

SEMO 4012: MARINE ENVIRONMENT
COURSE DEVELOPER : PROF DR ADI MAIMUN BIN ABDUL MALIK

MARINE ENVIRONMENT
SEMO4012-01

Marine Coastal and Delta Sustainability for Southeast Asia (MARE)



CHAPTER 1	1.1 Origins of atmosphere and ocean basins 1.1.1 Fluids: Atmosphere and water
CHAPTER 2	2.1 Hydrological Cycle 2.1.1 Water in the atmosphere 2.1.2 Energy source and heat distribution
CHAPTER 3	3.1 Vertical stability and temperature distribution
CHAPTER 4	4.1 Cloud, precipitation and visibility
CHAPTER 5	5.1 Pressure gradients and atmosphere
CHAPTER 6	6.1 Climatology 6.1.1 General circulation of the atmosphere 6.1.2 Global distribution of pressure 6.1.3 Air and sea surface temperatures 6.1.4 Winds and precipitation over the oceans 6.1.5 Local circulations 6.1.6 Land and sea breezes.
CHAPTER 7	7.1 Weather Systems 7.1.1 Air masses 7.1.2 Extra-tropical cyclones, anti-cyclones and associated weather 7.1.3 Fronts and their movements. Sequences of clouds and weathers at fronts. 7.1.4 Intertropical convergence zones. 7.1.5 Tropical revolving storms, assoc weather, winds and clouds.
CHAPTER 8	8.1 Constituents of sea water 8.2 Water masses
CHAPTER 9	9.1 Waves and tides
CHAPTER 10	10.1 Oceanic circulation
CHAPTER 11	11.1 Marine renewable energy devices
CHAPTER 12	12.1 Marine pollution
CHAPTER 13	13.1 Climate change and sea level rise

PREFACE

This course is an elective course with 2 credits (3 ECTS), offered specifically to Bachelor of Engineering (Naval Architecture and Offshore Engineering) students; and was developed by Faculty of Mechanical Engineering, Universiti Teknologi Malaysia.

This course introduces the knowledge of marine meteorology and oceanography. It explains the fluid physical characteristics and movement on the earth's surface. As such, the students will have clear understanding of the weather that results from interaction between the atmosphere and the sea surface. Following this, the students will gain a better appreciation of the interactions between the marine environment and marine vehicles/structures. As such, the important issue relating to marine safety, sustainability, and environmental impact (Climate Change and Sea level Rise) can be addressed.

AUTHOR'S BIOGRAPHY

Prof. Dr. Adi Maimun is currently serving as Professor of Naval Architecture at the Department of Aeronautics, Automotive, and Ocean Engineering, Faculty of Mechanical Engineering. He specialises mainly in the field of Marine Vehicles/Structures Dynamics using CFD, AIS, time domain simulations and experimental work. He had taught, conducted research and done consulting work in the said field and had published over 70 papers in conferences and journals.

Prof. Dr. Adi Maimun is currently a Fellow Member of the Royal Institution of Naval Architects (UK) and a Chartered Engineer (UK). He had served as a committee member for a number of years for the Malaysia Joint Branch (MJB) of the Royal Institution of Naval Architects (RINA) and the Institute of Marine Engineers Science and Technology (IMarEST). He is currently the Chairman (2021-2022) for RINA-IMarEST MJB (Southern Chapter) and Chairman (since 2019) for the Ship & Marine Technical Committee, Department of Standards Malaysia.

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