Postgraduate Doctoral (PhD) Programme "Maritime Studies"
Academic year 2022/2023

Attachment 1: List of potential mentors and research topics

Name	Research topics
David Brčić, PhD	▪ Risk assessment and their reduction in satellite navigation systems application ▪ Modelling of GNSS positioning deviations ▪ Environmental impacts on the operation and performance of satellite navigation systems with emphasis on natural phenomena ▪ Modelling of ionosphere dynamics and the Total Electron Content ▪ Mitigation of the effects of satellite navigation signals' intentional interference ▪ Alternative PNT methods and technologies
Jasmin Ćelić, PhD	▪ Effects of traffic-related pollution on the environment
Aleksandar Cuculić, PhD	▪ Power flow optimization in hybrid vessel charging systems ▪ Techno economic analysis of renewable sources implementation in nautical marinas ▪ A contribution to increasing the safety of navigation of merchant ships by the use of hybrid propulsion
Borna Debelić, PhD	▪ Possibilities for Improvements and Integration of the Governance System of the Maritime Common Good as a Complex Resource ▪ Open Access to Maritime Common Good as a Competitive Advantage in the Development of the Coastal Economy ▪ Decision-making Mechanisms as the Basis of Integrated Coastal Zone Management
Vlado Frančić, PhD	▪ Systematic maritime traffic management and monitoring ▪ Modelling of maritime traffic flow ▪ Models of improving safety of navigation by applying new technologies ▪ Models of maritime education and training
Neven Grubišić, PhD	▪ Activity based modelling in transport ▪ Multimodal traffic simulations ▪ Vehicle air pollution microsimulation models ▪ CAV - Connected and Automated/Autonomous vehicles ▪ Fleet management and public transport optimization ▪ Port and shipping operation simulation
Renato Ivče, PhD	▪ Protection of Croatian ports of entry of foreign invasive organisms through ballast water ▪ Protection of the underwater part of the vessel's and other crafts' hull with antifouling paints ▪ Maintenance of the hull of a container vessel in modern conditions of its economic exploitation ▪ Optimal capacities of feeder container vessels ▪ Container ship management and administration from a safety aspect
Alen Jugović, PhD	▪ Identification of elements, defining the concept of development and management of seaports ▪ Structural approach to the development of the green port concept from the aspect of sustainability ▪ Rationalization of maritime passenger traffic

Name	Research topics
	▪ Consumer behaviour in the marina location choice problem
Irena Jurdana, PhD	▪ Communication networks in the ship's systems by using optical technology: ▪ Optical sensor systems for measuring electrical and non-electrical values ▪ Submarine optical networks: construction, safety and protection, the impact on the marine environment, technical and legal aspects ▪ Application of image processing and deep learning algorithms for maritime object recognition ▪ Application of underwater signal and image processing methods ▪ Application of time-frequency transformations and statistical analysis of signals from maritime systems ▪ Application of intersection of confidence intervals methods for denoising signals from maritime systems
Lovro Maglić, PhD	▪ Technological and organizational solutions and innovative technologies in navigation management. ▪ Innovative and ecologically acceptable mooring and anchoring systems ▪ 3D model development of underwater structures ▪ Maritime traffic impact on sea and seabed pollution ▪ Workload research in maritime sector
Livia Maglić, PhD	▪ Adaptive port planning ▪ Storage and stacking logistics problems at container terminals ▪ Sustainable marinas ▪ Assessment of crane operator's workload
Đani Mohović, PhD	▪ Model for determining the minimum avoidance distance between vessels in collision courses
Robert Mohović, PhD	▪ Research of the maritime aspect of the planning and design of ports and waterways in confined areas
Ana Perić Hadžić, PhD	▪ Optimization of the logistics service of using autonomous vehicles by the supply chain accessibility model ▪ Public-private partnership models in the port area ▪ Public-private partnership models for the smart city concept and development
Radoslav Radonja, PhD	▪ Exhaust emissions from marine energy systems and their environmental impact ▪ Possibilities of using alternative fuels in maritime transportation ▪ Acidification and eutrophication of the sea
Boris Sviličić, PhD	▪ Maritime cyber risk security
Edvard Tijan, PhD	▪ Transport digitalization/Maritime transport digitalization/Seaport digitalization ▪ Digital transformation of transport/Digital transformation of maritime transport/Digital transformation of seaports ▪ Information systems in transport/Information systems in maritime transport/Information systems in seaports ▪ Information management in transport/Information management in maritime transport/Information management in seaports ▪ Maritime Single Windows ▪ Port Community Systems

Name	Research topics
	▪ Smart Ports
Sanjin Valčić, PhD	▪ Modernization of the Global Maritime Distress and Safety System ▪ Atmospheric impact analysis on digital maritime communication systems ▪ Application of 5G networks in maritime communications ▪ Potential applications of VHF Data Exchange System in maritime domain
Goran Vukelić, PhD	▪ Marine environment effect on mechanical properties of modern (additively manufactured/3D printed and smart) materials ▪ Weldability of additively manufactured metals ▪ Modelling and simulation of passenger evacuation
Dražen Žgaljić, PhD	▪ Developing a model for assessing the success potential of maritime transport route or service ▪ Defining the elements and development concept of sustainable small ports
Srđan Žuškin, PhD	▪ Concepts and development possibilities of navigation information systems in the function of increasing safety at sea ▪ Concepts and development possibilities of navigation information systems in the function of environmental protection ▪ Concepts and development possibilities of navigation information systems in the function of increasing Maritime cybersecurity
Saša Aksentijević, PhD	▪ Information security and business continuity in logistics companies ▪ Development of single interfaces (single-window) in the maritime sector ▪ Application of disruptive technologies in logistics
Mate Barić, PhD	▪ Ship trajectory prediction in width and depth limited fairways ▪ Influence of specific elements in ship to ship interaction during overtaking and head on encounter
Luka Mihanović, PhD	▪ Implementation of Artificial Intelligence in mine warfare ▪ Optimization of the utilization of Autonomous Underwater Vehicles to protect underwater. ▪ Enhancement of the Underwater Situational Awareness in the Sea Lines of Communication, ports, and port approaches of the enclosed sea. ▪ Crisis management model in the Adriatic Sea ▪ Underwater Mine Countermeasures in underwater safety ▪ Evaluation of the mine warfare in the Sea (in Sea Denial) ▪ The development / improvement of EOD (Explosive Ordnance Disposal) Capabilities as part of underwater security of the enclosed sea
Josip Orović, PhD	▪ Optimization of ship propulsion systems ▪ Analysis of faults and failures in ship propulsion systems
Luka Vukić, PhD	▪ Sustainability of the maritime transport system