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# HANDBOOK

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DEPARTMENT OF MARINE ENGINEERING  
YEAR  
**2024**



**FACULTY OF ENGINEERING**  
GENERAL SIR JOHN KOTELAWALA DEFENCE  
UNIVERSITY

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[www.foe.kdu.ac.lk/department-of-marine-engineering/](http://www.foe.kdu.ac.lk/department-of-marine-engineering/)

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# Vision

Our vision is to fulfill the expectation of Sri Lanka Navy with utmost professionalism at highest degree of efficiency by incorporating new naval design and adhering best naval engineering practices

# Mission

Our mission is to produce a marine engineer who is equipped with high personal and professional capabilities and who by virtue of innovative knowledge, competency, training and self-discipline keeps with the requirement of a skilled marine engineer for the society and is a perfect match to perform expected job function.

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# 1. Introduction

The earth can be called as the blue planet since the majority of its surface is covered by water therefore maritime transportation has identified as the most energy effective means transportation and with 90 per cent of world trade being boat borne it's the base for our ultramodern life. Therefore, Maritime studies and engineering is a demanding field in any country, especially in island nations. Marine Engineers and Naval Architects are involved in designing, construction, installation, operation, maintenance and repairing of main propulsion engines and auxiliary machinery systems, which are common to any class of ships or offshore installations.

Marine Engineering is one of the most diverse subject fields, which combines with mechanical engineering, electrical engineering and structural engineering disciplines therefore, knowledge scope of a marine engineer should be extensive for a productive outcome.

Naval Architects design and develop solutions to a wide range of problems in the industry including hull designing, propulsion system designing and selection, performance optimization to powering systems.

## 1.1 Message from the Head of Department



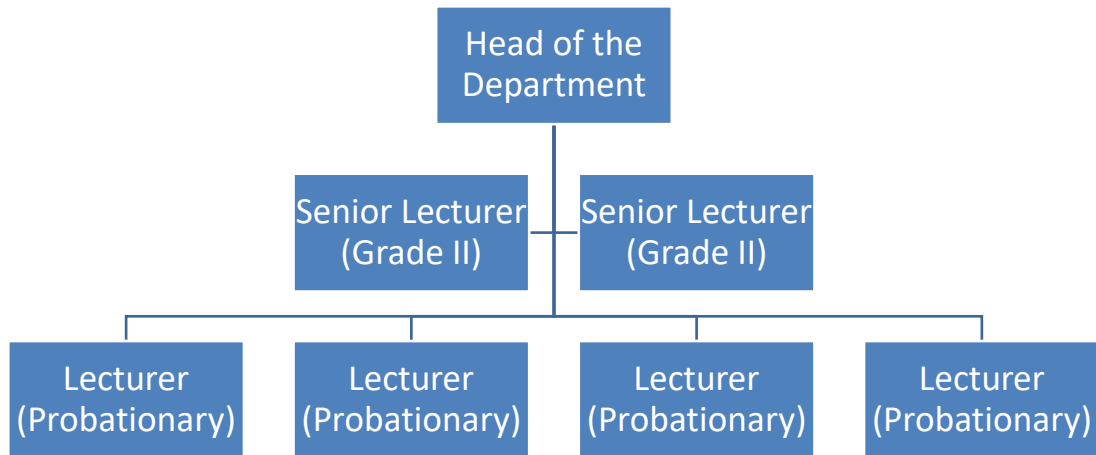
It is with great pleasure and pride that I have the opportunity to convey my message as the Head of this esteemed department. Our mission at the Department of Marine Engineering is to foster excellence in education, research, and professional development within the maritime industry. As we continue to navigate through the dynamic waters of technological advancements and global challenges, our commitment to innovation, integrity, and collaboration remains unwavering.

In this handbook, you will find a comprehensive guide outlining our department's policies, procedures, and resources designed to support your academic and professional journey. Whether you are a student, faculty member, or staff, I encourage you to familiarize yourself with the contents herein, as they reflect our collective dedication to excellence and success.

Together, let us uphold the values of excellence, integrity, and service as we propel the Department of Marine Engineering to new heights of achievement and distinction.

Captain (E) TADBP Tissaarachchi, USP  
MBA(MoT), BSc(Mar.Eng)DS, CEng(I), MIET, AMIE (SL)

## 1.2 Department Organogram



## 1.3 History of the Department

The Department of Marine Engineering at General Sir John Kotelawala Defence University (KDU) has a rich and illustrious history dating back to its establishment. Originally founded in year 1991 to meet the growing demands of the maritime industry in Sri Lanka and specially in Sri Lanka Navy, the department has since evolved into a leading institution for education, research, and training in marine engineering.

Since its inception, the department has been committed to providing students with a comprehensive understanding of marine engineering principles and practices. Over the years, it has continuously adapted its curriculum to keep pace with advancements in technology and industry standards, ensuring that graduates are well-equipped to tackle the challenges of the maritime sector.

Through a combination of rigorous academic programs, state-of-the-art facilities, and hands-on training opportunities, the Department of Marine Engineering at KDU has earned a reputation for excellence. Its graduates are highly sought after by industry leaders both locally and internationally, making significant contributions to the advancement of the maritime industry worldwide. Up to now more than 300 graduated as marine engineers and employing worldwide as CEO's, professors, academics, Department Heads and Esteemed Engineers.

In addition to its academic pursuits, the department is actively engaged in research and development activities aimed at addressing key challenges facing the maritime sector. From sustainable energy solutions to innovative vessel design, faculty members and students alike are at the forefront of cutting-edge research initiatives that have the potential to shape the future of marine engineering.

As we look to the future, the Department of Marine Engineering at KDU remains committed to its mission of providing world-class education, conducting groundbreaking research, and serving as a beacon of excellence in the field of marine engineering.

## 2. Staff

The Head of Department is the principal executive officer responsible for both academic and non-academic administration of the Department. The other academic staff members assist the Head of the Department to conduct day to day administration in the capacity of coordination of programmes, projects, field visits, training and etc. The laboratories are properly maintained by respective laboratory instructors and Technical Officers with the help of other staff attached to each laboratory.

### 2.1 Head of the Department



**TADBP TISSAARACHCHI**

MBA(MoT), BSc(Mar.Eng) DS, CEng(I), MIET, AMIE (SL), AMIE(I)

Captain (E), Sri Lanka Navy

### 2.2 Senior Lecturers



**Eng. HGS HIKKADUWA**

BSc. M.Eng. AMIE (SL), AMIE (I)

Commander (Retd) – Sri Lanka Navy



**NVL De Silva**

MBA (MoT), MSc MarEng, BSc(DS) MarEng, CEng (I), AMIE (SL)

Commander (E) – Sri Lanka Navy



## 2.3 Lecturer (Probationary)



**KREMSB Ekanayake**

BTech Mech Eng, CEng (I), AMIE (SL),  
AMIE (I)

Lieutenant Commander (E) – Sri Lanka Navy



**LAKR Athukorala**

BSc. in Naval Architecture and Marine  
Engineering, AMIE (SL), AMIE (I), CEng (I)

Lieutenant Commander (E) – Sri Lanka Navy



**RDMHM Ariyaratne**

BSc Mar. Eng, CEng (I), AMIE (SL), AMIE (I)

Lieutenant Commander (E) – Sri Lanka Navy



**MCH Chandrasiri**

BSc (Hons) in Marine Engineering, AMIE (SL),  
AMIE (I), CEng (I)

Lieutenant Commander (E) – Sri Lanka Navy



**MM Kothalawala**

B.Sc. (Hons) in Marine Engineering, AMRINA

Lecturer (Probationary)

### 3. Degree Programme

The Department of Marine Engineering at General Sir John Kotelawala Defence University proudly offers two distinguished undergraduate programmes: Bachelor of Science of Engineering (Hons) in Marine Engineering and Bachelor of Science of Engineering (Hons) in Naval Architecture & Marine Engineering. The Marine Engineering programme focuses on the design, operation, and maintenance of shipboard mechanical and electrical systems. In contrast, the Naval Architecture & Marine Engineering programme combines principles of design, structure, and operation of ships and marine vessels. Both programmes are meticulously designed to equip students with theoretical knowledge and practical skills, preparing them for dynamic careers in the maritime industry.

#### 3.1 Structure

Both degree programmes are structured to span four years, encompassing a blend of theoretical coursework, hands-on laboratory sessions, and practical training to ensure a well-rounded education.

The Marine Engineering programme delves into the intricacies of marine machinery and systems, focusing on the operation, maintenance, and management of these components essential for the maritime sector. It prepares students for careers in marine engineering related fields.

The Naval Architecture & Marine Engineering programme is tailored to those interested in ship design, construction, and operation. It covers a broad spectrum, from the fundamentals of naval architecture, hydrodynamics, and material science to advanced subjects in ship design, safety, and maritime law, aiming to produce graduates capable of tackling challenges in shipbuilding and maritime engineering.

Each programme is carefully crafted to meet the demands of the maritime industry, ensuring graduates are not only academically proficient but also ready to address real-world engineering challenges.

#### 3.2 Curriculum

The curriculum of the Department of Marine Engineering at General Sir John Kotelawala Defence University is meticulously designed to equip students with comprehensive knowledge and practical skills essential for a career in the maritime industry.

Both degree programmes are carefully nurtured to make sure that it is fulfilling the Institute of Engineers Sri Lanka's requirements.

### 3.3 Student Research

Under the guidance of dedicated faculty mentors, students embark on investigative journeys that involve literature reviews, data collection, experimentation, and analysis. These research endeavors often result in the development of innovative solutions to complex maritime challenges, addressing issues such as ship design optimization, marine pollution mitigation, and maritime safety enhancement.

### 3.4 Programme Coordinators

<b>Sr. No,</b>	<b>Degree Programme</b>	<b>Coordinator</b>	<b>Contact No.</b>
01	BScEngHons in Marine Engineering	Cdr (E) HGS Hikkaduwa (Retd)	
02	BScEngHons in Naval Architecture & Marine Engineering	LCdr (E) RDMHM Ariyaratne	0710219485

### 3.5 Level Coordinators

<b>Sr. No.</b>	<b>Level</b>	<b>Coordinator</b>	<b>Contact No.</b>
01	01 (Semester 01 & 02)	Cdr (E) NVL De Silva	
02	02 (Semester 03 & 04)	LCdr (E) RDMHM Ariyaratne	0710219485
03	03 (Semester 05 & 06)	LCdr (E) KREMSB Ekanayake	0710219492
04	04 (Semester 07 & 08)	LCdr (E) MCH Chandrasiri	0710219328

### 3.6 Awards

The Department of Marine Engineering at KDU's Faculty of Engineering has been honored with the prestigious Commendation Certificate at the Sri Lanka National Quality Award Ceremony for the outstanding contributions in the Small-Scale Education sector.

## 4. Facilities

In terms of infrastructure, the department is well equipped with necessary laboratory and a fully-fledged workshop facility for practical sessions and student projects.

### 4.1 Laboratories

Marine Laboratory was first established in 2005 with limited facilities/ available resources, in view of providing better knowledge of marine equipment and main parts of marine machineries to marine engineering undergraduates. Marine Engineering Laboratory was then improved several times with the help of Sri Lanka Navy and was provided heavy, light marine diesel engines and diesel alternators, which were used in Fast Missile Vessels and Fast Gun Boats, in 2007.

A working cut model of a diesel engine installed at Fast Gun Boat was handed over in 2010 by Naval Dockyard, Trincomalee and cut models of main engine components were included in 2011 with the purpose of deepening the knowledge of operation and working principles of Marine machineries/ auxiliaries and propulsion systems.

An engine bay was established as an additional section to the marine laboratory in early 2012 and presently carrying out practical sessions in dismantling, starting and stopping procedures. Furthermore, this engine bay is equipped with modern tools for dismantling, assembling and inspection of engine components and variety of most common engine types in modern propulsion context namely MTU, CUMMINS, MAN and a ZF gearbox.

To accommodate for emerging training requirements of marine engineers and modern ship technologies, the department established a live marine diesel engine simulator and an Engine Room Simulator. This Marine Diesel Engine, NIIGATA (Model – 6M26ZEG) along with its gearbox was acquired by EX – A 522 ship of Sri Lanka Navy.

Further, steering gear apparatus installed at the Marine Machinery Operation & Simulation Laboratory to demonstrate the steering system of a ship.

A well-equipped Ship Design and Simulation Laboratory, Propulsion and Control Laboratory, Marine Engine Testing & Measuring Laboratory and Hydro static Laboratory is under establishing period by utilizing newly purchased equipment and available resources.

To attain the knowledge and exposure on small craft powering, P 129 Inshore Patrol Craft of Sri Lanka Navy was undertaken and presently utilized for undergraduates to experience a real – time experience.



*Figure 1: Hydraulic Marine Steering Gear Apparatus*



*Figure 2: Propulsion and Control Laboratory*



*Figure 3: Marine Engine Simulator*

#### **4.2 Other Facilities**

A fully equipped computer laboratory is readily available to the students with following licensed software installed.

- a. NAVCAD
- b. Orca 3D
- c. GHS
- d. Rhinoserus
- e. Matlab 2020
- f. Solidworks 2018
- g. AutoCAD
- h. Maxsurf (Student Version)
- i. Abaqus Student Version
- j. Ansys Academic Research
- k. NX CAM
- l. Solid Edge

- m. Altium Designer
- n. OrCAD
- o. SAP 2000
- p. PS CAD
- q. ETAP

## 5. Societies

The Marine Engineering Society (MR ES) of General Sir John Kotelawala Defense University was established in 2020 by the Department of Marine Engineering. It serves as a platform to develop professional Marine Engineers, and to enhance the teamwork and leadership skills of the undergraduates. Since then, it has been adding vivid experiences to the student life and a greater platform for the undergraduates by organizing guest lectures, workshops, competitions, corporate social responsibility outreach activities, industrial day and exhibitions with the blessings of the university. These activities increase the creativity and soft skills of the students and facilitates the development of a Marine Engineer that responsible to the society.

### 5.1 Our Objectives

- a. To introduce modern and trending concepts in different engineering aspects to undergraduates.
- b. To increase the exposure to the industrial and research environment.
- c. To encourage undergraduates to enter the reach culture in military, government, and private sectors
- d. To enhance and improve academic performances and self-learning skills of the undergraduates.
- e. To improve the interest in community services through CSR projects



## **6. Other Useful Information**

### **6.1 Student Projects**

The Department of Marine Engineering at General Sir John Kotelawala Defence University showcases an array of innovative student projects that embody excellence and creativity in maritime engineering. These projects, conceived and executed by aspiring engineers under the guidance of experienced faculty, cover diverse areas within the maritime domain and other relevant fields.

From designing and building small-scale prototypes of marine vessels to developing cutting-edge technologies for navigation and propulsion systems, students engage in hands-on learning experiences that bridge theoretical knowledge with practical applications. Additionally, students often tackle real-world challenges faced by the maritime industry, addressing issues such as environmental sustainability, safety enhancements, and efficiency improvements.

### **6.2 Field Visits**

The undergraduates of the department are keen to visit various ship building industries such as Colombo Dockyard PLC, BAFF Polymech Pvt Ltd and Neil Marine (Pvt) Ltd. Further, as Marine Engineers it is vital to have knowledge on gas turbines and steam boilers. Hence, industrial visits are arranged to various power generation plants such as Norochcholai Lakvijaya Power Station, Keralapitiya Yugadanavi and Lakdhanavi power stations. These visits are under close supervision of department academic staff and the officials of particular stations. On completion of visit undergraduates are required to submit comprehensive report regarding the knowledge obtained and these reports are evaluated by Department academic staff. The evaluated results are published on their final results as a non-GPA subject.

### 6.3 DICB Members

Department Industry Consultative Board (DICB) is a vital bridge between academia and industry. Comprising esteemed professionals, experts, and leaders from the marine engineering and various other sectors. DICB fosters collaboration, innovation, and relevance within the department's curriculum and research endeavors.

DICB plays a pivotal role in ensuring that the academic programs offered align with industry standards, emerging trends, and technological advancements. Through regular meetings, consultations, and feedback sessions, the board provides valuable insights, recommendations, and guidance to enhance the quality and applicability of education and research outputs.

Moreover, DICB facilitates industry partnerships, internships, and placement opportunities for students, promoting experiential learning and industry exposure. This symbiotic relationship benefits both academia and industry by producing competent graduates equipped with the knowledge, skills, and mindset required to excel in the dynamic field of marine engineering.

By nurturing this collaboration, the Department Industry Consultative Board contributes significantly to the Department of Marine Engineering's mission of producing well-rounded professionals poised to make meaningful contributions to the maritime industry.

## 7. Curriculum Outlines

### 7.1 Curriculum Outline - Bachelor of the Science of Engineering Honours in Marine Engineering Degree Programme - Intake 40

#### Semester 1

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
CE1102	Fundamentals of Civil Engineering	C	2	-	-
EE1102	Fundamentals of Electrical Engineering	C	2	-	-
ET1102	Basic Electronics	C	2	-	-
MA1103	Mathematics	C	3	-	-
ME1103	Workshop Technology	C	3	-	-
ME 1112	Engineering Drawing	C	2	-	-
DL1131	English : Basic Study Skill (Engineering)	C	-	1	-
DL1341	Sinhala for Beginners	HE	-	1	-
DL1351	Tamil for Beginners				-
IT1012	Basic Computer Programming & Networking	C	2	-	-
MS 1014	Military Studies	C	-	-	4
	<b>Total</b>		<b>16</b>	<b>2</b>	<b>4</b>

#### Semester 2

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
<b>MR 1202</b>	<b>Marine Engineering Materials</b>	<b>C</b>	<b>2</b>	<b>-</b>	<b>-</b>
CE 1222	Structural Mechanics I	C	2	-	-
CE 1232	Fluid Mechanics I	C	2	-	-
MA 1002	Mathematical Software	C	2	-	-
MA 1203	Calculus	C	3	-	-
ME 1202	Fundamentals of Thermodynamics	C	2	-	-
ME 1222	Applied Mechanics	C	2	-	-
DL 2141	English Advanced Study Skills (Engineering)	C	-	1	-
EN 2012	Art & Tradition	HE I	-	2	-
EN 2022	Photography				
EN 2032	International Relations				
EN 2072	Western Dancing				
MS 2024	Military Studies	C	-	-	4
	<b>Total credits</b>		<b>15</b>	<b>3</b>	<b>4</b>
<i>Total Credits up to end of Semester 2</i>			<b>31</b>	<b>5</b>	<b>8</b>

#### Semester 3

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
<b>MR 2113</b>	<b>Engineering Knowledge (Motor) I</b>	<b>C</b>	<b>3</b>	<b>-</b>	<b>-</b>
<b>MR 2122</b>	<b>Marine CAD Fundamentals</b>	<b>C</b>	<b>2</b>	<b>-</b>	<b>-</b>
CE 2102	Structural Mechanics II	C	2	-	-

EE 2122	Electrical Measurements and Electronic Instrumentation	C	2	-	-
MA 2103	Advanced Calculus	C	3	-	-
ME 2112	Applied Thermodynamics	C	2	-	-
ME 2123	Manufacturing Systems	C	3	-	-
ME 2142	Mechanics of Machines I	C	2	-	-
DL 3151	English: Writing & Speaking Skills (Engineering)	O	-	-	-
EN 2042	Human Rights	HE II	-	2	-
EN 2052	History and Development of Engineering				
EN 2062	Psychology for Engineers				
MS 3032	Strategic & Defence Studies	C	-	-	2
MS 3044	Military Studies	C	-	-	4
	<b>Total credits</b>		<b>19</b>	<b>2</b>	<b>6</b>
<i>Total Credits up to end of Semester 3</i>			<b>50</b>	<b>7</b>	<b>14</b>

#### Semester 4

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGP A
MR 2011	Industrial Visits & Report Writing	C	-	1	-
MR 2203	Marine Power Transmission	C	3	-	-
MR 2222	Marine Electrical Technology	C	2	-	-
MR 2232	Finite Element Analysis for ship structures	C	2	-	-
MA 2203	Numerical Methods & Complex Variables	O	-	-	-
ME 2203	Physical Metallurgy	C	3	-	-
ME 2213	Control Systems Engineering	C	3	-	-
ME 2222	Heat & Mass Transfer	C	2	-	-
ME 2243	Mechanics of Machines II	C	3	-	-
DL 4161	English: Research Writing Skills (Engineering)	C	-	1	-
MS 4064	Military Studies	C	-	-	4
	<b>Total credits</b>		<b>18</b>	<b>2</b>	<b>4</b>
<i>Total Credits up to end of Semester 4</i>			<b>68</b>	<b>9</b>	<b>18</b>

#### Semester 5

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MR 3113	Ship Hydrostatics and Stability	C	3	-	-
MR 3142	Engineering Knowledge (General) I	C	2	-	-
MR3153	Ship Control Systems & Automation	C	3	-	-
MR 3162	Marine Fluid Power Systems	C	2	-	-
CE 3142	Professional Ethics	C	2	-	-
MA 3102	Applied Statistics	O	-	-	-
ME 3123	Machine Elements in Design	C	3	-	-
MF 3122	Principles of Management	C	2	-	-
	<b>Total credits</b>		<b>17</b>	<b>-</b>	<b>-</b>
<i>Total Credits up to end of Semester 5</i>			<b>85</b>	<b>9</b>	<b>18</b>

**Semester 6**

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MR 3203	Ship Construction	C	3	-	-
MR 3212	Engineering Knowledge (Motor) II	C	2	-	-
MR 3233	Ship Resistance & Propulsion	C	3	-	-
MR 3263	Engineering Knowledge (General) II	C	3	-	-
MR 3282	Research Methodology	C	2	-	-
ME 3273	Computational Fluid Dynamics	C	3	-	-
MF 3112	Business Economics & Accounting	C	2	-	-
	<b>Total credits</b>		<b>18</b>	<b>-</b>	<b>-</b>
<b>Total Credits up to end of Semester 6</b>			<b>103</b>	<b>9</b>	<b>18</b>

**Industrial Training**

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MR 3016	Industrial Training		-	6	-
<b>Total Credits up to end of Industrial Training</b>			<b>103</b>	<b>15</b>	<b>18</b>

**Semester 7**

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MR 4206	Final Year Project	C	*	-	-
MR 4103	Ship Controllability & Vibration	C	3	-	-
MR 4164	Marine Vehicle Design**	C	4	-	-
MR 4172	Project Management	C	2	-	-
NA 4133	Sea Keeping and Maneuverability	C	3	-	-
MR 4152	Heating, Ventilation and Air Conditioning I	TE 1	2		
NA 4102	Docking & Hull Maintenance				
NA 4112	Ship Operational and Building Economics				
MF 4112	Human Resource Management & Industrial Relations	C	2	-	-
	<b>Total credits</b>		<b>16</b>	<b>-</b>	<b>-</b>
<b>Total Credits up to end of Semester 7</b>			<b>119</b>	<b>15</b>	<b>18</b>

**Note:** 1. \*This module continues to next semester and evaluated in semester 08.

2. \*\*Individual Design Project

3. The semester effective credit load is 18 (16+2)

**Semester 8**

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MR 4206	Final Year Project	C	6	-	-
MR 4212	Maritime Law	C	2	-	-
MR 4223	Steam Plant & Gas Turbine	C	3	-	-
MR 4273	Industrial Engineering	C	3	-	-
MR 4242	International Safety Management & Engine Room Resource Management	TE 2	2	-	-
MR 4252	Fire Engineering and NBC Safety				
MR 4262	Heating, Ventilation and Air Conditioning II				
NA 4232	Marine Superintendency				
	<b>Total credits</b>		<b>16</b>	<b>-</b>	<b>-</b>
<i>Total Credits up to end of Semester 8</i>			<i>135</i>	<i>15</i>	<i>18</i>

**Note:** The semester effective credit load is 14 (16 - 2)

**ADVANCED MILITARY TRAINING**

CODE	MODULE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MS 9074	Advanced Military Training	C	-	-	15
	<b>Total credits</b>		<b>-</b>	<b>-</b>	<b>15</b>
<i>Total Credits up to end of Advanced Military Training Phase</i>			<i>135</i>	<i>15</i>	<i>33</i>

**FINAL CREDITS SUMMARY**

TOTAL CREDITS	GPA	NGPA	MGPA
<b>150</b>	<b>135</b>	<b>15</b>	<b>33</b>

## 7.2 Curriculum outline - Bachelor of the Science of Engineering Honours in Naval Architecture & Marine Engineering Degree Programme - Intake 40

### Semester 01

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
CE 1102	Fundamentals of Civil Engineering	C	2		
EE 1102	Fundamentals of Electrical Engineering	C	2		
ET 1102	Basic Electronics	C	2		
MA 1103	Mathematics	C	3		
ME 1103	Workshop Technology	C	3		
ME 1112	Engineering Drawing	C	2		
DL 1131	English: Basic Study Skills (Engineering)	C		1	
DL 1341	Sinhala for beginners	HE		1	
DL 1351	Tamil for beginners				
IT 1012	Basic Computer Programming and Networking	C	2		
MS 1014	Military Studies	C			4
	<b>Semester Credits</b>		<b>16</b>	<b>2</b>	<b>4</b>
	<b>Total Credits up to Semester 1</b>		<b>16</b>	<b>2</b>	<b>4</b>

### Semester 02

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 1202	Regulatory Frameworks for Ship Design	C	2		
NA 1213	Fundamentals of Ship Building Materials	C	3		
CE 1222	Structural Mechanics I	C	2		
CE 1232	Fluid Mechanics I	C	2		
MA 1203	Calculus	C	3		
MA 1002	Mathematical Software	C	2		
ME 1202	Fundamentals of Thermodynamics	C	2		
ME 1222	Applied Mechanics	C	2		
DL 2141	English: Advanced Study Skills (Engineering)	C		1	
EN 2012	Art & Tradition	HE I		2	
EN 2022	Photography				
EN 2032	International Relations				
EN 2072	Western Dancing				
MS 2024	Military Studies	C			4
	<b>Semester Credits</b>		<b>18</b>	<b>3</b>	<b>4</b>

	<b>Total Credits up to Semester 2</b>	<b>34</b>	<b>5</b>	<b>8</b>
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### Semester 03

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 2102	Principles of Ship Design	C	2		
NA 2123	Ship Stability	C	3		
MR 2122	Marine CAD Fundamentals	C	2		
CE 2102	Structural Mechanics II	C	2		
EE 2102	Electrical Machines and Drives I	C	2		
MA 2103	Advanced Calculus	C	3		
ME 2112	Applied Thermodynamics	C	2		
ME 2142	Mechanics of Machines I	C	2		
DL 3151	English: Writing & Speaking Skills (Engineering)	O		-	
EN 2042	Human Rights	HE II		2	
EN 2052	History & Development of Engineering				
EN 2062	Psychology for Engineers				
MS 3032	Strategic & Defence Studies	C			2
MS 3044	Military Studies	C			4
	<b>Semester Credits</b>		<b>18</b>	<b>2</b>	<b>6</b>
	<b>Total Credits up to Semester 3</b>		<b>52</b>	<b>7</b>	<b>14</b>

### Semester 04

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 2011	Industrial Visits & Report Writing	C		1	
NA 2203	Ship Resistance	C	3		
MR 2203	Marine Power Transmission	C	3		
MR 2232	Finite Element Analysis for Ship Structures	C	2		
MA 2203	Numerical Methods and Complex Variables	C	3		
ME 2203	Physical Metallurgy	C	3		
ME 2222	Heat & Mass Transfer	C	2		
DL 4161	English: Research Writing Skills (Engineering)	C		1	
MS 4064	Military Studies	C			4
	<b>Semester Credits</b>		<b>16</b>	<b>2</b>	<b>4</b>
	<b>Total Credits up to Semester 4</b>		<b>68</b>	<b>9</b>	<b>18</b>

### Semester 05

	MODULE TITLE	CATEGORY	CREDITS
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MODULE CODE			GPA	NGPA	MGPA
NA 3113	Ship Structures	C	3		
NA 3123	General Arrangement Design	C	3		
MR 3142	Engineering Knowledge (General ) I	C	2		
MR 3173	Ship Propulsion	C	3		
CE 3142	Professional Ethics	C	2		
MA 3102	Applied Statistics	C	2		
MF 3122	Principles of Management	C	2		
	<b>Semester Credits</b>		<b>17</b>	<b>0</b>	<b>0</b>
	<b>Total Credits up to Semester 5</b>		<b>85</b>	<b>9</b>	<b>18</b>

### Semester 06

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 3223	Ship Design Methods	C	3		
MR 3203	Ship Construction	C	3		
MR 3263	Engineering Knowledge (General) II	C	3		
MR 3273	Engineering Knowledge (Motor)	C	3		
MR 3282	Research Methodology	C	2		
ME 3273	Computational Fluid Dynamics	C	3		
MF 3112	Business Economics & Accounting	C	2		
	<b>Semester Credits</b>		<b>19</b>	<b>0</b>	<b>0</b>
	<b>Total Credits up to Semester 6</b>		<b>104</b>	<b>9</b>	<b>18</b>

### Industrial Training

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 3016	Industrial Training	C		6	
	<b>Credits</b>		<b>0</b>	<b>6</b>	<b>0</b>
	<b>Total Credits up to Industrial Training</b>		<b>104</b>	<b>15</b>	<b>18</b>

### Semester 07

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 4206	Final Year Project	C	*		
NA 4102	Docking & Hull Maintenance	TE I	2		
NA 4112	Ship Operational and Building Economics				
MR 4152	Heating, Ventilation and Air Conditioning I				

NA 4124	Applied Ship Design **	C	4		
NA 4133	Sea Keeping & Maneuverability	C	3		
MR 4103	Ship Controllability & Vibration	C	3		
MR 4172	Project Management	C	2		
MF 4112	Human Resource Management & Industrial Relations	C	2		
	<b>Semester Credits</b>		<b>16</b>	<b>0</b>	<b>0</b>
	<b>Total Credits up to Semester 7</b>		<b>120</b>	<b>15</b>	<b>18</b>
Note : * This module continues to next semester and evaluated in semester 8					
: ** Individual Design Project					
: The semester effective credit load is 18 (16+2)					

### Semester 08

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
NA 4206	Final Year Project	C	6		
NA 4212	Environmental Pollution and Waste Management System	TE II	2		
NA 4222	Warship Design				
MR 4242	International Safety Management & Engine Room Resource Management				
MR 4262	Heating, Ventilation and Air Conditioning II				
NA 4232	Marine Superintendency	C	2		
MR 4212	Maritime Law	C	2		
MR 4223	Steam Plant & Gas Turbine	C	3		
	<b>Semester Credits</b>		<b>15</b>	<b>0</b>	<b>0</b>
	<b>Total Credits up to Semester 8</b>		<b>135</b>	<b>15</b>	<b>18</b>
Note : The semester effective credit load is 13 (15-2)					

### Semester 09

MODULE CODE	MODULE TITLE	CATEGORY	CREDITS		
			GPA	NGPA	MGPA
MS 9074	Advance Military Training	C			15
	<b>Semester Credits</b>		<b>0</b>	<b>0</b>	<b>15</b>
	<b>Total Credits by the end of Semester 9</b>		<b>135</b>	<b>15</b>	<b>33</b>

#### FINAL CREDITS SUMMARY

TOTAL CREDITS	GPA	NGPA	MGPA
<b>150</b>	<b>135</b>	<b>15</b>	<b>33</b>

