MART - MARINE TRANSPORTATION (MART)

MART 103 Basic Safety and Lifesaving Training
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Introduction to lifesaving equipment and apparatus, personal survival techniques, personal social and environmental responsibility and introductory medical first aid and CPR; practical lifeboat and survival training for the U.S. Coast Guard certification as lifeboatman.
Prerequisite: Admission to license option program.

MART 115 Seamanship I
Credits 3. 2 Lecture Hours. 3 Lab Hours.
(STCW). Theory and application of traditional seamanship, such as handling of natural fiber, synthetic and wire ropes, block and tackle and marlinespike; introduction to competencies of the deck department, including safe systems of work, inspections and maintenance, anchoring, mooring operations, ladder use, crane operations and duties of the lookout and quartermaster.
Prerequisite: Admission to deck license option program.

MART 200 Deck Sea Training I: Basic Communications, Navigation and Seamanship
Credits 4. 4 Other Hours.
Practical application of shoreside studies aboard training ship during first training cruise; basic projects in communications, navigation, seamanship and rules of the road.
Prerequisites: Grade of C or better in MART 103, MART 115 or MART 201, and MART 204, or concurrent enrollment, or approval of MART department head; admission into Deck License Option Program.

MART 201 Vessel Structure and Ship Knowledge
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Introduction to ship nomenclature and design, types and methods of ship construction, admeasurement and typical outfitting of various types of commercial vessels; classification societies, shipbuilding materials and methods, structural components and appurtenances of vessels.
Prerequisite: Admission to deck license option program.

MART 202 Ship Stability and Trim
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Principles of flotation and buoyancy; inclining experiments; free surface; transverse and longitudinal stability; trim; motion of ship in waves and seaways; application of stability, trim and stress tables; effect of center of gravity on seaworthiness and stability; actions in event of partial loss of intact buoyancy; fundamentals of watertight integrity.
Prerequisites: Grade of C or better in MART 200 or NAUT 200, or concurrent enrollment; MART 103, MART 115, MART 201 and MART 204, or concurrent enrollment, or approval of MART department head.

MART 204 Terrestrial Navigation
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Fundamentals of piloting, chart construction and development, aids to navigation, useful publications, principles of magnetism and the magnetic compass, great circle, Mercator and middle latitude sailing.
Prerequisites: Admission to deck license option program; algebra and trigonometry recommended.

MART 205 Marine Surveying
Credits 3. 3 Lecture Hours.
Fundamentals of marine surveying using the various types of marine surveys; writing survey reports by meeting regulatory and industry standards for submission to maritime clients.
Prerequisites: Grade of C or better in MART 115 or MART 203, and MART 202 (MART majors); or MARR 205 (MARR majors); or MARR 101 (MARR majors); or MARE 100 (MARR-NLO majors); or approval of instructor.

MART 208 Maritime Meteorology
Credits 3. 3 Lecture Hours.
Weather and forecasting techniques used by merchant mariners to determine cloud formation, precipitation, visibility, atmospheric pressure, fronts, ocean currents, weather and voyage routing and ship maneuvering based upon ship’s technology and reporting equipment; ocean passage planning.
Prerequisite: MART 204 or concurrent enrollment or approval of department head.

MART 210 Integrated Navigation I: RADAR/ARPA/ECDIS
Credits 4. 3 Lecture Hours. 3 Lab Hours.
Theory, operation and interpretation of marine radar and automatic radar plotting aids (ARPA) and Electronic Chart Display Systems (ECDIS); introductory level watchkeeping, including applied use of radar, ARPA and ECDIS; U.S. Coast Guard Certification as “RADAR Observer” and Standards of Training, Certification and Watchkeeping (STCW) Radar and ARPA endorsements.
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 103, MART 115 or MART 203, MART 201 and MART 204, or concurrent enrollment or approval of department head.

MART 212 Marine Dry Cargo Operations
Credits 3. 3 Lecture Hours.
Modern dry cargo principles associated with handling general cargo, bulk cargo, refrigerated cargo, dangerous cargo, containers, roll-on roll-off; cargo ventilation, securing of cargo, stability and trim, cargo gear stresses and heavy lift operations; documentation required for cargo operations, along with practical cargo stowage problems.
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 103, MART 115 or MART 203, MART 201 and MART 204, or concurrent enrollment or approval of department head.

MART 213 Liquidated Gas Tankers
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Preparation as cargo officer for loading, discharging and transit of liquefied gas cargoes; emphasis on physical and chemical properties, operations, safety, firefighting and pollution prevention.
Prerequisites: MART majors - Grade of C or better in MART 200 or NAUT 200, or concurrent enrollment or approval of MART department head; MARE majors - Grade of C or better in MARE 200 or MARR 200, or concurrent enrollment or approval of MART department head.

MART 215 Seamanship II
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Topics include mechanical appliances aboard ship, accident prevention, vessel sanitation, vessel operations, marine inspection laws and regulations, communications, ship’s business and International Conventions.
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 103, MART 115 or MART 203, MART 201 and MART 204, or concurrent enrollment or approval of department head.
MART 265 Introduction to Dynamic Positioning OSVDPA Phase I  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Basic understanding and operation of Dynamic Positioning technology;  
theory and nomenclature of Dynamic Positioning principles and  
equipment; practical training utilizing Class C simulators; operating,  
maneuvering and familiarization with simulated DP vessels; satisfactory  
completion of this course provides the student entry in to the Off Shore  
Service Vessel Dynamic Positioning Authority (OSVDPA) scheme.  
Prerequisites: Grade of C or better in MART 201, MART 204, and  
MART 200; sophomore or junior classification.  

MART 285 Directed Studies  
Credits 1 to 4. 1 to 4 Lecture Hours.  
Directed study in problems in marine transportation not covered by other  
courses in the department.  
Prerequisite: Approval of department head.  

MART 289 Special Topics in Marine Transportation  
Credits 1 to 4. 1 to 4 Lecture Hours.  
Study of selected topics in an identified area of marine transportation or  
nautical science.  
Prerequisite: Approval of department head.  

MART 300 Deck Sea Training II: Intermediate Communications,  
Navigation and Seamanship  
Credits 4. 4 Other Hours.  
Practical application of shoreside studies aboard training ship during  
second training cruise; intermediate projects in communications,  
navigation, seamanship and rules of the road.  
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade  
of C or better in MART 202, MART 210 or MART 306, MART 212 or  
MART 312, MART 215 or MART 301, MART 303 and MART 321, or  
concurrent enrollment; junior or senior classification or approval of MART  
department head.  

MART 303 Celestial Navigation  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Full range of celestial navigation; survey of nautical astronomy, sight  
reduction, sextants, compass error determination, and solutions of the  
navigational triangle by various methods.  
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade  
of C or better in MART 103, MART 115 or MART 203, MART 201 and  
MART 204, or concurrent enrollment or approval of MART department  
head.  

MART 305 Ship Construction and Stability  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Shipbuilding nomenclature, dimensions, construction and classification.  
Classification societies, shipbuilding materials and methods, structural  
components. Ship's line drawing and form calculations; principles of  
flotation and buoyancy; inclining experiments; free surface; transverse  
stability; trim and longitudinal stability; motion of ships in waves,  
seaways and dynamic loads; ship's structure tests and propulsion; labs  
focus on manual and computer-based stability and trim calculations  
using standard industry-based software.  
Prerequisites: Junior or senior classification; MART 103, PHYS 201 or  
PHYS 218 or approval of instructor.  

MART 307 Global Maritime Distress Safety System  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Requirements, regulations, equipment, principles and hands-on operating  
procedures of each Global Maritime Distress Safety System subsystem,  
including: SARTS, EPIRBs NAVTEX, INMARSAT, SAFETYNET, VHF  
Survival Craft Transceivers, DSC, and HF Radio telephone; USCG and FCC  
certification as GMDSS Operator; minimum passing grade 75%.  
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade  
of C or better in MART 103, MART 115 or MART 203, MART 201 and  
MART 204, or concurrent enrollment or approval of department head.  

MART 308 Fast Rescue Craft  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Search and rescue techniques through fast rescue craft maneuvers and  
team management; description of various rescue craft and U.S. Coast  
Guard "Fast Rescue Craft" Standard of Watchkeeping endorsement.  
Prerequisites: MART majors - Grade of C or better in MART 200 or  
NAUT 200; grade of C or better in MART 103, MART 115 or MART 203,  
MART 201 and MART 204, or concurrent enrollment or approval of  
department head; MARE majors - Grade of C or better in MARE 200 or  
MARR 200; grade of C or better in MART 103.  

MART 310 Integrated Navigation II: Electronic Navigation  
Credits 2. 1 Lecture Hour. 3 Lab Hours.  
Theory, operation and application of marine electronic navigation  
systems and aids; includes marine gyrocompass, vessel steering  
systems, hydrosonic systems, satellite navigation systems, AIS and VDR;  
intermediate level watchkeeping, including applied use of radar, ARPA and  
ECDIS.  
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade  
of C or better in MART 204, MART 210 or MART 306, MART 303 and  
MART 321, or concurrent enrollment or approval of MART department  
head.  

MART 311 Tug and Towing Operations  
Credits 3. 2 Lecture Hours. 3 Lab Hours.  
Knowledge associated with the safe, efficient operation of towing vessels  
through classroom discussion and through underway, hands-on vessel  
training aboard the T/V Ranger and barges.  
Prerequisites: MART 300 or MART 350 or NAUT 300, or concurrent  
enrollment or approval of department head.  

MART 313 Marine Liquid Cargo Operations  
Credits 3. 2 Lecture Hours. 2 Lab Hours.  
Principles and practice of bulk liquid, gas handling and carriage by water  
craft; theoretical and practical problems involved in loading, stowing and  
discharging of petroleum, chemical, elevated temperature and cryogenic  
cargoes; marine pollution abatement, personnel safety and firefighting  
techniques and systems.  
Prerequisites: MART majors - Grade of C or better in MART 200  
or NAUT 200; MART 103, MART 115 or MART 203, MART 201 and  
MART 204, or concurrent enrollment or approval of department head;  
MARE majors - Grade of C or better in MARE 200 or MARR 200; grade  
of C or better in MART 103.  

MART 315 Seamanship III  
Credits 2. 1 Lecture Hour. 3 Lab Hours.  
Principles and methods of propulsion and steering of ships including hull,  
propeller and rudder design; ship handling at sea, in narrow channels,  
docking, undocking, mooring; study of the principles of hydrodynamics  
that govern ship movement.  
Prerequisites: MART 300 or MART 350 or NAUT 300, or concurrent  
enrollment or approval of instructor.
MART 321 Navigation Rules, International and Inland
Credits 2. 2 Lecture Hours.
Purpose, application and knowledge of the International Regulations for Preventing Collision at Sea (COLREGS) and the Inland Navigation Rules and Regulations (Inland Rules).
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 103, MART 115 or MART 203, MART 201 and MART 204, or concurrent enrollment or approval of department head.

MART 350 Deck Sea Training II – Commercial Internship
Credits 4. 4 Other Hours.
Prerequisites: Grade of C or better in MART 200 or NAUT 200, MART 202, MART 210 or MART 306, MART 212 or MART 312, MART 215 or MART 301, MART 303, and MART 321, or concurrent enrollment; junior or senior classification or approval of MART department head.

MART 400 Deck Sea Training III: Advanced Communications, Navigation and Seamanship
Credits 4. 4 Other Hours.
Prerequisites: Grade of C or better in MART 300, MART 350, or NAUT 300; grade of C or better in MART 307, MART 310 or MART 304, and MART 313 or MART 406, or concurrent enrollment; junior or senior classification or approval of MART department head.

MART 401 Maritime Security
Credits 3. 3 Lecture Hours.
Prerequisites: Grade of C or better in MART 300 or MART 350 or NAUT 300, or concurrent enrollment or approval of department head.

MART 403 Advanced Topics in Shipboard Operations
Credits 2. 2 Lecture Hours.
Prerequisites: Grade of C or better in MART 300 or MART 350 or NAUT 300, or concurrent enrollment or approval of department head.

MART 404 The Navigator
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Prerequisites: Grade of C or better in MART 300 or MART 350 or NAUT 300, or concurrent enrollment or approval of department head.

MART 410 Integrated Navigation III: Bridge Watchstanding
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Prerequisites: Grade of C or better in MART 300, MART 350, or NAUT 300; grade of C or better in MART 321, MART 210 or MART 306, and MART 310 or MART 304, or concurrent enrollment or approval of MART department head.

MART 484 Internship
Credits 0 to 6. 0 to 6 Other Hours.
Prerequisites: Junior or senior classification or approval of department head.

MART 485 Directed Studies
Credits 1 to 4. 1 to 4 Lecture Hours.
Prerequisites: Junior or senior classification or approval of instructor.

MART 489 Special Topics in Marine Transportation
Credits 1 to 3. 1 to 3 Lecture Hours. 0 to 3 Lab Hours.
Prerequisites: Approval of MART department head. Junior or senior classification or approval of instructor.

MART 491 Research in Marine Transportation
Credits 0 to 4. 0 to 4 Other Hours.
Prerequisites: Grade of C or better in MART 200 or NAUT 200; grade of C or better in MART 307, MART 310 or MART 304, and MART 313 or MART 406, or concurrent enrollment; junior or senior classification or approval of department head.

MART 484 Internship
Credits 0 to 6. 0 to 6 Other Hours.
Prerequisites: Junior or senior classification or approval of department head.

MART 491 Research in Marine Transportation
Credits 0 to 4. 0 to 4 Other Hours.
Prerequisites: Junior or senior classification or approval of instructor.

MART 498 Maritime Medical Care
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Prerequisites: Junior or senior classification and approval of instructor.