



**Sveučilište u Rijeci, Pomorski fakultet**  
University of Rijeka, Faculty of Maritime Studies

## CURRICULUM AND STUDY PROGRAM

# Maritime Technology and Organization of Transport

UNDERGRADUATE DEGREE PROGRAMME  
GRADUATE DEGREE PROGRAMME



**UNIVERSITY OF RIJEKA**

**Faculty of Maritime Studies, Rijeka**

**Undergraduate and Graduate Degree Program**

**MARITIME TECHNOLOGY AND  
ORGANIZATION OF TRANSPORT**

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# 1. INTRODUCTION

## 1.1 RATIONALE FOR LAUNCHING THE PROGRAM

### ❖ Purpose

The study program Maritime Technology and Organization of Transport has been offered by the Faculty of Maritime Studies in Rijeka for many years, and it builds on the long-standing tradition of the former program Maritime Transport Technology. The undergraduate and graduate curricula in Maritime Technology and Organization of Transport provide knowledge in the fields of technology, economics, law, engineering, as well as the rationalization and optimization of processes in maritime and land transport.

The content of the program is based on principles aimed at meeting the ongoing market demand for professionals capable of managing the entire transport process from origin to destination, applying modern technological and economic insights. Graduates of this program are expected to ensure that transport efficiently meets the demands of carriage and transshipment, contributes to the balanced development of the economy and price stability, improves freight and passenger transport, manages and optimizes transport and mobility solutions, with the ultimate goal of fostering the development of sustainable, accessible, and efficient transport systems tailored to the requirements of contemporary society.

### ❖ Link to contemporary scientific knowledge

The study program Maritime Technology and Organization of Transport is directly connected with contemporary scientific knowledge through continuous monitoring and integration of latest research findings, innovations, and technological developments in the field of transport technology and organization of transport. The curriculum is regularly updated in line with current scientific achievements, including topics such as sustainable mobility, digitalization of transport systems, automation, and the application of artificial intelligence in transport.

Students have the opportunity to use modern simulation tools and software solutions, which are in use at both European and global levels. The program encourages an interdisciplinary approach, cooperation with domestic and international scientific institutions, and participation in projects that reflect the latest trends and challenges in transport and mobility.

Through practical work and cooperation with the industry, students acquire knowledge and skills grounded in contemporary scientific insights, which makes them competitive in the labor market and prepares them to address the challenges of future developments in the transport and economic system of the Republic of Croatia.

### ❖ Comparability

By analyzing the comparability with other relevant university programs worldwide, and especially in Europe, the study program is found to be partially comparable with programs offered by the following institutions:

1. GDYNIA MARITIME UNIVERSITY, POLAND
2. CARDIFF BUSINESS SCHOOL, UK
3. UNIVERSITY OF PLYMOUTH, UK
4. PIRI REIS UNIVERSITY, ISTANBUL, TURKEY
5. SINGAPORE MARITIME ACADEMY
6. ESTONIA MARITIME ACADEMY, TALLINN, ESTONIA
7. UNIVERSITY OF PIRAEUS, GREECE
8. FAKULTETA ZA POMORSTVO IN PROMET, PORTOROŽ, SLOVENIA
9. THE WORLD MARITIME UNIVERSITY, MALMOE, SWEDEN

10. BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS, HUNGARY
11. TECHNISCHE UNIVERSITÄT BERLIN, GERMANY
12. TECHNISCHE HOCHSCHULE INGOLSTADT, GERMANY
13. FACHHOCHSCHULE DER WIRTSCHAFT (FHDW), GERMANY
14. UPC-BARCELONATECH, SPAIN
15. MOLDE UNIVERSITY COLLEGE, Miljø, NORWAY
16. HASSELT UNIVERSITY, Master of Transportation Sciences, BELGIUM

Comparisons with related programs at the aforementioned universities, colleges, and higher education institutions (some of which maintain various forms of collaboration with the Faculty of Maritime Studies at the University of Rijeka) demonstrate that these partnerships help achieve objectives of the Bologna Declaration, including the compatibility and mobility of study programs, academic staff, and students.

## **1.2. EXPERIENCE IN IMPLEMENTING EQUIVALENT OR SIMILAR PROGRAMS**

The Faculty of Maritime Studies, University of Rijeka has gained significant experience in the development and implementation of high-quality study programs in the field of transport, as can be witnessed by the long tradition of providing and implementing the study program Maritime Technology and Organization of Transport. By monitoring contemporary trends and labor market needs, and through collaboration with the business sector, public institutions, and international organizations, the Faculty has continuously adapted its teaching content and methods.

This experience is reflected in the development of professional and academic staff, participation in domestic and international projects, and the organization of internships and field training for students. Special attention is given to developing students' competencies in transport technology as well as in the management and organization of transport processes.

The long-term implementation of this study program demonstrates the ability of the Faculty of Maritime Studies, University of Rijeka to successfully develop and implement innovative and competitive study programs in the field of transport, in line with labor market needs and the demands of modern society.

## **1.3. POTENTIAL PARTNERS OUTSIDE THE HIGHER EDUCATION SYSTEM**

Potential partners outside the higher education system include a wide range of entities from the maritime and transport sector, such as ports and port authorities, shipping companies, road and rail carriers, logistics and freight forwarding companies, traffic management agencies, freight forwarders, customs services, as well as state, regional, and local government bodies responsible for transport and maritime affairs. Equally important are partners in the fields of innovation and sustainable development, such as companies specializing in the development of solutions for smart transport, environmental protection, and sustainable mobility. Collaboration is also possible with compatible educational institutions, non-governmental organizations, and professional associations, providing students with access to professional internships, projects, and innovations in the real sector.

## **1.4. OPENNESS OF THE PROGRAM TOWARDS STUDENT MOBILITY**

The Maritime Technology and Organization of Transport study program is particularly open to student mobility, promoting the exchange of knowledge and experience as well as the development of international competencies. Mobility is facilitated both within the University and through international exchange programs.

In the 5th and 6th semester, in addition to the elective courses included in the program, students may—subject to prior approval by the Department of Transport and Transportation Technologies—enroll in one elective course from other programs offered by other Faculties or Universities. This approach encourages interdisciplinarity and supports individual student development according to their personal interests and professional goals.

International student mobility is realized through participation in the ERASMUS+ program, in cooperation with numerous partner institutions, including Tallinn University of Technology – Estonian Maritime Academy, Lithuanian Maritime Academy in Klaipėda, Università degli Studi di Napoli – Parthenope, Hochschule Wismar, NHL University of Applied Sciences in Leeuwarden, and others. Students participating in exchange programs are

supervised and provided with assistance in administrative matters, thus facilitating the adaptation and successful achievement of academic goals abroad.

This approach enables students to gain international experience, develop language and intercultural skills, and increases their competitiveness in the European and global labor markets.

## 1.5. OTHER ELEMENTS AND REQUIRED INFORMATION

### ❖ Need for the Program

The Maritime Transport Technology and Organization of Transport program addresses the growing demand for highly educated professionals in the field of transport, capable of managing complex transport processes from both technological and organizational perspectives, and contributing to the development of the maritime economy as well as the broader transport sector. The program is designed to cover various sectors of the maritime and transport economy and to provide knowledge and skills applicable in both the public and private sectors, as well as in academic and professional institutions.

Upon graduation, students have employment opportunities in maritime, transport, and business companies, as well as in state and social bodies responsible for managing, planning, and implementing transport processes. Thus, the program provides a solid foundation for effective performance, innovation, and sustainable development in the transport sector, in line with the current needs of the economy and society.



## 2. GENERAL SECTION

### 2.1. NAME OF THE PROGRAM

Program name: **Maritime Technology and Organization of Transport**

### 2.2. STUDY PROGRAM HOLDER AND PROVIDER

The provider and implementing institution of the program: **the Faculty of Maritime Studies, University of Rijeka.**

### 2.3. DURATION OF THE DEGREE PROGRAM

The duration of the university undergraduate degree program is three years. Instruction is conducted over six semesters, each carrying 30 ECTS credits. Upon completion of the three-year undergraduate program, students may choose to continue their studies in a university graduate degree program. The duration of the graduate degree program is two years, or four semesters.

The forms of instruction include lectures, guest lectures by industry experts, seminars, exercises, internship in companies, fieldwork, individual consultations, and mentorship.

### 2.4. ENROLMENT REQUIREMENTS

Applicants apply for admission to undergraduate programs via the National Information System for Applications to Higher Education Institutions (NISpVU) and the website [www.postani-student.hr](http://www.postani-student.hr). Eligibility to apply requires completion of a four-year secondary school program. The application procedure for study programs at the University of Rijeka institutions via NISpVU is explained on [www.postani-student.hr](http://www.postani-student.hr).

Upon publication of the final admission rankings, an applicant will appear only on the ranking list of the program that holds the highest priority on their list and for which they meet the admission requirements; the applicant will be removed from all other ranking lists. After the publication of the final rankings, the applicant may enroll only in the program for which they obtained an admission place and a registration number. Assignment of a registration number for a program obliges the applicant to enroll in that program.

Eligibility to apply for a graduate program requires completion of a relevant undergraduate university program or an undergraduate program in a related maritime, transport, or technical faculty. Selection is based on academic performance in the undergraduate program (average grade) and is conducted without an entrance exam. Enrollment is carried out according to the results obtained in the selection process, based on the established ranking list.

Detailed information on the enrollment procedure for the program in which the applicant has gained admission is provided in the public call for enrollment in the first year of undergraduate, integrated (graduate and undergraduate), and professional undergraduate programs for the upcoming academic year, as well as on the higher education institution's website.

### 2.5. UNDERGRADUATE DEGREE PROGRAM

#### ❖ Competences Acquired upon Completion

The program is designed to ensure that graduates of Maritime Technology and Organization of Transport acquire the competencies necessary to perform tasks across a wide range of transport-related fields.

The curriculum provides knowledge in transport and transshipment technology, transport engineering, application of quantitative methods, traffic organization and logistics, port systems and operations, maritime shipping, ships and ship construction, transport-related legal regulations, safety and protection in transport, and the use of foreign languages in transport and mobility.

The acquired knowledge enables employment in various transport and shipping companies in both the private and public sectors.

Students who choose to continue their studies may enroll in graduate degree programs offered by the proponent institution or other institutions in the Republic of Croatia.

No.	Institution	Graduate Study Program
1.	Faculty of Maritime Studies, Rijeka	- Transport and Mobility - Logistics and Management in Maritime Industry and Transport
2.	Faculty of Maritime Studies, Split	- Maritime Management
3.	Maritime Department, University of Dubrovnik	<i>Given that the study programs of compatible university institutions are subject to revisions, it is not possible to provide a clear plan of student mobility. As a rule, student mobility is agreed upon on an annual basis.</i>
4.	Maritime Department, University of Zadar	
5.	Faculty of Transport and Traffic Sciences, Zagreb	
6.	Faculty of Engineering, Rijeka	
7.	Faculty of Economics and Business, Rijeka	



## 2.6. GRADUATE DEGREE PROGRAM

### ❖ Competences Acquired Upon Completion

The graduate degree program is designed as an extension of the content covered in the university undergraduate program Maritime Technology and Organization of Transport. Upon completion of the university graduate degree program in Maritime Technology and Organization of Transport, students will acquire the competencies required to organize transport processes and successfully work in various maritime and transport institutions and companies whose activities are related to shipping and transport (ports, port authorities, shipping companies, agencies, freight forwarders, customs, road and rail carriers, Harbor Master's Office, and the ministry related to maritime affairs and transport), while taking into account trends in multimodal and integrated transport.

The curriculum provides knowledge in transport and transshipment technology, transport engineering, application of quantitative methods, organization of transport and logistics, port systems and operations, maritime shipping, ships and ship construction, legal regulations in transport, transport safety and protection, and the use of foreign languages in the field of transport and mobility.

The knowledge and skills acquired enable employment in a wide range of transport and shipping companies in both the private and public sectors.

### Undergraduate Programs Eligible for Admission

Applicants may enter the master's program having completed the university undergraduate program offered by the proposing institution or other related programs in Croatia, which provide sufficient preparation for the master's studies.

### ❖ University undergraduate study programs of the proponent or other institutions in the Republic of Croatia that the student can attend

No.	Institution	Undergraduate Study Program
1.	Faculty of Maritime Studies, Rijeka	- Transport and Mobility
2.	Faculty of Maritime Studies, Split	-Logistics and Management in Maritime Industry and Transport - Nautical Studies and Maritime Transport Technology - Maritime Management - Marine Engineering
3.	Maritime Department, University of Dubrovnik	- Nautical Studies - Marine Engineering - Maritime Yacht and Marina Technologies - Marine Engineering and Maritime Transport Technology
4.	Maritime Department, University of Zadar	- Nautical Studies and Maritime Transport Technology
5.	Faculty of Transport and Traffic Sciences, Zagreb	<i>Given that the study programs of compatible university institutions are subject to revisions, it is not possible to provide a clear plan of student mobility. As a rule, student mobility is agreed upon</i>

6.	Faculty of Engineering, Rijeka	<i>on an annual basis.</i>
7.	Faculty of Economics and Business, Rijeka	

## 2.7. LAUNCHING A STUDY PROGRAM IN WHICH THE UNDERGRADUATE AND GRADUATE COMPONENTS ARE COMBINED INTO ONE

The undergraduate and graduate university study programs are designed as two connected yet separate educational components. The undergraduate program lasts three years, while the graduate program lasts an additional two years, following the 3+2 model in accordance with European educational standards. This structure allows students to gradually acquire basic and advanced knowledge while providing flexibility in their continued academic and professional development.

## 2.8. PROFESSIONAL OR ACADEMIC TITLE AWARDED UPON COMPLETION

Upon successful completion of the three-year undergraduate university program, students are awarded the academic title of **Baccalaureus** or **Baccalaurea** with a designation of relevant profession (in international transport and diploma issued in English, University Bachelor of Science).

Academic title: Sveučilišni prvostupnik/prvostupnica (**baccalaureus/baccalaurea**) **inženjer/inženjerka prometa (univ. back. ing. traff.)**

In international transport and diploma in English: **University Bachelor of Science (BSc) in Transport**

Upon successful completion of the two-year university graduate program, students are awarded the academic title of **Magister** or **Magistra** with a specification of the field.

Academic title: **magistar/magistra inženjer / inženjerka prometa (mag. ing. traff.)**

In international transport and diploma in English: **University Master of Science (MSc) in Transport**

### 3. LEARNING OUTCOMES OF THE STUDY PROGRAM MARITIME TECHNOLOGY AND ORGANIZATION OF TRANSPORT AND LIST OF COURSES

#### 3.1 DESCRIPTION OF THE LEARNING OUTCOMES OF THE UNIVERSITY UNDERGRADUATE STUDY PROGRAM MARITIME TECHNOLOGY AND ORGANIZATION OF TRANSPORT AND LIST OF COURSES

IT1P	QUANTITATIVE METHODS IN TRANSPORT AND LOGISTICS - Apply knowledge from mathematics, computer science, statistics and operational research in solving practical problems in the field of technology and organization of transport and logistics.
IT2P	FOREIGN LANGUAGES IN SHIPPING AND TRANSPORT - Apply linguistic knowledge and skills to independently perform specialized tasks in the fields of shipping, transport and logistics.
IT3P	PORT SYSTEM AND PORT OPERATIONS - Apply a systematic approach to analyzing ports and port operations by understanding technical-technological, economic and environmental aspects in the function of optimal port management
IT4P	MARITIME INDUSTRY - Apply knowledge of the specifics of certain segments of the maritime shipping market and evaluate supply and demand in maritime transport.
IT5P	TRANSPORT ENGINEERING AND NETWORKS - Demonstrate and apply knowledge in the field of transport engineering and engineering logistics and explain ways to organize the transport and logistics network.
IT6P	SHIPS AND SHIP CONSTRUCTION - Understand the technical and technological characteristics of different types of ships and ship loading devices and equipment
IT7P	TECHNOLOGY OF TRANSPORT AND TRANSSHIPMENT - Explain the technical and technological aspects of transport and transshipment in different modes of transport.
IT8P	TRANSPORT SAFETY AND PROTECTION - Explain the system of transport safety and occupational safety obligations and the management of procedures in the event of exceptional circumstances and hazards.
IT9P	REGULATIONS IN TRANSPORT - Understand national and international legal regulations and sources of law and their relevance to international trade and the maritime industry.
IT10P	B.Sc. THESIS - Apply theoretical and practical knowledge in working independently on the topic, correctly apply the methodology and technique of the Bachelor's thesis, and present conclusions and results.
IT11P	ORGANIZATION OF TRANSPORT AND LOGISTICS - Understand the legal, economic, technological and organizational aspects of the activity of a logistics company, the application of electronic commerce and the organization of the flow of goods, taking into account the specificities of the transport system.



		QUANTITATIVE METHODS IN TRANSPORT AND LOGISTICS	FOREIGN LANGUAGES IN SHIPPING AND TRANSPORT	PORT SYSTEM AND PORT OPERATIONS	MARITIME INDUSTRY	TRANSPORT ENGINEERING AND NETWORKS	SHIPS AND SHIP CONSTRUCTION	TECHNOLOGY OF TRANSPORT AND TRANSHIPMENT	TRANSPORT SAFETY AND PROTECTION	REGULATIONS IN TRANSPORT	B. Sc. THESIS	ORGANIZATION OF TRANSPORT AND LOGISTICS
	<b>Course Title</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
1. SEMESTER	Mathematics 1	+										
	Engineering Graphics					+						
	Basics of Transport Technology				+							+
	Cargo Flows				+						+	+
	Ship Design and Construction						+					+
	English Language 1		+									+
	Physical and Health Education 1											
2. SEMESTER	Mathematics 2	+										
	Statistics	+										+
	Programming	+										+
	Engineering Mechanics	+										+
	Maritime System			+	+						+	+
	English Language 2		+									
	Physical and Health Education 2											
3. SEMESTER	Quantitative Methods in Transport	+										+
	Traffic Engineering and Microsimulation					+						+
	Port and Terminal Technology			+				+				+
	Cargo in Transport							+				+
	Maritime Public Law									+		+
	English Language 3		+									
4. SEMESTER	Transport Demand Planning	+			+							+
	Passage Planning	+				+						+
	Traffic Safety						+		+			+
	Material Handling Equipment	+						+				+
	Port Economics			+	+							+
	English Language 4		+									
5. SEMESTER	Basics of Transport Modeling	+				+						+
	Freight Forwarding										+	+
	Container Stacking Strategies	+						+				+
	Land Transport Technology							+				+
	<i>Ecology in Transport</i>								+	+		+
	<i>Maritime Transport Technology</i>						+	+				+
	<i>Maritime Agencies</i>									+		+
	<i>Commercial Law</i>									+		+
	<i>Port Logistics</i>			+							+	+
	<i>Electronic Business</i>			+	+						+	+
	<i>Cloud Computing</i>			+	+						+	+
	<i>German Language 1</i>		+									+
	<i>English Language 5</i>		+								+	
6. SEMESTER	Application of Algorithms in Transport Planning	+										+
	Automation in Transport					+						+
	Bachelor of Science Thesis											+
	<i>Engineering Logistics</i>											+
	<i>Transport Economics</i>			+	+							+
	<i>Shipping Economics</i>				+							+

	<i>The Law of Maritime Transport</i>									+		+
	<i>Transport Insurance</i>									+		+
	<i>German Language 2</i>		+									
	<i>English Language 6</i>		+									
	<i>Student Internship 1</i>			+				+			+	

## LEARNING OUTCOMES OF THE GRADUATE STUDY PROGRAM MARITIME TECHNOLOGY AND ORGANIZATION OF TRANSPORT AND LIST OF COURSES

IT1D	MANAGEMENT OF TRANSPORT PROCESSES - Explain a systematic approach to the study of technological processes in transport and efficient management of processes through the use of information systems.
IT3D	TRANSPORT MODELLING - Create models of specific problems in the transport sector using software tools that support simulation modelling methods and techniques and interpret the solutions obtained.
IT4D	STRATEGIC AND OPERATIONAL PLANNING IN THE MARITIME AND TRANSPORT SECTOR - Define and interpret planning procedures to achieve objectives and implement transport development strategy taking into account the maritime and transport policies.
IT5D	M.Sc. THESIS - Define a professional/scientific research problem, plan and conduct a research, apply acquired knowledge and competences to solve the problem independently by applying the methodology and technology of scientific and professional work.
IT2D	SUSTAINABLE TRANSPORT - apply knowledge of the development and problems of transport to meet modern requirements and criteria of sustainability in accordance with maritime and transport policy.





		MANAGEMENT OF TRANSPORT PROCESSES	TRANSPORT MODELLING	STRATEGIC AND OPERATIONAL PLANNING IN THE MARITIME AND TRANSPORT SECTOR	SUSTAINABLE TRANSPORT	M.Sc. THESIS
	Course Title	1	2	3	4	5
1. SEMESTER	Methodology of Transportation Planning and Modelling	+		+		+
	Technological Processes in Transport	+	+			+
	Scientific Research Methodology					+
	Simulation and Modelling	+	+			+
	Human Resource Management	+		+		+
	Marine Technologies				+	+
	Public Management and Governance			+		+
	Economics and Organization of Maritime Passenger Transport	+	+	+		+
	Big Data Analysis	+		+		+
	Applied Mathematics		+			+
2. SEMESTER	Urban Traffic and Environment				+	+
	Sustainable Marinas			+	+	+
	Quality in Maritime Industry	+			+	+
	Passenger Transport Flows		+		+	+
	Multimodal Transport and Maritime Transport Routes					+
	International Maritime Safety System				+	+
	Designing and Planning of Ports and Terminals			+		+
	Supply Chain Management	+				+
	International Shipping Business			+		+
	Business Information Systems	+	+			+
3. SEMESTER	Optimization of the Transport Process	+				+
	Land Transportation System Planning		+	+		+
	Maritime and Transport Policy			+	+	+
	Intelligent Transportation Systems	+	+			+
	Project Management			+		+
	Transport Law of the EU			+	+	+
	Shipping and Port Management			+		+
	Coastal Zone Management			+	+	+
	Maritime Financing	+		+		+
	Artificial Intelligence		+			+
4. SEMESTER	M.Sc. Thesis					+
	Queueing		+			+
	Logistics in Land Transport	+			+	+
	Environmental Law				+	+
	Reliability and Safety of Technical Systems	+	+			+
	Internet of Things		+			+
	Student Internship 2	+		+		+