical means of automation, information, intellectual and computer technologies.

The graduation department has created conditions that make it possible to combine studies and research results in the preparation of HE candidates in various ways, namely:

- 1) international conferences are organized annually;

- 2) opportunity for students to participate in international scientific and educational projects;
- 3) the functioning of student scientific groups (circles) in various scientific and practical areas of sustainable development of transport technologies is ensured;
- 4) webinars, seminars, workshops, trainings and guest lectures are held with the invitation of scientists-practitioners of the transport industry and representatives of scientific institutions.
- 5) mobility of EP applicants between partner universities is ensured

### **Describe how learning, teaching and research within the EP relate to the internationalization of IHE activities**

The purpose of the STE EMJM is to educate students who, in keeping with the goals of the ERASMUS+ program for an interconnected system of European universities. To answer the demands of the market in highly qualified international specialists in transport engineering with focus on sustainability issues, the main objective of the DIMSTE project is to design an international Master program in Sustainable Transport Engineering. All involved partners have a strong background and teaching history in the proposed area. Although the semester timetables may differ slightly in each Partner Institution, every effort is made to ensure that students attending the Degree Program at different locations will start and finish in the same time period allowing adequate transition time between mobility periods. Care will also be taken to ensure a balanced workload for students at each location.

The Partner Institutions will be responsible for the delivery of their own modules while taking into account joint agreements on learning outcomes, teaching and assessment methods, literature, textbooks and other learning materials.

Teaching staff at each Partner Institution involved in the delivery of the Degree Program will be fluent in the language of instruction as established in the Study, Teaching and Examination Regulations for the provision of the Degree Program at that Partner Institution.

Partner Institutions endeavor to involve renowned scholars, experts and professionals from across the field of Transport Engineering to contribute to and further enhance the quality of the Degree Program. Such involvement may include both the mobility of scholars/guest lecturers as well as that of staff members between the Partner Institutions themselves, between the Partner Institutions and other HEIs, where there is a clear link to the objectives of the Degree Programme.

### **5. Control measures, evaluation of higher education applicants and academic integrity**

#### **Describe how the forms of control measures within the educational disciplines of EP allow to check the achievement of program learning outcomes?**

According to the accredited EP, all educational components are developed according to a modular structure, according to which each individual module is a logically completed, relatively independent and integral part of the discipline, covering a set of theoretical and practical tasks of the appropriate content. Forms of control for a separate module are established by the AS, which is the subject of the discipline and, as a rule, provides for performance of test tasks and creative works, conducting an oral survey, defense of

reports on laboratory work, etc. The level of assimilation of the theoretical and practical program material by the students is determined at the intermediate stage of the course study during the obligatory performance of the modular control work.

Competencies and program learning outcomes for each MC are determined by the EP and are the basis for the meaningful filling of educational and methodological materials on the discipline and curriculum development, in which the teacher sets the types of individual tasks to be performed by the student, as well as evaluation criteria (points) according to the current and semester forms of control.

The overall labor intensity of the training course consists of the labor intensity of certain types of individual tasks in the form of calculation-graphic and modular control papers, essays, coursework (projects), etc. Within the framework of MC, control activities are interconnected, stimulate HE students to acquire professional skills with the use of creative abilities during systematic independent work and allow for an objective assessment of the level of assimilation of program learning outcomes. The form of the final attestation of the second master's level HE applicants under the accredited EP is the public defense of the qualification work, which involves solving a complex problem or problem in the field of transport technologies, based on conducting research and/or implementing innovations in the face of uncertainty of conditions and requirements. The HE candidate is admitted to the final attestation on the condition that the curriculum is completed in full and there is no academic plagiarism, fabrication, falsification in the qualifying work. Evaluation of the results of semester control and final attestation is carried out in points according to the ECTS scale.

### **How are clarity and comprehensibility of the forms of control measures and criteria for evaluating educational achievements of higher education applicants ensured?**

In order to determine the level of achievement by the HE student of learning outcomes under a separate MC, established EP and AS various forms of control measures are used, which are evaluated according to clear and understandable criteria developed by the AS, according to which it is fixed taking into account the specifics of the discipline. The developers of the criteria for evaluating achievements according to MC take into account the laboriousness, complexity and role of various types of educational work, as well as their importance for learning the material of the entire discipline. This curriculum will be posted on the project website to enable HE students to familiarize themselves with the aims, content, competencies and expected learning outcomes, as well as the forms of control and assessment criteria for each discipline. Detailed information on the forms of control, established types of tasks within the MC and the criteria by which the level of their performance is determined is provided by the teacher at the first classroom session. The educational achievements of the students are evaluated according to quantitative (ECTS scale) and qualitative indicators (amount of knowledge and skills acquired from the discipline).

### **How and when is information about the forms of control measures and assessment criteria delivered to higher education applicants?**

During the hours of corporate culture at the beginning of each academic semester, HE students receive all the necessary information about the organization of the educational process, the list of courses that they must learn during the semester, get acquainted with

the schedule of classes and forms of semester control. At the first classroom session, the MC teacher, to whom she is assigned, provides a concise description of the thematic content and structure of the discipline, according to the curriculum, reveals the main tasks, competencies and PLO that the master's student must master as a result of her study, and also informs the applicants of the prescribed forms control measures and criteria for their evaluation. If necessary, the HE applicant has the opportunity to familiarize himself with curriculum for each discipline and syllabi for them on the project web page.

The final control of the MC is carried out according to the approved schedule of the educational process, as well as the schedules of consultations and exams, which are brought to the attention of teachers and applicants no later than two weeks before the beginning of the credit-examination session.

Qualification work involves solving a complex task or problem in the field of transport technologies based on research and/or innovation and is characterized by uncertainty of conditions and requirements. The HE applicant has the opportunity to familiarize himself with the subject of master's qualification theses on the official resources of IHE.

Qualification work is checked for plagiarism without fail.

### **How is the objectivity of the examiners ensured? What are the procedures for preventing and resolving conflicts of interest?**

The procedures for the organization and conduct of control measures implemented in the partner universities provide for the objectivity of the examiners, which is ensured on the basis of: the presence of qualitatively developed rating systems for evaluating the knowledge and skills of HE students within the MC; correspondence of the AS by the level of professional qualification to the educational discipline that is assigned to it; systematic monitoring of the norms established by the IHE by the administration.

In case of disagreement with the results of the final semester control of the discipline, the student of HE has the right to challenge them and file an appeal in the prescribed manner.

### **How do IHE procedures regulate retesting?**

The HE holder has the right to retake control measures. If the applicant receives an unsatisfactory grade or is absent without good reason from the final control measures in the academic discipline, he is allowed to liquidate the academic debt, as a rule, within 1-2 weeks after the end of the examination session. Repeated revision of control measures can be carried out twice: once by the teacher-examiner, the second time by the commission. The assessment issued by the commission for the liquidation of academic debt during re-reading is final and is not subject to review. Upon receiving an unsatisfactory grade at the commission, the HE applicant is dismissed from the training program for failure to complete the individual study plan.

### **How do the IHE procedures regulate the procedure for challenging the procedure and the results of the control measures?**

In the event of a conflict situation and disagreement with the final evaluation of the academic discipline, the HE applicant may appeal in writing to the Steering Committee no later than the next working day after the announcement of the results of control measures. The appeal is conducted by the Steering Committee with the involvement of the subject examiner or other appointed teacher within two working days from the date of its submission in the form of the HE candidate's written response to the examination ticket.

The assessment received by the acquirer during the appeal cannot be reduced, but only left unchanged or increased.

### **What IHE documents contain academic integrity policies, standards, and procedures?**

All participants in the educational process at partner universities must adhere to the following principles: awareness of the importance of academic integrity and responsibility for its violation; zero tolerance for violation of academic integrity; compliance with legislation and internal regulatory documents of IHE; fairness and objectivity; legal certainty, openness and transparency of the rules and procedures for detecting violations of academic integrity and responsibility for its violation.

AS and HE learners are personally responsible for upholding the principles of academic integrity.

A mandatory procedure at IHE is the checking of qualification papers for academic plagiarism, which includes the following stages: 1) detection of text matches and borrowings using a technical system; 2) evaluation and discussion of the level of originality of the work by the Expert Council of the Steering Committee, adoption and execution of a decision on the admission of the HE candidate to the defense.

### **How does IHE promote academic integrity among EP higher education applicants?**

Ways to promote the principles of academic integrity among HE EP candidates include:

- 1) execution by the HE applicant of the Declaration on compliance with academic integrity upon admission to the EP;
- 2) systematic explanatory work of curators of educational groups, regarding IHE policy and normative documents in the field of academic integrity, preparation of scientific works, term papers, qualification work in compliance with these principles;
- 3) conducting consultations by the supervisors of qualification works with HE applicants regarding the need to prepare original texts and the degree of responsibility for violating the norms of citation;
- 4) placing in free access current regulatory documents regulating the issue of compliance with the principles of academic integrity.
- 5) carrying out preventive measures aimed at preventing violations of the principles of academic integrity among participants in the educational process.

## **6. Human resources**

### **How is the necessary level of professionalism ensured during the competitive selection of EP teachers?**

In order to attract professional AS to the implementation of EP, the university conducts a competitive selection to fill vacant positions on the basis of: openness, transparency, legality, integrity, equal rights, collegiality, independence, objectivity and reasonableness of decision-making, unbiased attitude to candidates for filling vacant positions. An applicant for filling a vacant AS position must have a full higher education, a scientific degree and/or academic title, relevant experience in scientific and pedagogical work and, according to his professional qualifications, meet the EP profile and be fluent in a foreign

language (English) at a level of at least B2, which is confirmed by relevant documents. Additional requirements for an AS candidate that are taken into account during the competition include: published monographs and published articles in Web of Science and/or Scopus publications in the EP profile; participation in scientific conferences (congresses, symposia, seminars), international projects, etc.

### **Describe, with reference to specific examples, how IHE involves employers in the organization and implementation of the educational process**

High-quality professional training of HE applicants is provided on the basis of complex cooperation of partner universities with leading European enterprises in the transport industry, by combining the intellectual potential, scientific, material and other resources of partners.

The main forms of cooperation with stakeholders include: 1) inclusion of employers in working groups for the development of EP; 2) involvement of employers in the future monitoring, revision of the EP and its individual components; 3) conducting trainings, webinars, seminars, classroom classes and guest lectures by practicing teachers; 4) invitation of leading experts in the transport industry to participate in scientific conferences; 5) organization of pre-diploma practice for HE applicants and advanced training (internship) of AS on the basis of partner enterprises.

### **Describe how IHE contributes to the professional development of EP educators?**

Exercising their right to academic freedom, AS can independently choose the type (participation in certification programs, trainings, seminars, webinars, master classes, etc.), form (institutional, dual, on-the-job, etc.) and place of advanced training (internship). In the partner universities, scheduled advanced training (internship) of AS is provided, which is carried out in accordance with the approved "Plan-Graphic" and unscheduled. The results of advanced training (internship) are taken into account when choosing a position by competition or concluding an employment contract with AS.

### **Describe how IHE promotes the development of teaching excellence**

AS, which provide training for applicants for EP, constantly develop and improve their teaching skills by participating in professional seminars, webinars, trainings, courses, conferences, competitions, projects, publishing the results of their own research in professional and international scientific publications and during mutual visits to educational classes (demonstrative, open lectures).

## **7. Educational environment and material resources**

### **Demonstrate how the financial and material resources (library, other infrastructure, equipment, etc.), as well as educational and methodological support of the EP ensure the achievement of the defined EP goals and program learning outcomes?**

The financial, material and technical resources available at IHE, as well as educational and methodological support, guarantee the achievement of the established goals and PLO according to the EP. The material and technical base of partner universities and

graduation departments will provide an opportunity to provide high-quality training for HE applicants during theoretical and practical training. For the implementation of the curriculum, depending on the specifics of the MC, computer classes connected to the IHE local network with the possibility of access to the global Internet and having a sufficient number of workstations with the necessary software are functioning. The partner universities have educational and scientific laboratories and units in their structure (<https://bit.ly/3ZaQvR4>, <https://bit.ly/3HULxkl>, <https://bit.ly/3STVNj1>), equipped with the necessary technical means and specialized software products (PTV Vissim, PTV Visum, PTV Viswalk, CAST Terminal Simulation, CAST Aircraft Simulation, CAST Aircraft Simulation, Aimsun, FlexSim, Goodloading, SCM GLOBE, RStudio, MatLab, Autodesk AutoCAD, Autodesk Infraworks, Autodesk Civil 3D, etc.).

### **How does the educational environment created in IHE meet the needs and interests of EP higher education students? What measures are taken by IHE to identify and take into account these needs and interests?**

A conducive educational environment has been created to meet the needs and interests of HE students at the partner universities. For the purpose of quality training of future masters, IHE provides an opportunity for free use of the material and technical base and available information resources, which are necessary for the formation of a highly qualified specialist in the EP profile. IHE provides free access to all participants of the educational process to the resources of the Springer publishing house, scientometric databases Scopus and Web of Science, and also promotes the expansion of professional competences in an informal environment (Coursera; Udemy, edX). In order to develop the academic and research skills of HE students, conferences are periodically organized at the university, where there is an opportunity to test the results of the conducted research, as well as to publish them in specialized scientific publications.

All the needs and interests of HE learners will be discussed at the Steering Committee and are the basis for the introduction of the necessary measures to take them into account in the educational process.

### **Describe how IHE ensures a safe educational environment for the lives and health of higher education learners (including mental health)?**

In the partner universities, safe conditions for the life and health of HE students have been created for the implementation of educational activities. Educational classrooms, social and administrative premises of IHE comply with established sanitary and technical norms and rules.

In order to create a safe educational environment, IHE conducts training on life safety and health protection, fire safety, radiation safety, response to emergency situations, etc. as preventive measures. In the 1st practical (laboratory) session, teachers familiarize HE students with safety techniques and make a corresponding note in the training log. The curators of the groups carry out explanatory work with the applicants on the issues of crime prevention, avoiding accidents during vacations and holidays, the importance of observing academic integrity, the procedure for settling in dormitories and living rules, etc.

### **How does IHE create sufficient conditions for the realization of the right to education by persons with special educational needs?**

Partner universities provide sufficient conditions for persons with special educational needs regarding the possibility of exercising their right to education. Issues related to the support of education of HE candidates in this category are regulated by The Steering Committee. In order to create comfortable learning conditions for people with special educational needs, IHE is conducting systematic work on improving the university's infrastructure.

The entrance to the IHE territory is equipped with accessible information elements, an opportunity has been created for free movement along the corridors of the 1st floors of buildings of all educational infrastructure facilities, ramps are available at the entrance to educational buildings.

## **8. Ensuring the quality of the educational program**

### **Describe how and how often the EP will be reviewed and improved?**

Mandatory procedures contributing to the improvement of the quality of HE in partner universities are monitoring and revision of the EP, taking into account the principle of continuity and continuity of the educational process. The review of the EP will be carried out by the Joint Quality Assurance, Course Development and Sustainability Committee every year with the involvement of HE learners, employers and other interested stakeholders on the basis of: current accumulated experience of educational activities in the EP profile; received proposals and recommendations; upon completion of MC implementation and final attestation of HE applicants; after the implementation of regulatory documents (recommendations) in the field of HE, etc. The Joint Quality Assurance, Course Development and Sustainability Committee, will be responsible for the monitoring of the proper and smooth implementation of quality assurance procedures of the Course, will convene in person or via electronic means at least once before the end of the academic year and will send an annual report to the Steering Committee with recommendations on any changes or improvements which may be felt are necessary.

### **How will the student government participate in EP's internal quality assurance procedures**

For the purpose of effective functioning of the internal HE quality assurance system of NAU, representatives of student self-government are involved in the main educational, financial, economic and other processes of IHE. This approach allows not only to receive signals about the weak or strong points of the existing system, but also to fully use the mechanisms for revealing the potential of HE collectors.

### **Demonstrate, with reference to concrete examples, how employers directly or through their associations will be involved in the process of periodic review of the EP and other quality assurance procedures**

ZVO closely cooperates with a wide range of employers to ensure quality training of specialists and development of EP. The presence of partnership relations with stakeholders provides an opportunity to quickly respond to any changes occurring in the transport industry, the labor market and take them into account in a timely manner within the EP and individual MCs.

It is planned to include employers in the working groups for monitoring and reviewing the EP, as well as for expert evaluation with the provision of proposals or feedback-

reviews. In order to develop professional competences of HE students, the stakeholders-partners will provide places for pre-diploma internships and will facilitate their further employment. In addition, applicants will have the opportunity to familiarize themselves with real practical experience from practicing teachers who participate in classroom classes, webinars, trainings and take an active part in cathedral events. Employers will assess the level of mastery of PLO by EP and the readiness of graduates for professional activity based on the results of passing industrial practices, as well as during the final certification.

### **Describe the planned practice of collecting and taking into account information on the career path and employment trajectories of EP graduates**

The Joint Quality Assurance, Course Development and Sustainability Committee will establish and maintain IHE corporate relations with HE EP graduates, periodically collect and analyze information on their career growth and professional development through the official project page (<https://atmd.nau.edu.ua/project-erasmus-munsdus/>), as well as pages in social networks (<https://www.facebook.com/ErasmusMundusDIMSTE>).

Formation of the base of EP graduates and determination of their employment trajectory will be carried out both within the centralized IHE system and at the level of The Joint Quality Assurance, Course Development and Sustainability Committee. The Joint Admission and Dissemination Committee will conduct systematic monitoring of the labor market, personal communication with employers regarding current vacancies and typical professional requirements for employment candidates. In addition, conferences, webinars, seminars, trainings will be organized with the invitation of leading practitioners, where HE applicants have the opportunity to get answers to questions about available vacancies, professional qualification requirements, career prospects, etc.

### **Describe the planned actions regarding the external quality assurance of the educational program during its improvement**

In addition, in order to improve the quality of the educational process, the Joint Quality Assurance, Course Development and Sustainability Committee must ensure:

- 1) a systematic survey of HE applicants, based on the results of the discussion, measures will be developed to eliminate the identified remarks;
- 2) involvement of employers and HE learners in EP improvement processes;
- 3) work on the development of international relations for the possibility of participation of HE and AS students in academic mobility programs;
- 4) involvement of leading experts and representatives of the transport business in classroom classes;
- 5) update the information on the project web page in a timely manner with the placement of the necessary up-to-date documentation in free access;
- 6) to ensure publication activity of AS and HE applicants in professional publications indexed by international databases, including Scopus, Web of Science.

### **Describe how members of the academic community are planned to be involved in EP's internal quality assurance procedures?**

To identify problems in the education quality assurance system, the Joint Quality Assurance, Course Development and Sustainability Committee includes members of the academic community in surveys, meetings of graduate departments, academic councils of

faculties and IHE, reviewing EP and educational and methodological materials. They provide recommendations on improving the educational process, the relevance of research areas and the results of their approval. In addition, the Joint Quality Assurance, Course Development and Sustainability Committee organizes seminars, conferences, webinars where directions for development and improvement of EP are discussed. AS EP cooperates with the academic community of domestic and foreign IHEs on the basis of participation in advanced training programs (internships), conducting joint research and their approval in professional scientific publications, co-authoring monographs, textbooks and other educational and methodological materials.

### **Describe the division of responsibilities between the various structural units of the IHE in the context of the implementation of internal education quality assurance processes and procedures**

The Joint governing bodies of the STE EMJM are:

1. **Steering Committee:** The Partnership Steering Committee holds executive power to make all decisions relating to the successful and compliant operation of the Degree Program. This decision-making power extends to all matters concerning the Degree Program, including, but not limited to, those pertaining to general management, academic supervision, quality assurance, changes to the Consortium, dispute resolution and student complaints related to the overall organization of the STE EMJM program, as far as this does not conflict with the local rules and regulations of the Partner Institutions.
2. **Joint Admission and Dissemination Committee:** under the supervision of the Steering Committee, the Joint Admission and Dissemination Committee will be responsible for the evaluation, selection, and admission of all students to the Degree Program, including EMJM grantees, according to the rules set down below. The Joint Admission and Dissemination Committee acts on mandate from partner universities the program derives from. Under the supervision of the Steering Committee, the Joint Admission and Dissemination Committee will be responsible for making suggestions on the dissemination, outreach and networking activities of the Consortium.
3. **Joint Quality Assurance, Course Development and Sustainability Committee:** under the supervision of the Steering Committee, the Joint Quality Assurance, Course Development and Sustainability Committee will be responsible for the evaluation of the STE EMJM. Under the supervision of the Steering Committee, the Joint Quality Assurance, Course Development and Sustainability Committee will be responsible for making suggestions on the future development of the STE EMJM and strategies in order to ensure sustainability after EMJM funding has ended. The Joint Quality Assurance, Course Development and Sustainability Committee, will be responsible for the monitoring of the proper and smooth implementation of quality assurance procedures of the Course, will convene in person or via electronic means at least once before the end of the academic year and will send an annual report to the Steering Committee with recommendations on any changes or improvements which may be felt are necessary.

## 9. Transparency and publicity

### **What IHE documents regulate the rights and obligations of all participants in the educational process? How is their availability ensured for the participants of the educational process?**

All participants in the educational process during the implementation of the EP have the rights and must comply with the established obligations regulated by the relevant internal normative legal documents, namely:

1. Partnership Agreement for Joint Master Program in Sustainable Transport Engineering
2. Student Agreement for Joint Master Program in Sustainable Transport Engineering;

### **Provide a link to the web page that contains information about the publication on the official IHE website of the relevant project for the purpose of receiving comments and suggestions from interested parties (stakeholders). Web page address**

The EP project "Sustainable Transport Engineering" for the training of second (master's) HE level participants participated in public discussion, with the aim of receiving comments and suggestions from all interested parties for its improvement, and was posted on the official website no later than a month before its approval by link:

<https://nau.edu.ua/ua/menu/quality/proekti/proekti-osvitno-profesiynih-program/proekti-osvitnih-program-2024.html>; [https://nau.edu.ua/site/variables/news/2024/2/%D0%9E%D0%9F%D0%9F%D0%A1%D0%A2%D0%86%D0%9F%D0%A0%D0%9E%D0%95%D0%9A%D0%A2\\_2024\\_v.02.pdf](https://nau.edu.ua/site/variables/news/2024/2/%D0%9E%D0%9F%D0%9F%D0%A1%D0%A2%D0%86%D0%9F%D0%A0%D0%9E%D0%95%D0%9A%D0%A2_2024_v.02.pdf)

### **Provide a link to publicly available information about the educational program on the Internet (including its goals, expected learning outcomes, and components)**

<https://atmd.nau.edu.ua/project-erasmus-munsdus/>  
[https://nau.edu.ua/site/variables/news/2024/2/%D0%9E%D0%9F%D0%9F%D0%A1%D0%A2%D0%86%D0%9F%D0%A0%D0%9E%D0%95%D0%9A%D0%A2\\_2024\\_v.02.pdf](https://nau.edu.ua/site/variables/news/2024/2/%D0%9E%D0%9F%D0%9F%D0%A1%D0%A2%D0%86%D0%9F%D0%A0%D0%9E%D0%95%D0%9A%D0%A2_2024_v.02.pdf)

## 11. Prospects for further development of EP

### **In general, what are the strengths and prospects for the development of EP?**

The strengths of EP "Sustainable Transport Engineering" of the second (master's) level of higher education include:

- 1) the uniqueness of the program regarding the reflection of the sectoral and regional contexts of functioning in the field of sustainable development of transport systems and technologies;
- 2) a student-centered approach to learning with the implementation of the principles of academic freedom, which will enable HE students to independently choose an individual trajectory realizing their own needs and interests;
- 3) the formation of HE

graduates in research competences in solving current problems of the functioning and sustainable development of transport systems and technologies, as well as professional skills provided for specialists by international standards;

- 4) stable partnership relations with employers and partner universities that will be involved in EP quality assurance processes and its development;
- 5) a powerful staff of scientific and pedagogical workers with a high level of professional achievements at the national and international levels, who have many years of experience in training highly qualified specialists;
- 6) free free access to the material and technical infrastructure and information resources of partner universities.