Department of Water Transport
Chair of Water Transport Technology

UNIVERSITY OF ZAGREB
FACULTY OF TRANSPORT AND TRAFFIC SCIENCES

GRADUATE STUDY: TRANSPORT

SEMESTER (II)

Syllabus

Academic year 2023/2024

Course:	**Water Transportation Planning**					
Head of course: Prof. **Natalija Kavran**, Ph.D. Prof. **Mihaela Bukljaš**, Ph.D.						
Co-lecturers: Asst. Prof. **Vlatka Stupalo**, Ph. D.						
Semester: **II**	Course code: **186781**	Lectures: **30**	Auditory exercises: **7**	Laboratory exercises: **8**	Seminars: **15**	ECTS credits: **7**
Group for lectures: **15 students**			Group for auditory and laboratory exercises: **15 students**			

Objective of the course:

- To familiar students with:
  - the methodology of planning
  - transport planning, processes of designing and organization of the transport system
  - objects in the function of the water transport function.
- Acquisition of competence for the work at the: analysis the transport market, innovation of technological processes and technical equipment, planning, designing, improvement of technology and organization in the maritime and river ports, docks and terminals, planning and organization of system and work in state administration.

Learning outcomes:

After the completion of the course the students will be able to:
1. Distinguish types of planning.
2. Explain the methodology for planning water traffic development.
3. Plan investments and personnel in water transport.
4. Evaluate pre-project documentation.
5. Validate the technical conditions of designing and object location selection in ports
6. Evaluate Feasibility study.

LECTURES, EXERCISES and SEMINARS

Week	Syllabus	Form of classes	Performed by	Lessons	Remark
1.	▪ Introduction lecture (familiarization with course content, literature, student responsibilities, dates of first and second colloquium, the conditions for the signature, examination)	L	Mihaela Bukljaš	2	Dates of colloquium
	▪ Seminar methodology (deadlines of the topic registration, submission and oral presentation, title of seminar, rules of seminar drafting).	S	Vlatka Stupalo	2	Seminar topic proposal (Merlin) Submission of seminar via Merlin (merlin.srce.hr)
2.	▪ Theoretical assumptions in planning and designing	L	Natalija Kavran	4	
3.	▪ Transport planning types and development planning methodology. ▪ Spatial planning. Spatial plan. Transport planning. Transport plan	L	Natalija Kavran	3	
	▪ Distribution of seminar topics. Elaboration of seminar content.	S	Vlatka Stupalo	1	
4.	▪ Methods of traffic forecast ▪ River, port & terminal design and engineering of navigation safety facilities	LE	Vlatka Stupalo	3	
	▪ Distribution of seminar topics. Elaboration of seminar content.	S	Vlatka Stupalo	1	

5.	▪ Water transport development plans, investment plans and human resource plans	L	Natalija Kavran	3	
	▪ Technical requirements for design, engineering and object location selection.	LE	Vlatka Stupalo	1	MS Project
6.	▪ Project evaluation and presentation ▪ Project cycle	L	Natalija Kavran	3	
	▪ Technical requirements for design, engineering and object location selection.	LE	Vlatka Stupalo	1	MS Project
7.	▪ Project types, project design and pre-project documentation ▪ The content of investment project	L	Mihaela Bukljaš	3	
	▪ Elaboration of seminar content. Division of seminar topics. ▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	Deadline for selection of seminar topic. List of all selected topics, with dates for oral presentation of each seminar (Merlin).
8.	▪ Technical requirements for design, engineering and object location selection.	LE	Vlatka Stupalo	1	MS Project

	▪ Logical framework matrix. ▪ First colloquium.	AE	Vlatka Stupalo	2	First colloquium (concluded with topic no. 6 of lectures and topic no. 5 of practicum's)
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	
9.	▪ Logical framework matrix.	AE	Vlatka Stupalo	3	
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	
10.	▪ Technical requirements for design, engineering and object location selection.	LE	Vlatka Stupalo	2	MS Project
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	2	
11.	▪ Methodology of study (Cost-benefit analysis, Feasibility study) ▪ Project management	L	Mihaela Bukljaš	3	
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	
12.	▪ Feasibility Study	L	Mihaela Bukljaš	3	

	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	Deadline for submission of seminar papers.
13.	▪ Methods of study analysis	L	Mihaela Bukljaš	3	
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	1	Deadline for seminar evaluation (grade).
14.	▪ Second colloquium.	AE	Vlatka Stupalo	1	Second colloquium.
	▪ Oral presentation of seminar by students using e.g. *MS Power Point*	S	Vlatka Stupalo	3	
15.	▪ Revision of course matter.	L	Natalija Kavran	2	List of students that have realized the condition "Courses requirements achieved" (see page 10) (Merlin)
	▪ Revision of course matter.	L	Mihaela Bukljaš	1	
	▪ Revision of course matter.	AE	Vlatka Stupalo	1	

L = Lectures; **AE** = Auditory Exercises; **LE** = Laboratory Exercises; S = Seminars

STUDENT OBLIGATIONS AND EXAMS

Conditions for obtaining signatures:

During the semester three absences are allowed, i.e. 20% of all forms of classes (lectures and exercises). Also, on time submission and oral presentation of a seminar paper is mandatory. Without realizing the condition "Courses requirements achieved" (see page 10), student cannot access the written and oral exams.

Written Examination:

There are two ways of passing the exam:

a) **through *colloquium***: Colloquiums are written according to the previously published scheduled time and cannot be recovered. The first colloquium is written within mid-semester and is composed of the first part of the teaching material. Only, if the student has successfully written the first colloquium, he/she can access the second colloquium, the second colloquium is composed of the second part of the material and is taken at the end of the semester. The results determine the success of students passing efficiency (the minimum for passing is 50% on each colloquium). The total number of internal points that a student can achieve at the first colloquium is 50, and on the second is 100. Students must achieve a minimum of 20 points at the first colloquium, and 70 points in the second colloquium. A student who successfully writes both colloquiums and successfully defends the seminar is free of the written exam. Rating (grade), in this case, is based on the average rating of both exams and grade of the seminar according to the formula:

$$\text{Rating (grade) of the written exam} = 0.33 \times (K1 + K2 + OS)$$

K1 – Grade of the first successfully written (passed) colloquium
K2 – Grade of the second successfully written (passed) colloquium
OS – Grade (positive) of the seminar

The average score is recognized as being a grade of the written final exam. Written exam passed through colloquiums is recognized throughout the academic year in which the condition is met.

b) **through the *written final exam***: The final written exam, according to the previously published exam schedule, can attend a student who is not satisfied with achieved grade attained through colloquiums or did not passed one of the colloquiums, or did not attend the colloquiums. A written final exam covers the overall subject material. The result of the success determines the success of students passing, i.e. grade (the minimum for passing is 50%).

Oral examination:

Requirements for the oral exam are: 1) realized the condition "Courses requirements achieved" and 2) passed the written part of the exam or realized the condition "Exemption from the written part of the exam" during the class.
The right for the accession to the oral exam can be achieved in two ways:

1. after successfully achieved requirement "Exemption from the written part of the exam" – the student must register on time for the exam via *ISVU Studomat* system, according to the exam schedule, and accesses only to the oral part of the exam.
2. after passing a written final part of the exam – according to the exam schedule, the student can access to the oral part of the exam.

The term of the oral part of the exam is published with the results of the final written exam via Merlin system.

Note: Students are obliged to have student card with them during all exams (colloquium, written final exam, oral examination) and during class.

Extra points:
The presence at all forms of lectures, in percentage smaller than allowed, can be recovered by creating (drafting) of an additional seminar (alongside the mandatory), solely for the absence of justified reasons, and upon presentation of proper document (verification or confirmation). Additional seminar prepares the student by itself selecting a topic from the list of topics. Through this seminar student can achieve from 5 to 10 internal points.

LITERATURE

a) Obligatory literature:

1. Kavran N. *Water Transportation Planning. Authorized lectures – presentations.* Faculty of transport and traffic sciences of University of Zagreb. Zagreb, 2017. (Available at: merlin.srce.hr)
2. Bukljaš M. *Water Transportation Planning. Authorized lectures – presentations.* Faculty of transport and traffic sciences of University of Zagreb. Zagreb, 2017. (Available at: merlin.srce.hr)
3. Stupalo V. *Water Transportation Planning. Authorized lectures – presentations.* Faculty of transport and traffic sciences of University of Zagreb. Zagreb, 2017. (Available at: merlin.srce.hr)

b) Recommended literature:

1. Biafore B. *Microsoft project 2013: the missing manual*. Sebastopol, California: O'Reilly; 2013.
2. Bichou K. *Port operations, planning and logistics*. London, UK: Informa; 2009.
3. Charvat J. *Project management methodologies: selecting, implementing, and supporting methodologies, and processes for projects*. New Jersey: John Wiley & Sons; 2003.
4. Chatfield C, Johnson T. *Microsoft Project 2013 step by step*. Redmond, Washington: Microsoft Press; 2013.
5. Cook CR. *Just enough project management: the indispensable four-step process for managing any project, better, faster, cheaper*. New York, USA: McGraw-Hill; 2004.
6. Grammenos CT, editor. *The handbook of maritime economics and business*.. 2nd ed. London, UK: Lloyd's List; 2010.
7. Kelton WD, Sadowski RP, Zupick NB. *Simulation with Arena*.. 6th ed. New York,USA: McGraw-Hill Education; 2014.
8. Ligteringen H. *Ports and terminals*.. 2nd ed. Delft Academic Press; 2017. 378 p.

9. UNCTAD. *Port Development: A handbook for planners in developing countries*. 2ed. rev. New York, USA: United Nations; 1985.

METHODOLOGY OF THE IMPLEMENTATION OF THE COURSE PLAN

Prerequisite for this course is knowledge of English language.

1. LECTURES

Lectures are usually performed using Power Point presentations and panels, and for some units and video presentations. For some units it is possible to use multimedia and the Internet. Students actively participate in lectures through the processing of pre-specified materials, i.e. by preparing for the work in the class, and through discussion of issues that are lectured. Presentations from the lectures, in pdf format, are available to student via Merlin system (moodle.srce.hr/*yyyy-yyyy* or merlin.srce.hr).

2. AUDITORY EXERCISES

Auditory exercises are built on the lecture, in a manner that recapitulates the basic concept presented in lectures by providing practical examples and solving of the problem with the participation of the students. Their aim is to encourage students to work independently and as part of the team. Exercises are performed with the use of Power Point presentations and panels, and for some units and video presentations. For some units it is possible to use multimedia and the Internet.

3. LABORATORY EXERCISES

Laboratory exercises are also built on the lecture. Students are primarily using MS Project. Exercises are performed with the use of MS Project, Power Point presentations, video presentations, multimedia and the Internet.

4. SEMINAR

Seminar is an expert elaboration of a certain topic. Students individually, or in groups of three, writes seminar. Seminar topic (title) is chosen by the student (appropriateness of the topic is approved by the teacher) or student can choose the topic suggested by the teacher (the suggested list of topics is published at the beginning of the semester within Merlin system). Seminar work is submitted, delivered and approved via Merlin system. After the seminar is approved, student can prepare and access to the oral presentation of the seminar. When presenting a seminar, it is recommended to use Power Point presentations. Presentations are also sent to teacher via Merlin system. After the presentation, the seminar is evaluated (graded). Seminar grade form a part of the final written exam grade earned through colloquiums.

Note: Individual and/or group viewing negative written test

Individual viewing of negative written test is possible after each colloquium and/or final written exam, during teacher consultation hours (of teacher who held the exams) or during designated period which is published with the results of the colloquium and/or final written exam.

5. DOCUMENTATION

Continuous monitoring of the course is conducted through electronic record of presence at the lectures, exercises and colloquiums via SAN system (hrv. *Sustav Autorizacije i Nadzora*) and through recording this presence at the end of the semester in ISVU application as well as grades of seminar and success in colloquiums. In the ISVU application grade of written exam and final grade are also recorded.
Students record their presence in the class by swiping their student card (hrv. *iksica*) through the machine. Students are obliged to have student card during class and during exam.
All course announcements (results of the colloquiums and written exam, term of the oral part of the exam, etc.) are published via Merlin system (moodle.srce.hr/*yyyy-yyyy* or merlin.srce.hr). At the end of the semester list of all students that realized the conditions: 1. Courses requirements achieved, 2. Exemption from the written part of the exam, as well as list of students who didn't realized the condition "Courses requirements achieved" are published.

6. SCORING SYSTEM

Table 1 The scoring system for the monitoring of students and explained credit values in ECTS credits

no	Segment:		Required credits to be achieved: Min.	Required credits to be achieved: Max.	Remark:	ECTS credits
	*Points for the realization of the condition: Courses requirements achieved**					
1.	Presence at the lectures		5	5	During the semester three absences are allowed, i.e. 20% of all forms of classes (lectures and exercises).	**1**
2.	Presence at the exercises (auditory and laboratory)		5	5		**0.5**
3.	Seminar		20	45	Students must successfully defend the seminar	**0.5**
	Other points					
4.	First colloquium	= Written exam	20	50	Students must pass both colloquiums or min 50% on written final exam.	**1**
5.	Second colloquium		70	100		**1**
6.	Oral exam		/	/	At the final exam, a final grade is formed based on the written examination and oral examination. The final grade is than entered in the ISVU system.	**3**
Σ	*Overall points:*		120	205	*Overall ECTS points:*	**7**

*During the course the student is evaluated based on the sum of the internal points earned through participating in class (lectures and exercises) and grading the seminar work. The student, in order to realize the condition "courses requirements achieved", must achieve a minimum of 30 points.

Table 2 - Explanation of the credit values in evaluations

CREDITS:	Estimate based on attendance, seminar paper and two colloquies (or written exam) - [4 ECTS]*:	The final score [7 ECTS]*:
120 – 130	Sufficient (2)	Exemption from the written part of the exam, the final grade after oral exam.**
140 – 160	Good (3)	
165 - 195	Very good (4)	
195 – 205	Excellent (5)	

*All 7 ECTS can be gained in total only if the student has received a positive opinion on the oral part of the exam. All 7 credits are recorded simultaneously with the entry of the final grade in ISVU system.
** At the final exam, a final grade is formed based on the written examination and oral examination. The final grade is than entered in the ISVU system.

Information for students (scoring system, implementation plan, learning outcomes, syllabus, literature, consulting teachers, announcement of results of examinations or colloquium, and all other information):

- **https://moodle.srce.hr/2022-2023/ (https://merlin.srce.hr)**
- **http://www.fpz.unizg.hr/isvu/2022-en/**

Student assistants:
Additional individual work with the students through individual consultations for assignments from seminar essay, as well as for insight into the negatively written part of the exam or colloquium.