MARITIME - ENGINEERING OFFICER, BACHELOR OF SCIENCE

Great Lakes Maritime Academy

NMC Code 851

The Great Lakes Maritime Academy prepares students for the challenge of operating commercial ships of unlimited tonnage on the Great Lakes and oceans as merchant marine officers. Engineering officers are responsible for the efficient operation and maintenance of engines and support machinery aboard ship. The vessel may be diesel powered with multiple engines or turbine powered operating on high pressure steam, capable of generating thousands of horsepower. The Marine Engineer must understand these systems and keep them operating 24/7. Engineering Officers are also responsible for the ship's business as associated with all onboard equipment and mechanical aspects of the vessel.

All qualified engineering cadets write the U.S. Coast Guard examination for licensing as a Third Assistant Engineer, Steam and Motor Vessels of any Horsepower. Graduates are fully compliant with STCW International Quality Standards. The curriculum awards a Bachelor of Science degree in Maritime Technology. For those entering with transferable college credits, an accelerated program is available. Engineering Officer cadets may complete their program in as little as three years.

Requirements

Major Requirements

Course	Title	Credits
General Education Requirements		
ENG 111	English Composition	4
ENG 112	English Composition	3-4
or ENG 220	Technical Writing	
PHL 202	Contemporary Ethical Dilemmas	3
Math Competency [1]		7
CHM 101	Introductory Chemistry (or higher)	4
Group 1 Social Science Elective		3
Occupational Specialty Requirements		
MDK 100	Survival at Sea	1
MDK 149	Damage Control & Safety	2
MDK 250	Stability for the Engineer	1
MDK 330	Medical First Aid Provider	2
MDK 341	Ship Construction	2
MNG 100	Intro to Vessel Operations	1
MNG 104	Engine Systems Graphics	3
MNG 105	Shipboard Information Systems	3
MNG 110	Engineering Mechanics	3
MNG 234	Electronic Fundamentals	4
MNG 250	Fluid Systems	3
MNG 260	Maritime Machining	2
MNG 271 & 271L	Maritime Welding and Maritime Welding Lab	2
MNG 275	Refrigeration	3
MNG 314	Diesel Engineering	7
MNG 317	Engineering Sea Project I	3
MNG 318	Engineering Sea Project II	6
MNG 319	Engineering Sea Project III	6
MNG 321	Marine Boilers	3.5
MNG 322	Marine Turbines	2.5
MNG 323	Marine Steam Lab	1
MNG 335	Electric Machines and Controls	4
MNG 336	Electric Mach. & Controls Lab	2
MNG 455	Engine Room Resource Mgmt.	2
MNG 466	Engine Room Business	2
MNG 496	License Preparation - Engine	2
MNS 100	Naval Science	2
GLMA Program Electives		21
Total Credits		**120-121**

[1] Placement into MTH 141 Calculus I ***or*** higher, ***or*** completion of MTH 121 College Algebra and MTH 122 Trigonometry

Course Sequence Guide

Course	Title	Credits
First Year		
Pre-Fall		
MDK 100	Survival at Sea	1
MNG 100	Intro to Vessel Operations	1
	Credits	**2**
Fall		
MNG 104	Engine Systems Graphics	3
MNG 110	Engineering Mechanics	3
ENG 111	English Composition [1]	4
MTH 121	College Algebra [1]	4
	Credits	**14**
Spring		
MNS 100	Naval Science	2
MNG 234	Electronic Fundamentals	4
MNG 314	Diesel Engineering	7
MTH 122	Trigonometry [1]	3
	Credits	**16**
Summer		
MNG 317	Engineering Sea Project I [2]	3
	Credits	**3**
Second Year		
Fall		
MNG 250	Fluid Systems	3
MNG 260	Maritime Machining	2
MNG 335	Electric Machines and Controls	4
MNG 336	Electric Mach. & Controls Lab	2
CHM 101	Introductory Chemistry (or higher) [1]	4
	Credits	**15**
Spring		
MNG 105	Shipboard Information Systems	3

MDK 149	Damage Control & Safety	2
MNG 271	Maritime Welding	2
MNG 321	Marine Boilers	3.5
MNG 322	Marine Turbines	2.5
MNG 323	Marine Steam Lab	1
ENG 220 or ENG 112	Technical Writing [1] or English Composition	3-4
	Credits	**17-18**
Summer		
No Classes		
	Credits	**0**
Third Year		
Fall		
MNG 318	Engineering Sea Project II [2]	6
	Credits	**6**
Spring		
MNG 275	Refrigeration	3
MDK 341	Ship Construction	2
GLMA Program Elective [1]		3
GLMA Program Elective [1]		3
Course Elective [1]		3
PHL 202	Contemporary Ethical Dilemmas [1]	3
	Credits	**17**
Summer		
MNG 319	Engineering Sea Project III [2]	6
	Credits	**6**
Fourth Year		
Fall		
MDK 250	Stability for the Engineer	1
MDK 330	Medical First Aid Provider	2
MNG 455	Engine Room Resource Mgmt.	2
MNG 466	Engine Room Business	2
MNG 496	License Preparation - Engine	2
GLMA Program Elective [1]		3
	Credits	**12**
Spring		
GLMA Program Elective [1]		3
GLMA Program Elective [1]		3
GLMA Program Elective [1]		3
Any Group 1 Social Science Elective		3
	Credits	**12**
	Total Credits	**120-121**

1 General education classes
2 Sailing projects/internships

Cadets must earn a minimum of 2.0 grade in all Maritime, NMC and transfer classes (BSMT is 120 credit hours).

Additional Requirements/Certifications

- VPDSD
- Firefighting
- First Aid/CPR/AED
- In Port Sea Days (30 required)
- Completed Sea Days
- Personal Safety & Social Responsibility Training

Course	Title	Credits
Maritime/Sea Projects Credit Hours		75
NMC Credit Hours		45-46
Total Credits		**120-121**

Approved Program Electives

(NMC course transfer or equivalent)

21 credit hours required

Course	Title	Credits
ACC 121	Accounting Principles I	4
BUS 231	Professional Communications	3
BUS 261	Business Law I	3
CIT 110	Programming Logic and Design	3
CIT 210	Microsoft Office - Excel	3
CIT 213	Networking Technologies	4
COM 111	Public Speaking	4
DD 110	Basic Metallurgy	3
EET 221	Industrial Controls [1]	3
EET 232	Programmable Logic Controllers [1]	3
WSI 304	Marine Electronics	3
EGR 201	Statics [2]	3
EGR 202	Mechanics of Materials [2]	3
EGR 203	Dynamics [2]	4
MDK 445	Liquid Cargo Stowage	2
MFG 114	Machining II [3]	3
MFG 217	CNC Operations - Lathe [3]	4
MGT 241	Principles of Management	3
MGT 251	Human Resources Management	3
MNG 260	Maritime Machining	2
MNS 200	Naval Science II	2
MNS 250	Leadership and Ethics	2
RAM 155	Microcontroller Programming	3
Any Group 1 elective courses		

1 Prerequisite required: EET 221 Industrial Controls, EET 232 Programmable Logic Controllers, and EET 234 PLC Applications II are met by MNG 234 Electronic Fundamentals and may require an instructor signature
2 All other courses with a required prerequisite must be met by the course(s) required in the catalog
3 Prerequisite required: MFG 114 Machining II and MFG 217 CNC Operations - Lathe are met by MNG 260 Maritime Machining and may require an instructor signature