Kasetsart University

Faculty of International Maritime Studies

Program in Maritime Transportation

1. NAME OF CURRICULUM

Bachelor of Science Program in Maritime Transportation

2. NAME OF DEGREE

Bachelor of Science (Maritime Transportation)

B.Sc. (Maritime Transportation)

3. Curriculum Outline for Maritime Transportation

Total credit requirements	140	credits
1) General Basic Courses	30	credits
1.1) Wellness	6	credits
1.2) Entrepreneurship	3	credits
1.3) Thai Citizen and Global Citizen	13	credits
1.4) Language and Communication	5	credits
1.5) Aesthetics	3	credits
2) Maritime Transportation Courses	104	credits
2.1) Compulsory Courses	98	credits
2.2) Elective Courses	6	credits
3) Free Electives	6	credits
4) Internship at least 240 hours or 30 workdays		
(Except for students who joining cooperative program)		
5) Detail of Curriculum		
1. General Basic Courses	30	credits
1.1 Wellness	6	credits
01175xxx Physical Education Activity		1(0-2-1)

^{*} Student has to obtain the other 5 credits, at least, by choosing other subjects in this category.

1.2 Entrepreneurship

* Student has to choose subjects in this category to complete minimum credit requirement.

3

credits

1.3	Language and Communication			credits
	01999021	Thai Language for Communication		3(3-0-6)
	03754xxx	English		9()
	03752111	Information Resources for Research		1(1-0-2)
1.4	Thai Citize	en and Global Citizen	5	credits
	01999111	Knowledge of the Land		2(2-0-4)

^{*} Student has to obtain the other 3 credits, at least, by choosing other subjects in this category.

1.5 Aesthetics 3 credits

* Student has to choose subjects in this category to complete minimum credit requirement.

2.	2. Maritime Transportation Courses 104				
	2.1	Compulsor	y Courses	98	credits
		01403114	Laboratory in Fundamentals of General Che	mistry	1(0-3-2)
		01403117	Fundamentals of General Chemistry		3(3-0-6)
		01417111	Calculus I		3(3-0-6)
		01417112	Calculus II		3(3-0-6)
		01420115	Laboratory in Abridged Physics		1(0-3-2)
		01420119	Abridged Physics		3(3-0-6)
		01651352	Coastal Ecology and Environment		3(3-0-6)
		02739111	Computer and Information System		3(2-2-6)
		03521231	Information Technology for Navigation and		3(3-0-6)
			Maritime Logistics		
		03521261	International Maritime Terminology		2(2-0-4)
		03521373	Maritime Business		3(3-0-6)
		03521471	Maritime Economics		3(3-0-6)
		03521472	Port Management		3(3-0-6)
		03521473	Marine Insurance		3(3-0-6)
		03521483	Principles of Maritime Transport and Logitics P	lanning:	s3(3-0-6)
		03523212	Statistical Analysis in Maritime Business		3(3-0-6)
		03523221	International Seaborne Trade		3(3-0-6)
		03523222	Business Document for Maritime Transporta	tion	3(3-0-6)
		03523223	Cargo Transportation		3(3-0-6)
		03523224	Cargo Management on Board		3(3-0-6)
		03523321	Multimodal Transportation		3(3-0-6)

	03523322	Shipping Route Strategy		3(3-0-6)
	03523331	Maritime Law		3(3-0-6)
	03523341	Maritime Transport Safety		3(3-0-6)
	03523342	Maritime Workplace Risk Assessment and Mana	agement	t 3(3-0-6)
	03523351	Warehouse Design and Operations		3(3-0-6)
	03523361	Quantitative Analysis for Transport Managen	nent	3(3-0-6)
	03523362	Ship Chartering and Brokering Business		3(3-0-6)
	03523421	Shipping and Port marketing		3(3-0-6)
	03523451	Increasing Efficiency in Supply Chain and Lo	gistics	3(3-0-6)
	03523461	Maritime Business Quality Systems		3(3-0-6)
	03523462	Port Operations and Cargo Handling		3(3-0-6)
	03523495	Maritime Transport Project Preparation		1(0-3-2)
	03523497	Seminar		1
	03523499	Maritime Transport Project		2(0-6-3)
	03759211	Financial Management I		3(3-0-6)
2.2	Elective Co	ourses	6	credits
	from the fo	llowing courses -:		
	03521476	Marine Pollution Prevention		3(3-0-6)
	03523422	Port's Location and Physical Characteristics		3(3-0-6)
	03523423	Maritime Business Projects Feasibility Study		3(3-0-6)
	03523441	Environmental Impacts in Ports		3(3-0-6)
	03523452	Maritime Logistics Innovation		3(3-0-6)
	03523453	Multivariate Analysis in Maritime Business		3(3-0-6)
	03523463	Logistics simulation for decision making		3(3-0-6)
	03523464	Container Transportation		3(3-0-6)
	03523490	Cooperative Education		6
	03523496	Selected Topic in Maritime Transport		3(3-0-6)
	03523498	Special Problems		3
Fre	e Electives		6	credits

4. Internship at least 240 hours or 30 workdays

3.

(Except for students who joining cooperative program)

Course Planning for Maritime Transportation Students

Non-Cooperative Program

First Year

	Semester 1	
Course Num	ber Title	Credits
		(lecture-lab-self study)
01403114	Laboratory in Fundamentals of General Chemistry	1(0-3-2)
01403117	Fundamentals of General Chemistry	3(3-0-6)
01417111	Calculus I	3(3-0-6)
01420115	Laboratory in Abridged Physics	1(0-3-2)
01420119	Abridged Physics	3(3-0-6)
01999021	Thai Language for Communication	3(3-0-6)
01999111	Knowledge of the Land	2(2-0-4)
03752111	Information Resources for Research	<u>1(1-0-2)</u>
	Total	<u>17(15-6-34)</u>
	Semester 2	
Course Num	ber Title	Credits

Course Number		Title	Credits
			(lecture-lab-self study)
01417112	Calculus II		3(3-0-6)
02739111	Computer and Information	System	3(2-2-6)
03759211	Financial Management I		3(3-0-6)
01175xxx	Physical Education Activity		1(0-2-1)
03754xxx	English		3()
	Wellness		2()
	Entrepreneurship		<u>3()</u>
	Total		18()

Second Year

Semester 1

Course Num	nber Tit	le	Credits
		(1)	ecture-lab-self study)
03521231	Information Technology for N	lavigation and Maritime	Logistics 3(3-0-6)
03521373	Maritime Business		3(3-0-6)
03523212	Statistical Analysis in Maritime	e Business	3(3-0-6)
03523221	International Seaborne Trade		3(3-0-6)
03754xxx	English		3()
	Thai Citizen and Global Citize	en	3()
	Aesthetics		<u>3()</u>
	Total		<u>21()</u>

Course Num	nber Title	Credits
		(lecture-lab-self study)
01651352	Coastal Ecology and Environment	3(3-0-6)
03521261	International Maritime Terminology	2(2-0-4)
03521471	Maritime Economics	3(3-0-6)
03523222	Business Document for Maritime Transportation	3(3-0-6)
03523223	Cargo Transportation	3(3-0-6)
03523224	Cargo Management on Board	3(3-0-6)
	Wellness	<u>3()</u>
	Total	20()

Third Year

Semester 1

Course Num	nber	Title	Credits
			(lecture-lab-self study)
03523321	Multimodal Transportation	า	3(3-0-6)
03523331	Maritime Law		3(3-0-6)
03523341	Maritime Transport Safety		3(3-0-6)
03523351	Warehouse Design and Op	perations	3(3-0-6)
03754xxx	English		3()
	Free Electives		<u>3()</u>
	Total		<u> 18()</u>

Course Num	ber	Title	Credits
			(lecture-lab-self study)
03521472	Port Management		3(3-0-6)
03523322	Shipping Route Strategy		3(3-0-6)
03523342	Maritime Workplace Risk As	sessment and Manageme	nt 3(3-0-6)
03523361	Quantitative Analysis for T	ransport Management	3(3-0-6)
03523362	Ship Chartering and Broke	ring Business	3(3-0-6)
	Free Electives		<u>3()</u>
	Total		<u> 18()</u>

Fourth Year

Semester 1

Course Num	nber Title	Credits
		(lecture-lab-self study)
03521473	Marine Insurance	3(3-0-6)
03521483	Principles of Maritime Transport and Logitics Plannin	gs 3(3-0-6)
03523421	Shipping and Port marketing	3(3-0-6)
03523451	Increasing Efficiency in Supply Chain and Logistics	3(3-0-6)
03523461	Maritime Business Quality Systems	3(3-0-6)
03523462	Port Operations and Cargo Handling	3(3-0-6)
03523495	Maritime Transport Project Preparation	<u>1(0-3-2)</u>
	Total	<u>19(18-3-38)</u>

Course Nun	nber	Title	Credits
			(lecture-lab-self study)
03523497	Seminar		1
03523499	Maritime Transport Project	t	2(0-6-3)
	Elective Courses		<u>6(</u>)
	Total		9()

Cooperative Education Program

First Year

Course Nun	nber Title	Credits	
		(lecture-lab-self study)	
01403114	Laboratory in Fundamentals of General Chemistry	1(0-3-2)	
01403117	Fundamentals of General Chemistry 3(
01417111	Calculus I	3(3-0-6)	
01420115	Laboratory in Abridged Physics	1(0-3-2)	
01420119	Abridged Physics	3(3-0-6)	
01999021	Thai Language for Communication	3(3-0-6)	
01999111	Knowledge of the Land	2(2-0-4)	
03752111	Information Resources for Research	1(1-0-2)	
	Total	<u>17(15-6-34)</u>	
Semester 2			

Course Number		Title	Credits
			(lecture-lab-self study)
01417112	Calculus II		3(3-0-6)
02739111	Computer and Information	System	3(2-2-6)
03759211	Financial Management I		3(3-0-6)
01175xxx	Physical Education Activity		1(0-2-1)
03754xxx	English		3()
	Wellness		2()
	Entrepreneurship		<u>3()</u>
	Total		<u> 18()</u>

Second Year

Semester 1

Course Num	nber Tit	·le	Credits
		(lecture-lab-self study)
03521231	Information Technology for N	Navigation and Maritime	e Logistics 3(3-0-6)
03521373	Maritime Business		3(3-0-6)
03523212	Statistical Analysis in Maritim	e Business	3(3-0-6)
03523221	International Seaborne Trade	ġ.	3(3-0-6)
03754xxx	English		3()
	Thai Citizen and Global Citize	en	3()
	Aesthetics		<u>3()</u>
	Total		<u>21()</u>

Course Num	nber Title	Credits
		(lecture-lab-self study)
01651352	Coastal Ecology and Environment	3(3-0-6)
03521261	International Maritime Terminology	2(2-0-4)
03521471	Maritime Economics	3(3-0-6)
03523222	Business Document for Maritime Transportation	3(3-0-6)
03523223	Cargo Transportation	3(3-0-6)
03523224	Cargo Management on Board	3(3-0-6)
	Wellness	<u>3()</u>
	Total	<u>20()</u>

Third Year

Semester 1

Course Num	nber	Title	Credits
			(lecture-lab-self study)
03523321	Multimodal Transportation	n	3(3-0-6)
03523331	Maritime Law		3(3-0-6)
03523341	Maritime Transport Safety	,	3(3-0-6)
03523351	Warehouse Design and Op	perations	3(3-0-6)
03754xxx	English		3()
	Free Electives		<u>3()</u>
	Total		<u> 18()</u>

Course Number		Title	Credits
			(lecture-lab-self study)
03521472	Port Management		3(3-0-6)
03523322	Shipping Route Strategy		3(3-0-6)
03523342	Maritime Workplace Risk As	sessment and Managemer	at 3(3-0-6)
03523361	Quantitative Analysis for T	ransport Management	3(3-0-6)
03523362	Ship Chartering and Broke	ring Business	3(3-0-6)
03523495	Maritime Transport Projec	t Preparation	<u>1(0-3-2)</u>
	Free Electives		<u>3()</u>
	Total		<u> 19()</u>

Fourth Year

Semester 1

Course Num	nber Title	Credits
		(lecture-lab-self study)
03521473	Marine Insurance	3(3-0-6)
03521483	Principles of Maritime Transport and Logitics Plannin	gs 3(3-0-6)
03523421	Shipping and Port marketing	3(3-0-6)
03523451	Increasing Efficiency in Supply Chain and Logistics	3(3-0-6)
03523461	Maritime Business Quality Systems	3(3-0-6)
03523462	Port Operations and Cargo Handling	3(3-0-6)
03523497	Seminar	1
03523499	Maritime Transport Project	2(0-6-3)
	Total	<u>21(18-6-39)</u>

Course Number		Title	Credits
			(lecture-lab-self study)
03523490	Cooperative Education		<u>6</u>
	Total		<u>6</u>

COURSE DESCRIPTIONS

03523212 Statistical Analysis in Maritime Business

3(3-0-6)

Statistical report and presentation in maritime industry. Analysis of maritime transport statistics using probability. Random variable and probability distribution. Mathematical expectations for decision making in maritime business. Distribution of statistics used in logistics and maritime business. Inferential statistics used for hypothesis testing. Analysis of variance in maritime transport business. Simple linear regression and correlation. Application of analytical result.

03523221 International Seaborne Trade

3(3-0-6)

International trade. Global sea transportation. Ship registration and world fleet. Freight and hire rates. Cargo transportation and port. Trading contact and cargo payment. Sea carrier and INCOTERMS. Sea contract and relevant laws. Documents and bill of lading for sea transportation. Marine cargo insurance. Sea transportation and supply chain.

03523222 Business Document for Maritime Transportatio

3(3-0-6)

Prerequisite: 03521373, 03523221

Bill of lading. Letter of credit. Ship particulars. Bill of exchange. Export license. Certificate of origin. Certificate of value. Certificate of weight. Certificate of inspection. Certificate of health. Commercial invoice. Customs invoice. Consular invoice. Insurance certificate. Packing list.

03523223 Cargo Transportation

3(3-0-6)

Cargo transportation business. Maritime transport. Transportation system analysis, Basic traffic analysis system. Delay and queuing analysis. Transport demand and supply. Fundamental techniques of transport demand forecasting. Transportation planning. Location selection. Transportation problem.

03523224 Cargo Management on Board

3(3-0-6)

Hold. Cargo loading. Cargo discharging. Cargo calculations on board. Ship stability. Cargo arrangement. Cargo keeping on board. Load line. Movement of goods on board.

Multimodal Transportation

3(3-0-6)

Prerequisite: 03523221

Characteristics of general intermodal transportation and Multimodal transportation. Maritime transportation. Land transportation. Rail transportation and Air transportation. Analysis of advantage and disadvantage of transportations. Transportation networks. Connectivity of transportation. Factors affecting on selection mode of the transportation. Infrastructure increasing the efficiency of multimodal transportation. Law and regulation of multimodal transportation and carriage of goods by sea. Case study.

03523322 Shipping Route Strategy

3(3-0-6)

Maritime routes for shipping. Planning and selecting of suitable and safe maritime routes. Calculation of route and duration for transport of goods by sea. Case study.

03523331 Maritime Law

3(3-0-6)

Law of the sea, International Maritime Organization (IMO), The Carriage of Goods by Sea Act. The Multimodal transport Act. Ship Mortgage and Marine Preferential Act. Arrest of sea going ships. Civil liability and damages arising from collision of vessels act. Rights and duties of the carrier and the shipper. Bill of lading. Liability and limitation of ship-owners. Maritime insurance. Related laws and acts.

03523341 Maritime Transport Safety

3(3-0-6)

Marine environment. Laws and regulations of safety and environment related to the transport of dangerous goods by sea. Types and causes of accidents from hazardous substances. Proper storage, Usage and disposal of hazardous materials. Safe handling and transportation of hazardous substances. Material safety data sheet. Settlement of preventive and corrective measures. Hazardous materials impact mitigation. Case study.

Maritime Workplace Risk Assessment and Management

3(3-0-6)

Principles of safety and quantified risk analysis. Accident and hazard occurred in workplace. Principles and methodologies for risk assessment of severity accident in workplace. Application of safety and protective measure related with risk assessment compliance with law. Case study.

03523351

Warehouse Design and Operations

3(3-0-6)

design. Use of information technology in warehouse Warehouse management. Storage and transport equipment. Space design in warehouse. Warehouse operation. Resource allocation in warehouse. Analytical techniques of cargo flow. System design and selection of cargo handling equipment.

03523361

Quantitative Analysis for Transport Management

3(3-0-6)

Types of quantitative analysis, linear programming, linear programming problem solving, dual problem and sensitivity analysis, assignment problems, inventory models, project planning and control with PERT and CPM techniques, decision models, simulation model.

03523362

Ship Chartering and Brokering Business

3(3-0-6)

Prerequisite: 03521373, 03523221

Ship and chartering business. Ship management. Costs in managing ship. Voyage charter. Standard form of voyage charter party. Laytime calculation. Time charter. Standard form of time charter party. Bareboat charter. Standard form of bareboat charter party. Shipbroker and vocational ethic. Ship sale and purchase.

03523421

Shipping and Port Marketing

3(3-0-6)

Principle in shipping and port marketing. Competition circumstances. Business's and competitors' potential analysis. Market forecast. Strategic setting of shipping and port. Case study of liner shipping business and leading port in the world.

Port's Location and Physical Characteristics

3(3-0-6)

Importance of port. Engineering criteria. Infrastructure criteria. Economic criteria. Social criteria. Environmental criteria. Legal criteria. Methods of site selection. Environmental impact from ports. Environmental impact assessment for port projects. Sustainable port development. Importance of waves in the port, Wind wave theory. Nearshore wave transformation. Wave statistics. Water level. Roles of breakwater. Case studies.

03523423

Maritime Business Projects Feasibility Study

3(3-0-6)

Overview and characteristics of the maritime business. Analysis of factors affecting the project investment. The feasibility analysis of the maritime project in terms of marketing, techniques, logistics, management, finance and economic. Case study.

03523441

Environmental Impacts in Ports

3(3-0-6)

Environmental impacts in ports. Environmental impacts in maritime transportation. Components of ports and wharf areas associated with environmental impacts. Laws related to environmental impacts and ports. Preventing and resolving environmental impacts in port. Environmental impacts monitoring in ports. Case study.

03523451

Increasing Efficiency in Supply Chain and Logistics

3(3-0-6)

Supply chain and logistics management. Data collection issues related to supply chain and logistics management. Problem solving analysis. Resolution selection. Systematic data collection. Problem prevention in supply chain and logistics management.

03523452

Maritime Logistics Innovation

3(3-0-6)

Information retrieving for maritime logistics innovation. Port's innovation. Ship innovation. A current situation study. Maritime logistics innovation trend. Maritime logistics innovation design. Case study of maritime logistics innovation development. Innovation applied. Innovation assessment.

Multivariate Analysis in Maritime Business

3(3-0-6)

Multiple regression for berthing demand estimation. Analysis of variance for evaluating 2-leading firms' financial performance. Multivariate analysis of variance for benchmarking logistics performance in maritime industry. Factor analysis for developing measurement of port performance. Logistics regression for measuring shipping collaborative relationship. Ordinal logistics regression for shipping credit financing. Time series analysis for marine negative externality management.

03523461

Maritime Business Quality Systems

3(3-0-6)

Importance of quality system for maritime business. Quality management system. Establishment of quality systems. Documentation of quality management system. International standards. Application of quality systems to organization. Auditing and certification of quality management system in maritime business.

03523462

Port Operations and Cargo Handling

3(3-0-6)

Characterization of port system. Port operations. Operation planning in port. Berths and terminals. Port's resource allocation. Cargo and cargo handling in port. Port labor and human resource management. Port performance and benchmarking. Port logistics.

03523463

Logistics Simulation for Decision Making

3(3-0-6

Basic statistics for simulation. Conceptual of simulation development for logistics problem. Specific data collection and analysis. Analysis of Simulation results. Simulation development of in decision making involving logistics management.

03523464

Container Transportation

3(3-0-6)

Principle of container transport. Container transportation by ship road and rail. Container networks. Decision analysis of container stuffing process. Calculation on container freight. Container terminal operation. Container handling system. Container yard management. Empty container reposition.

03523490 Co-operative Education

On the job training as a temporary employee according to the assigned project including report and presentation.

03523495 Maritime Transport Project Preparation 1(0-3-2)

Preparation of project proposal. Literature review and progress report.

03523496 Selected Topic in Maritime Transport 3(3-0-6)

Selected topics in maritime transport at the bachelor's degree level. Topics are subject to change each semester.

03523497 Seminar 1

Presentation and discussion on interesting topics in maritime transportation at the bachelor's degree level.

03523498 Special Problems 3

Study and research in maritime transportation at the bachelor's degree level and compile into a written report.

03523499 Maritime Transport Project 2(0-6-3)

Prerequisite: 03523495

Project of practical interest in various fields of maritime transport project.

Required fundamental course descriptions

01403114 Laboratory in Fundamentals of General Chemistry 1(0-3-2)

Prerequisite: 01403117 or Corequisite

Laboratory work for 01403117 Fundamentals of General Chemistry.

01403117 Fundamentals of General Chemistry 3(3-0-6)

Atomic structure. Periodic table and periodic properties. Chemical bonds. Stoichiometry. Gases. Liquids. Solids. Solutions. Chemical kinetics. Chemical equilibria. Acids and bases. Ionic equilibria. Representative elements. Metals. Nonmetals and metalloids. Transition metals.

01417111 Calculus I 3(3-0-6)

Limits and continuity, derivatives and applications, differentials and applications, integration and applications.

01417112 Calculus II 3(3-0-6)

Prerequisite: 01417111

Space geometry, partial derivatives, multiple integrals, elementary differential equations.

01420115 Laboratory in Abridged Physics 1(0-3-2)

Prerequisite: 01420119 or Corequisite

Laboratory for Abridged Physics.

01420119 Abridged Physics 3(3-0-6)

Mechanics, thermodynamics, wave, sound, static electricity, current, magnetic, electromagnetic wave, light, introduction to modern physics.

01651352 Coastal Ecology and Environment 3(3-0-6)

Coastal environment factors, coastal environment, coastal ecology, coastal organisms, threats to coastal ecology and environment, Case studies and important issues.

02739111 Computer and Information System 3(2-2-6)

Evolution of computers, computer system, hardware, software, computer structure and operations, number systems, data and information systems, fundamentals of data processing, computer languages, principles of problem solving by computer, structure programming, data communication and Internet, pervasive themes information technology.

O3521231 Information Technology for Navigation and Maritime Logistics 3(3-0-6)

Information Technology. Vessel traffic management system. Electronic data interchange for Maritime transportation. Cargo tracking and monitoring system. Maritime logistic management system.

International Maritime Terminology

2(2-0-4)

Vocabulary and standard marine communication as required by International Marine Organization. Marine vocabulary. Onboard, ship-to-ship and ship-to-shore communication. Standard message for helping and finding people in emergency case. Search and Rescue communication.

03521373 Maritime Business

3(3-0-6)

Ship management. Interface management between ship and shore. Strategy of maritime company. Accounting. Budgeting. Financing and business planning. Shipping law and marine insurance. Post – state control.

03521471 Maritime Economics

3(3-0-6)

Fundamental of economic. Relationship between maritime industry and economic. Demand and supply forecasting. Shipping fee, cost and tax.

03521472 Port Management

3(3-0-6)

Business management and marketing in port industry. Maritime operation in port with environment, health and safety consideration. Port security and emergency management.

03521473 Marine Insurance

3(3-0-6)

History and development of marine insurance. General average. Terms and conditions.

03521476 Marine Pollution Prevention

3(3-0-6)

Marine ecosystem. Marine water quality. Marine pollution. Effect of bilge water and ballast water on marine ecosystem and marine water quality. Marine pollution from ship-generated waste according to MARPOL 73/78; Marine pollution prevention and technologies from maritime transport. Case study of pollution prevention from maritime transportation.

Principles of Maritime Transport and Logistics Plannings

3(3-0-6)

Principles for the development of maritime transport and logistics system. Maritime transport system planning by a geographic information system analysis. Maritime transport network planning by simulation method, transportation system management for pick up and delivery systems. Maritime transport scheduling. Transport economic theory for multimodal transport analysis.

03759211 Financial Management I

3(3-0-6)

Scopes and roles of financial executives. Objectives and significance of financial management. Principles of financial planning and control, capital structure, capital budgeting, rate of return and financial risk management. Management of short, medium, and long term sources of capital. Management of current and fixed assets. Other financial policies.