Course title	Code No.
Coastal Engineering	

Semester	Course status (mandatory or optional)
2	Mandatory

Lecturer(s)	E-Mail
Marko Perkovič	**Marko.Perkovic@fpp.uni-lj.si**
Aleksander Sandro Grm	**alaksander.grm@fpp.uni-lj.si**

Contact hours per week	Credit Points	Workload (hours per semester)		
5	6		Presence	Self-study
		Lecture	30	30
		Seminar	15	15
		Practice		
		Laboratory	20	20
		Simulator	10	10

Media (equipment)	Teaching aids (literature, group work …)
Ship handling simulator, laboratory equipment (workstations, digital projector, smartboard, whiteboard, network)	Presentations (lectures), case studies, exercises, project work, fieldwork team, in situ data collection, GIS application

Enrolment requirements and entry competences required for the course

None.

Conditions for permission to take the exam

Successfully defended seminar work.

Assessment methods and criteria

Project report marking (50%)
Oral exam (50%)

Learning outcomes at the programme level to which the course contributes

▪ Survey a port and its characteristics, including the maritime transport and transshipment factors. ▪ Analyse the state of the port and potential safety threats. ▪ Determine the solutions and compile a plan to provide safe port operations.	

Learning Outcomes

Professional competence	Key skills
▪ Chose the factors that influence the maritime aspect of planning and design of ports and waterways. ▪ Detect the parameters that affect the safety of seaside ship operations. ▪ Combine and analyze the data to determine the problem. ▪ Correlate the requirements of navigation safety and marine protection.	▪ Mathematical competencies in science and technology ▪ Digital competences ▪ Proficiency in English language ▪ Learning to learn

Applicability in other courses/programs

Content

Elements of coastal engineering, detection of current problems in context in order to apply the principles and methodology necessary to investigate emerging problems and technologies and design solutions.

- Introduction to maritime design of ports and waterways.
▪ Definition of the correlation between the requirements of navigation safety and marine protection and the principles of design.
▪ Safety conditions and limitations for maneuvering by ship and at the time of berthing at the berth. Methods for determining the elements of the port and the waterways that are important for maritime design. Determination of the required depth and width of the waterway.
▪ Measures to upgrade the safety level during the berthing of the ship at the berthing site. Impacts of navigation and maritime security measures with regard to the economic aspect of designing or constructing ports and waterways.
▪ Determining the stopping distance of the ship according to the above criteria
▪ calculation of the required number of tugs for the safe assistance of maneuvering the flow under difficult conditions using empirical models
▪ calculation of the influence of low water under the keel on the maneuvering properties of the ship

- calculation of the impact of the added water mass on the speed of approaching the coast (at different angles), where all critical factors must be taken into account
- criteria for the safety of the ships for different types of ships (containers, tankers, bulk, passenger, chemicals, ro ros...)

Literature

Reeve D., Chadwick A., Fleming C. (2018). Coastal Engineering (3rd ed.) Processes, Theory and Design Practice, ISBN-13: 978-1138060425
PIANC (2014) Harbour Approach channels Design Guidelines, ISBN 978-2-87223-210-9

Amendment Log

Version No.:	Date:	Changes:	Name: