



MARITIME SCIENCES

The Department of Maritime Sciences offers a portfolio of programs at the Undergraduate and graduate levels. Our mission is to develop expertise in the Blue Economy by preparing future Maritime Planners and Professionals for socio-economic growth in the maritime sector with a seaborne business vision in the wake of changing the regional scenario of businesses and economic growth in the maritime area of Pakistan.

- MS (Maritime Ports & Shipping Management)
- MS (Maritime Trade & Logistics)

ROAD MAP
MS (MARITIME PORTS & SHIPPING MANAGEMENT)
2 YEARS – 36 CREDIT HOURS

Semester 1

<i>SNO</i>	<i>Course code</i>	<i>Course Title</i>	<i>Credit Hours</i>
1	MTM701	Maritime Industry: Pakistan and China in Global Perspective	3
2	MTM 702	Ports and Shipping Management in Contemporary Environments	3
3	MTM703	Maritime Law and International Maritime Convention	3
4	MTM704	Maritime Economics and Finance	3

Semester 2

1	MTM 705	Coastal Zone Management and Contemporary Issues	3
2	MTM 706	Marine Insurance, Risk and Disaster Management	3
3		Elective	3

Semester 3

1	RMT 705	Research Methodology and Proposal Development	3
2		Elective	3
3		Elective	3

Semester 4

1	SDW 790	Thesis	6
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LIST OF ELECTIVE COURSES

<i>Course Code</i>	<i>Course Title</i>	<i>Credit Hours</i>
MTM 750	Maritime Trade and Industrial Economics	3
MTM 711	Logistics at Ports and Supply Chain Management	3
MTM 712	Hydrographic Data and Service Management	3
MTM753	Chartering Practices and Ship Brokering	3
MTM 754	Intermodal Transportation	3
MTM 713	Maritime Logistics and Shipping	3
MTM 756	Marine Resources & Environment	3
MTM 757	Tourism, Fish & Food Processing	3
MTM 758	Ocean Governance Policy and Maritime Law	3
MTM 759	Introduction to Maritime Geophysics Geology	3
MTM 714	Dynamics of Maritime Domains	3
MTM 761	Maritime Security Issues and Strategies	3
MTM 762	Management of Oceanic Resources	3

MS (Ports & Shipping Management)

Course Description

Maritime Industry: Pakistan and China Perspective in Global Perspective

The course includes data from primary resource and then preparing the lecture notes. As such there is not enough written on the subject as Pakistan and China specific. Chinese may have but that would be translation. The course discusses certain basic and fundamental economic cornerstones and serves as a foundation for the maritime students.

Reading Materials:

- A regional regime for maritime surveillance, safety and information.
- Rethinking the silk road Edited by Maximillian Mayer
- Ports and Shipping Management in Contemporary Environment

Ports are the economic drivers of a country's economy and ships are the principal mode of delivery. As countries develop and their economies grow, reliance on ships and ports also grows. Emerging and established economies require graduates who have developed a solid knowledge and understanding of operating a port successfully and managing the ships that deliver to the ports.

Maritime Law and International Maritime Convention

This course is perfect for anyone seeking to develop their knowledge on the implementation of maritime conventions, such as: Ship Masters and Officers, Fleet and Vessel Managers, Superintendents, Human Resource Personal, Government Maritime Administration Personal. It's also popular with Manning Agents, Insurers, Legal Professionals, Naval Architects, Surveyors, Shipyard Managers, Equipment Manufacturers and other employees from International and National Organisations.

Maritime Economics and Finance

Shipping Management and finance course deals with basic

principles and methodologies of management of shipping. The Shipping and Transport Finance Course aims to provide students with the understanding of the key issues in the financing of ships, ports, transport and other infrastructure projects. At the end of the course students will be able to develop, appraise, negotiate and choose among alternative investment proposals under conditions of risk and uncertainty. In addition, module will cover subject areas like types of ships, ships registration & classification, shipping costs and budgeting, Crewing & Manning, Marine Insurance & cargo claims, Vessel Operations & commercial / technical issues, IMDG codes and ISM code, Bunker management & Voyage estimating

Reading Material:

- Shipping finance 3rd Edition by Stephenson Harwood.
- HSBA handbook on ship finance Edited by Springer.
- The business of shipping by James Buckley.

Coastal Zone Management and Contemporary Issues

To understand coastal zones, the dynamic environments shaped by natural forces as well as human intervention. To enable students to develop management strategies and identify threats to these environments. History, definition, systems view of the coast Abiotic subsystems: classification of coasts, wave, current, sediment transport. Biotic subsystem: coastal ecosystems, eco-toxicology, marine pollution, socio-economic subsystem: social, economic, legal and political dimensions. Coastal zone protection, beach nourishment, groins, revetments, breakwater, coastal embankment, cyclone shelter, Development option in the coast - tourism and recreation, fisheries, critical management issues and use conflict analysis - case examples, and use of GIS, global climate change, sea level rise and coastal adaptive management, fisheries issues & sustainable aquaculture

Reading Material:

- Integrated Coastal Zone Management plan for Pakistan by Qureshi, Muhammad Tahir.

- Integrated Coastal Zone Management Book by Einar Dahl.
- Perspectives on Integrated Coastal Zone Management , Ed. W. Salomons, S. Ramachandran.

Marine Insurance, Risk and Disaster Management

The course is aimed to provide understanding of the International and National Shipping Laws and policies. Subject areas include admiralty jurisdiction and practical concept of risk management in maritime arena, history and development of marine insurance law, hull and machinery insurance, protection and indemnity (P & I) Clubs, Contract of Affreightment (CoA) and bill of lading (BoL), shipping laws & corporate laws, maritime law & transportation law, customary law and treaty law, Limitation of liability & Salvage, International conventions, Towage & Collision, relationship between national law and international law, and law of the conflict in addition, this module will cover the, maritime logistics international regulatory framework, & Intl organizations like (APH Association of Ports and Harbours) / ISF(International Shipping Federation) / ICS (International Chamber of Shipping) / ITF (International Transport Workers' Federation)

Reading Material:

- Maritime Insurance, ICS
- Law of Marine Insurance 2nd Edition by Howard Bennett
- Marine Insurance Law 1st Edition by Ozlem Gurses

Research Methodology and Proposal Development

Students will gain a knowledge and understanding of the concepts and terminology of empirical methods used in social sciences research particularly in business environment. Qualitative research methods are included in this course as they are appropriate for certain research investigations. Selection of specific research methods will be taught based in the problem under investigation, and its underlying assumptions. For quantitative methods, emphasis throughout the course will be on theory development with attention to concept formation and confirmation, in a research program. Planning, design, and sampling will be covered for various research methods studied in the course. Students are also expected to gain an introductory knowledge of topics in descriptive statistics, inferential statistics, and qualitative research meth-

ods.

Reading material

- Research Methodology and statistical tools by Pathan, Raman
- Research Methodology: Methods and Techniques by C.R. Kothari
- Research Methodology: A step-by-step Guide for Beginners by Ranjit Kumar
- Research Methodology: A project Guide for University Students

Maritime and Industrial Economics

The course is focused on the economics of the maritime industry, with a combination of historic and geographic approach, together with general shipping market theory and focus on key market drivers. The course also includes an historical introduction presenting the development of international trade and shipping from the 18th century to the present. It also includes analysis of shipping markets; market structure and the factors that shape supply, market dynamics, demand, and profitability in a short and long-term perspective. The course Maritime Economics (ME) provides all students with a solid introduction to the principles of micro-, macro- and international economics with respect to maritime domain. The course discusses certain basic and fundamental economic cornerstones and serves as a foundation for the maritime students. It will further built understanding of students on some specific topics like dynamic of maritime industry, behavior of ship owners, shippers and other stake holders.

Reading material:

- Maritime Economics, 3rd Edition, Author: Martin Stopford
- Shipping economics volume Xii by Kevin Cullinane
- Economics of sea transport and international trade by institute of chartered ship brokers
- international handbook of maritime economics by Kevin Cullinane
- Book- Maritime Economics, 3rd Edition, Author: Martin

Stopford

- Maritime Economics: A Macroeconomic Approach by E. Karakitsos, L. Varnavides.
- International Handbook of Maritime Economics

Logistics at Ports and Supply Chain Management

This course includes; general principle involved in logistics and Supply chain systems also, General principles involved in logistics. Method of optimizing movement of materials, information and finances from supplier to manufacturer to whole seller retailer to consumers; ways of efficient supply and to reduce inventory will also be discussed.

This module will also cover the evolution of maritime logistics concept to meet incorporated demands for value added goods and the impact of maritime logistic on maritime transport. As Maritime logistics has extended the shore boundaries, therefore, module will cover subject areas like maritime freight management, effects of globalization on logistic industry, Baltic Freight Index, international container trade, developing technologies in logistics, concepts of multi-modal transport, carrier alliances

Reading Material

- Logistics and Supply Chain Management by Christopher, Martin
- Maritime logistics: a guide to contemporary shipping and port management by Dong Wook Song
- International logistics: global supply chain management by Douglas C. Long

Hydrographics Data and Service Management

This course focuses ON hydrography, navigation, and hydrographic survey. Students develop an appreciation of the concepts of coordinates, measurement, underwater acoustics, positioning, sounding, and different sources of hydrographic data and information. Students examine different surveying technologies, developments, and various environmental applications. The course is designed to bridge geography, coastal and marine studies, oceanography, digital mapping, hydrographic surveying, marine spatial planning, remote sensing, and Geographical Information Systems (GIS).

Practical experience with hydrographic charts and tide tables for navigation provide an opportunity to introduce the student to a skilled area that may form the basis for a future career.

Reading Material:

- Hydrology and Watershed Management by K. Ramamohan Reddy, B. Venkateswara Rao
- Manual of Hydrography
- Surveys of the seas: A brief history of British Hydrography

Chartering Practices and Ship Brokering

The course encompasses stowage plans, bunkering, crewing, maintenance, scheduling and fuel. Harbor Marine environment protection. Shipping safety. Legal aspects of chartering and purchase of shipping Broker and liner agent function. Operation of freight markets. Multi charter parties. Special charter forms-Vegoil, Chemicals, Supply Ships and Towage.

Reading Material:

- Ship broking and Chartering Practices by Gorton, Lars
- Intermodal Transportation

To provide students with an understanding of the development and characteristics of intermodal transportation. At the end of the course, students should gain the basic knowledge and skills to deal with the key challenges faced by commercial intermodal transportation managers.

Concepts and operational specifics of commercial intermodal transportation pertaining to freight movement. Intermodal services, terminals, equipment and information systems. Interactions between individual modes and intermediaries. Advantages and disadvantages of intermodals. Intermodal operations management. Business strategies for intermodal management

Reading Material:

- Gerhardt Muller. (1999). Intermodal Freight Transportation, 4th Edition, Intermodal Association of North America & Eno Transportation Foundation.
- Ronald H. Ballou (2003). Business Logistics: Supply Chain

Management, 5th edition, Prentice Hall.

- Sunil Chopra and Peter Meindl. (2006). Supply Chain Management, 3rd Edition, Prentice Hall.

Maritime Logistics and Shipping

The aim of this course on Maritime Logistics & Marketing is to describe the convergence of maritime transport and logistics and the marketing aspects used in logistics.

Reading Material:

- Maritime Logistics, Wood and Panayicles
- Marine Logistics: A complete guide to effective shipping and port by Dong-Wook Song, Photis Panayide

Marine Resources and Environment

This course teaches to examines the exploitation and use of marine resources (including oil and gas, fisheries, shipping, marine renewable, aquaculture and tourism), issues associated with development in the marine environment (including pollution and waste) and how these activities are regulated. You will learn about marine technologies in the Blue Economy and the challenges of developing and deploying technologies to exploit resources in the marine environment.

Reading Material:

- Maritime Resources Management by Warwick Gullett
- Value and Economy of Marine Resources by Patrick Prouzet

Tourism, Fish and Food Processing

This course will enable students to explore sea resources and revenues generating through sea other than trading. Tourism through sea; their legalities, opportunities and scope. Fisheries; processes, legalities, opportunities and output. Food processing processes and the scope.

Reading Material:

- Global Tourism & The Environment by Steve Esomba
- Food Tourism and Regional Development by Michael Hall, Stefan Gossling
- Industrial Tourism by Alexander H.J. Otgaar

Ocean Governance Policy and Maritime Law

This course aims to forge a knowledge base that is essentially legal but which also delves into the natural and social sciences to determine how an effective regulatory framework should operate. The MS in Ocean Governance serves to further enhance the development of learning and research in the field of marine resource management and maritime security from a multidisciplinary perspective. In this era of globalization and sectoral integration, capacity building in the regulation of ocean governance plays a pivotal role in ensuring safe and healthy oceans for the benefit of humankind and the planet.

Introduction to Maritime Geophysics Geology

This course provides an introduction to marine geophysics aimed to establish a theoretical base for geological interpretation of marine geophysical data. It includes the theory behind standard marine geophysical mapping methods, with focus on acoustic methods. It also includes a brief historical overview of how geophysical methods have been used to explore the oceans and how seafloor mapping has contributed to understanding of Earth's evolution.

Marine Geology is a broad subject dealing with components of mineralogy, sedimentology, geophysics, and plate tectonics. This course topic includes; geological concepts pertaining to plate tectonic theory and ocean development, creating an understanding of sedimentation in oceans, and to introduce students to some of the practical skills needed to conduct geological research in the marine environment.

Reading Material:

- Marine Geology by James P. Kennett
- A introduction to Marine Geology by M.J. Keen
- Antarctic Marine Geology by J.B. Anderson
- Marine Geophysics by E.J.W. Jones
- Physics of the Marine Atmosphere: International Geophysics series

Dynamics of Maritime Domain

This course traches student about the foundation for an

effective understanding of anything associated with the Maritime Domain that could impact the security, safety, economy, or environment of the marine and identifying threats as early and as distant from our shores as possible.

Reading Material:

- Maritime Dynamics in the Indo-Pacific by Dr. Vijay Sakhuga, Dr. Kapil Narula
- Strengthening Maritime Security through Cooperation

Maritime Security Issues and Strategies

To provide a broad overview of the importance of maritime security in the current context and to understand the developing regime under the ISPS Code, PSI, CSI and other initiatives taking place under the aegis of IMO, regional and international collaboration. Understanding of their implementation measures that impact maritime businesses. The objective of this course is to help students think through organizational issues at strategic level; to familiarize them with the various tools for strategy analysis and formulation; and to sensitize them to the social, political, and legal structures that shape decision making processes. The prescribed teaching approach in this course is primarily inductive. The course uses a combination of theory, practical illustrations, and cases.

Reading material

- Integrated Maritime Security by Paleri Prabha Karam
- IMO readings
- IMO News(Magazine)
- Some Principles of Maritime Strategy by Sir Julian Stafford Corbett
- Maritime Strategy and Continental Wars by Rear Admiral K. Raja Menon
- Maritime Strategy and Global Order: Markets, Resources, Security
- Maritime Strategy and the Balance of Power: Britain and America in the Twentieth Century
- Maritime Strategy and Sea Control: Theory and Practice by

Milan Vego

Management of Oceanic Resources

In this course students will learn about investigating solutions for conserving our coastal zones, seas and oceans through the development of a coordinated strategy to distribute environmental, socio-cultural and institutional resources. It is a dynamic process and possesses a genuine desire to ensure the long-term sustainability of the world's coast lines.

Reading Material:

- Routledge Handbook of Ocean Resources and Management
- Handbook on the Economics and Management of Sustainable Oceans
- Managing Ocean Resources by Daniel P. Finn

ROAD MAP
MS (MARITIME TRADE & LOGISTIC)
2 YEARS – 36 CREDIT HOURS

Semester 1

<i>SNO</i>	<i>Course code</i>	<i>Course Title</i>	<i>Credit Hours</i>
1	MTM 710	Maritime Industry: Pakistan and China in Global Perspective	3
2	MTM 711	Maritime Trade and Logistics: Emerging Global Realities and Issues	3
3	MTM 712	Maritime Strategy: Overview and Impacts on Trade and Commerce	3
4	MTM 713	Maritime Transport: Legal Framework and Issues in the Contemporary Environments	3

Semester 2

1	MTM 714	Supply Chain Management in Maritime Business and Trade	3
2	MTM 715	International Business and Economics: China Pakistan Perspective	3
3		Elective	3

Semester 3

1	RMT 705	Research Methodology and Proposal Development	3
2		Elective	3
3		Elective	3

Semester 4

1	SDW 790	Thesis	6
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LIST OF ELECTIVE COURSES

<i>Course Code</i>	<i>Course Title</i>	<i>Credit Hours</i>
MTM 750	Maritime Trade and Industrial Economics	3
MTM 771	Globalization and Maritime Trade: Contemporary Issues and Resolving Strategies	3
MTM 772	Maritime Technologies and Commercial Applications	3
MTM 773	Maritime Business Management under BRI and CPEC	3
MTM 774	Ports and Logistics Management	3
MTM 775	Tanker Operations: Management under Contemporary Security Dynamics	3
MTM 776	Ship Security: Threats, Financial and Commercial Implications	3
MTM 777	Coastal Zone Management and Maritime Emergency Preparations	3
MTM 778	Custom Clearing and Freight Forwarding	3
MTM 779	LNG Shipping	3