

# MARITIME-DECK (MDK)

## **MDK 100 - Survival at Sea**

**Credit Hours: 1, Contact Hours: 1**

Division: Maritime

This course of instruction covers the following: concentrated instruction and training for the U.S. Coast Guard certification as Proficiency in Survival Craft and Rescue boats (PSC); including the fundamentals of seamanship, small boat handling with power and sail; construction equipment, and marking of the standard lifeboat; construction, equipment, and operation of inflatable life rafts; abandon ship procedures, man overboard procedures, and survival swimming; the launching and retrieval of lifeboats; sailboat nomenclature and operation. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## **MDK 104 - Rigging & Ship Maintenance Lab**

**Credit Hours: 1, Contact Hours: 1**

Division: Maritime

The purpose of this course is to provide the cadet an opportunity to acquire practical experience in general seamanship: including marlinespike seamanship, line handling; splicing line, splicing wire rope; rigging, block and tackle nomenclature and use; vessel maintenance, the practical application of the procedures and equipment needed in vessel upkeep. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## **MDK 106 - Watchstanding I**

**Credit Hours: 1, Contact Hours: 1**

Division: Maritime

The purpose of this course is to provide an opportunity for the cadet to acquire practical experience in shiphandling with vessels sufficiently large to duplicate shiphandling problems encountered with much larger vessels. Cadets are exercised in line handling, towing, anchoring techniques, landing techniques, and shipboard safety. Cadets will then advance through the use of simulation to shiphandling exercises dealing with the general principles of vessel control and the problems of handling a vessel in narrow channels. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## **MDK 112 - Rules of the Nautical Road**

**Credit Hours: 2, Contact Hours: 2**

Division: Maritime

Comprehensive study of the International Rules of the Road (COLREGS) including their origin, purpose, history, technical provisions, and application. Included is a comparative study of both international and inland rules, their interpretation and practical application as well as a study of case histories and legal interpretations resulting from collisions at sea. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## **MDK 121 - Navigation I**

**Credit Hours: 3, Contact Hours: 3**

Division: Maritime

An introduction to the principles of piloting and marine navigation. Includes chart projection, the magnetic compass, chart usage, buoyage systems, aids to navigation, fixes and running fixes, and the use of standard tables. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Corequisites: MDK 122

## **MDK 122 - Navigation I Lab**

**Credit Hours: 1, Contact Hours: 1**

Division: Maritime

This lab is taken concurrently with MDK 121 and concentrates on applying the principles of piloting to plotting on the chart. Chart projection and use will be introduced. Dead reckoning, terrestrial fixes, set and drift, lines of position, and the use of navigational instruments will be covered. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Corequisites: MDK 121

## **MDK 149 - Damage Control & Safety**

**Credit Hours: 2, Contact Hours: 2**

Division: Maritime

This course is designed to give the cadet a comprehensive knowledge of shipboard safety with particular emphasis on firefighting and damage control. Subject areas include: personal safety, pollution, U.S. Coast Guard rules and regulations, temporary damage repair, shoring principles and practical shoring problems. STCW. Group 2 course.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from this guide needs to be approved by the department head.

## **MDK 200 - Ship Business & Labor Relation**

**Credit Hours: 3, Contact Hours: 3**

Division: Maritime

This course provides instruction in the organization, administrative functions, and management of a merchant vessel as well as the systems of operation of ship's business. It includes the study of union contracts, grievance procedures and labor management relations.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## **MDK 206 - Watchstanding II**

**Credit Hours: 1, Contact Hours: 1**

Division: Maritime

The purpose of this course is to begin to develop a cadet's piloting and watch management skills. The use of the Shiphandling Simulator/ Academy Vessels will allow the development of the Bridge Team Concept through piloting exercises.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 210 - Deck Sea Project I****Credit Hours: 6, Contact Hours: 6**

Division: Maritime

During this internship the cadet is aboard TS State of Michigan or a Great Lakes commercial vessel. The cadet follows a prescribed course and studies: vessel operations, safety and navigation equipment and techniques. In addition the cadet spends a minimum of eight hours per day under the supervision of licensed officers gaining experience in various duties and responsibilities. STCW.

Required Prerequisite(s): Must complete first academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 221 - Lakes Piloting****Credit Hours: 2, Contact Hours: 2**

Division: Maritime

Study of the Great Lakes and principal ports; this includes currents, depths, aids to navigation, prevailing winds and their effects, recommended courses, shoals, reefs, and high traffic areas. Historic analysis will explain current practices.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 222 - River Piloting****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

An in-depth study of the rivers, channels, and the aids to navigation in these rivers and channels. The focus will be on the rivers that make up the Great Lakes connecting bodies such as the St. Mary's, St. Clair, Detroit Rivers and the Welland Canal.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 242 - Ship Stability****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

A study of the principles of stability; righting moment and righting arm; calculation of metacentric height; inclining experiment; stability computers and tables; practical stability and trim considerations. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 250 - Stability for the Engineer****Credit Hours: 1, Contact Hours: 1**

Division: Maritime

Principles, terms, and procedures used in the determination of transverse, longitudinal, and damage stability of ships. Investigation of the physical laws affecting a floating body. Effects of cargo operation, free surface, fuel consumption, and flooding on vessel stability. Scrutiny of case studies involving both partial or total loss of stability. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 290A - Academic Service Internship****Credit Hours: 1-4, Contact Hours: 1-4**

Division: Maritime

**MDK 311 - Deck Sea Project II****Credit Hours: 6, Contact Hours: 6**

Division: Maritime

This internship is a continuation of MDK 210 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the U.S. Coast Guard and the criteria established by the Maritime Administration. STCW.

Required Prerequisite(s): Completion to second academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 312 - Deck Sea Project III****Credit Hours: 6, Contact Hours: 6**

Division: Maritime

This internship is a continuation of MDK 311 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the US Coast Guard and the criteria established by the Maritime Administration. Group 2 course.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head.

**MDK 313 - Mate of Towing****Credit Hours: 3, Contact Hours: 6**

Division: Maritime

This course will provide knowledge and practical experience required for Deck Cadets to complete the Towing Officer Assessment Record (TOAR) and requisite sea days necessary to obtain their Mate of Towing (Great Lakes & Inland) endorsement to their Merchant Mariner Credential. Group 2 course. Communications - Direct, Critical Thinking - Direct, Quantitative Reasoning.

Required Prerequisite(s): MDK 210

**MDK 324 - Navigation III****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

An introduction into nautical astronomy concerning: the practical application of celestial navigation, the solving of the spherical triangle, star identification, measurement of time and the use of the instruments. This course will cover plane, mid-latitude and mercator sailings and how to apply them to navigational problems through the various time zones. Sunrise, sunset, twilight, moonrise and moon-set calculations for a moving vessel will be covered. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

**MDK 330 - Medical First Aid Provider****Credit Hours: 2, Contact Hours: 2**

Division: Maritime

This course meets the mandatory minimum requirements specified under STCW as related to proficiency in medical first aid for all merchant mariners. This course is part of the STCW certification process. Cadets will learn to take immediate action upon encountering an accident or other medical emergency. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 331 - Electronic Navigation****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

An in depth study of the various electronic navigation systems with emphasis on RADAR. Covers the theory, operation, use, advantages, disadvantages and general maintenance of: RADAR, gyrocompass, GPS, speed logs, fathometers, and electronic chart systems. REQUIRED COURSE that must be completed successfully before the student may receive an original "RADAR Observer Certificate". STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

Corequisites: MDK 332

**MDK 332 - Electronic Navigation Lab****Credit Hours: 1, Contact Hours: 1**

Division: Maritime

A practical course to understand the use and operation of a marine radar; including how to avoid collision situations using Rapid Radar Plotting. This required course must be successfully completed before the student may receive an original "Radar Observer Certificate". STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

Corequisites: MDK 331

**MDK 333 - Automatic Radar Plotting Aids****Credit Hours: 1, Contact Hours: 1**

Division: Maritime

This course presents the principals and operation of automatic radar plotting aids. It includes the legal aspects of ARPA including IMO and USCG standards, the theory in input and processing characteristic of ARPA, the theory of operation, control functions and adjustments, the acquisition and tracking of contacts, the limitations and potential errors of ARPA and special ARPA related features. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

Corequisites: MDK 331

**MDK 341 - Ship Construction****Credit Hours: 2, Contact Hours: 2**

Division: Maritime

A study of hull construction as applied to all types of vessels. Includes construction nomenclature, criteria of design, methods of construction, materials used in construction and stress calculations. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

**MDK 345 - Dry Cargo Stowage****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

Principles and problems of the stowage and carriage of cargoes. Bulk cargo, container cargo, refrigerated cargo, grain cargoes and dangerous cargoes. Cargo handling operations both loading and offloading equipment. Cargoes stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

**MDK 404 - Marine Supervisory Lab****Credit Hours: 1, Contact Hours: 1**

Division: Maritime

This course will provide senior cadets with the experience of supervising subordinate cadets. This experience will include job planning, sequencing of tasks, tools and equipment needed, and personnel required to complete the job. The student will experience what it will be like to be responsible for the crew both in terms of safety and output. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 411 - Marine Communications****Credit Hours: 2, Contact Hours: 2**

Division: Maritime

This course is designed to acquaint the student with communication systems commonly found in the Marine Industry. It includes the basic layout of the Global Maritime Distress and Safety System (GMDSS), communication equipment requirements, licensing requirements, principles and procedures for marine communications, the characteristics of radio wave propagation, frequencies, and modulation. Included also is the Morse Code Flashing Light, and general Distress Signals. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 122

**MDK 431 - ECDIS****Credit Hours: 3, Contact Hours: 3**

Division: Maritime

The purpose of this course is to meet the training requirements in STCW, as amended, for the operational use of Electronic Chart Display and Information Systems (ECDIS). This course provides the knowledge, skill and understanding of ECDIS emphasizing both the application and learning of ECDIS in a variety of underway contexts. This is achieved through use of a sophisticated navigation simulation integrated with a type-approved ECDIS. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111; MTH 111 or higher

**MDK 445 - Liquid Cargo Stowage**

**Credit Hours: 2, Contact Hours: 2**

Division: Maritime

A study of the tanker industry and the operational aspects of the tank vessel, pollution, prevention, precautions and procedures; layouts of different types of tankers; operations sequence and oil tanker construction and terminology. USCG and OPA '90 regulations will be covered. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

**MDK 446 - Bridge Resource Management**

**Credit Hours: 3, Contact Hours: 3**

Division: Maritime

Bridge resource management will be taught using small group discussions, case studies and simulation exercises. Areas that will be addressed will be route planning, watch management, pilotage of specific routes and ship handling from a 3rd mates perspective. The three hour class will start with a 30 minute group discussion of the class objective, then exercises followed by a critique of the exercises. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

**MDK 448 - Pilot/Mate License Prep**

**Credit Hours: 4, Contact Hours: 4**

Division: Maritime

A complete review of all professional subjects studied in the Maritime program pragmatically developed to reflect the essentials of the U.S. Coast Guard examinations. Cadets must complete all MDK courses with a 2.0 or better and receive a satisfactory grade in this course prior to being granted permission to sit for USCG license exams.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111

**MDK 450 - Vessel & Port Security Officer**

**Credit Hours: 2, Contact Hours: 2**

Division: Maritime

This course will provide required knowledge and skills for individuals designated to perform the duties and responsibilities of a Vessel Security Officer as defined in the Standards for Training, Certification, and Watchkeeping for Seafarers (STCW). Additionally, this course will provide required knowledge and skills for individuals designated to perform the duties and responsibilities of a Port Facility Security Officer as required in the Maritime Transportation Security Act (MTSA) and The International Ship and Port Facility Security Code (ISPS). Group 2 course.

**MDK 454 - GMDSS**

**Credit Hours: 3, Contact Hours: 3**

Division: Maritime

The purpose of this course is to meet the training requirements in STCW code, as amended, for the General Operator's Certificate for the Global Maritime Distress and Safety System (GMDSS). A student successfully completing this course and passing the prescribed examination will be licensed and enabled to efficiently operate a ship station's GMDSS equipment, and to have primary responsibility for radio communications during Distress incidents. STCW.

Required Prerequisite(s): All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

Recommended Prerequisite(s): ENG 111 and MTH 111; elementary computer skills