Response to DIPAE's Evaluation Report for the

BSc Nautical Science Programme

September 2016

14th September 2016,

Members of the Programme Evaluation Committee of DIPAE

Re : Response to the Evaluation Report of the BSc Nautical Science Programme

Dear Members of the Programme Evaluation Committee of DIPAE,

I would like to extend my gratitude for the productive meeting and constructive discussions that incurred during your visit on 7th & 8th September 2016, as well as for your feedback and suggestions that were received through your report dated 9th September 2016.

Following your suggestions and recommendations, we have made a number of changes that aim to further improve the programme.

More specifically:

1. The level of the Mathematics courses has been increased to reflect the level required of a Bachelor Degree programme. An additional Mathematics course MANS- 103, Mathematics II, has been added in the second semester in order to prepare the students adequately for the subsequent courses that require knowledge of Trigonometry, Geometry and concepts of Differential Calculus, such as Celestial Navigation etc.

2. The number of hours for MANS- 104, Physics II has been increased in order to successfully cover the required material of Electricity and Magnetism.

3. The number of teaching hours for MANS-112 COLREGS & MANS- 132 Deck Seamanship have been increased in order to cover the Syllabi in more depth following the Committee's suggestion.

4. The on board practical training has been modified already and the cadets will have to undertake practical training on the Ship at the end of the second semester during the Summer for 2 months while keeping the other two periods as planned. This modification was suggested by industry and more specifically the members of the Board of Governors. Based on this all cadets are guaranteed a placement on board a ship.

EFQM ■ Member
Shares what works.

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Furthermore we will adopt your suggestion of having two Coordinators for this programme, the first being Dr. Marios Alaeddine a Ph.D holder in Mechanical Engineering and the second being Captain Kyriacos Olympiou who has endless industry experience.

Additionally, following the suggestions of the Committee regarding research, Intercollege has established an agreement with MARINEM (a company specializing in Naval Research), where students and faculty will have the opportunity to undertake research topics and actual hands on experience in Naval research projects.

 The updated programme pathway is shown in Appendix A and the corresponding semester breakdown in Appendix B. Appendix C contains the course descriptions that have been amended to represent the Committees suggestions. Finally in Appendix D are the projects reflecting Marinem's activities.

Regarding the Committee's comments on the Entry Criteria and that due to the nature of the programme that students should be proficient swimmers, we have adopted this suggestion and it will be a requirement for all prospective students.

We are confident that the improvements that have been made to the programme, especially with regard to the curriculum, will result in a competitive academic programme. We always welcome suggestions for further improvement, especially after the programme runs for a full cycle and delivers its first graduates.

I am looking forward to your positive response on the approval of the BSc in Nautical Science. Your prompt response will be greatly appreciated as we are eager to run the programme for the forthcoming semester.

Yours sincerely,

Dr. Stylianos Mavromoustakos
Executive Director

APPENDIX A

Programme Pathway

		Course Title & Code	Hours	ECTS Credits
Nautical Science (4 year Bachelor of Science)				
1.	MANS-101	Mathematics I	4	5
2.	MANS-102	Physics I	3	4
3.	ESP-103M	Maritime English	3	5
4.	MANS-111	Navigation Fundamentals	4	7
5.	MANS-112	COLREGS – Safety of Watch	4	6
6.	MANS-113	Communications	2	3
7.	MANS -103	Mathematics II	2	3
8.	MANS-104	Physics II	3	4
9.	MANS-114	Celestial Navigation	4	5
10.	MANS-115	Simulation BTM - BRM	3	3
11.	MANS-131	Safety on Board	2	4
12.	MANS-132	Deck Seamanship	5	7
13.	MANS-133	Naval Architecture - Design	3	4
14.	MANS-211	Applied Navigation	6	7
15.	MANS-212	Marine Meteorology	4	6
16.	MANS-213	Nautical Electronic Instruments	4	6
17.	MANS-214	RADAR	2	4
18.	MANS-215	Marine Engines	2	3
19.	MANS-216	ECDIS	2	4

20.	MANS-311	GMDSS	6	7
21.	MANS-331	Marine Legal Issues	4	5
22.	MANS-332	Human Resource Management	2	4
23.	MANS-333	Leadership and Administration	2	4
24.	MANS-334	Crisis Management – Risk Assessment	2	4
25.	MANS-391	Computers	4	6
26.	MAGC-301	Ship Management	2	3
27.	MANS-321	Stability - Stresses	6	7
28.	MANS-322	Cargo Transport	6	7
29.	MANS-335	MARPOL – Ballast Water Management	2	4
30.	MANS-336	Emergencies and SAR	2	5
31.	MANS-337	Ship's Inspections	2	4
32.	MAGC-402	Safety and Risk Management	2	5
33.	MANS-411	ARPA – Watch Keeping	4	3
34.	MANS-412	Simulation - BMS	2	3
35.	MANS-431	Maritime Law	6	3
36.	MANS-432	ISPS - SSO	2	3
37.	MANS-490	Bachelor Thesis	---	10
38.	MANS-491	Chartering - Insurance	4	3

Total Credits	180
On Board	60
Total	240

APPENDIX B

Semester Breakdown

Semester Breakdown

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
			Semester A					
1.	Required	Mathematics I	MANS-101	4	50 min.	15	60	5
2.	Required	Physics I	MANS-102	3	50 min.	15	45	4
3.	Required	Maritime English	ESP-103M	3	50 min.	15	45	5
4.	Required	Navigation Fundamentals	MANS-111	4	50 min.	15	60	7
5.	Required	COLREGS – Safety of Watch	MANS-112	4	50 min.	15	60	6
6.	Required	Communications	MANS-113	2	50 min.	15	30	3
			Semester B					
7.	Required	Mathematics II	MANS-103	2	50 min.	15	30	3
8.	Required	Physics II	MANS-104	3	50 min.	15	45	4
9.	Required	Celestial Navigation	MANS-114	4	50 min.	15	60	5
10.	Required	Simulation BTM - BRM	MANS-115	3	50 min.	15	45	3
11.	Required	Safety on Board	MANS-131	2	50 min.	15	30	4
12.	Required	Deck Seamanship	MANS-132	5	50 min.	15	75	7
13.	Required	Naval Architecture - Design	MANS-133	3	50 min.	15	45	4

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
				Semester C				
1.	Required	Applied Navigation	MANS-211	6	50 min.	15	90	7
2.	Required	Marine Meteorology	MANS-212	4	50 min.	15	60	6
3.	Required	Nautical Electronic Instruments	MANS-213	4	50 min.	15	60	6
4.	Required	RADAR	MANS-214	2	50 min.	15	30	4
5.	Required	Marine Engines	MANS-215	2	50 min.	15	30	3
6.	Required	ECDIS	MANS-216	2	50 min.	15	30	4
				Semester D				
SHIP								30

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
					Semester E			
1.	Required	GMDSS	MANS-311	6	50 min.	15	90	7
2.	Required	Marine Legal Issues	MANS-331	4	50 min.	15	60	5
3.	Required	Human Resource Management	MANS-332	2	50 min.	15	30	4
4.	Required	Leadership and Administration	MANS-333	2	50 min.	15	30	4
5.	Required	Crisis Management – Risk Assessment	MANS-334	2	50 min.	15	30	4
6.	Required	Computers	MANS-391	4	50 min.	15	60	6
					Semester F			
7.	Required	Ship Management	MAGC-301	2	50 min.	15	30	3
8.	Required	Stability - Stresses	MANS-321	6	50 min.	15	90	7
9.	Required	Cargo Transport	MANS-322	6	50 min.	15	90	7
10.	Required	MARPOL – Ballast Water Management	MANS-335	2	50 min.	15	30	4
11.	Required	Emergencies and SAR	MANS-336	2	50 min.	15	30	5
12.	Required	Ship's Inspections	MANS-337	2	50 min.	15	30	4

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
SHIP								
		Semester G						30
		Semester H						
1.	Required	Safety and Risk Management	MAGC-402	2	50 min.	15	30	5
2.	Required	ARPA – Watch Keeping	MANS-411	4	50 min.	15	60	3
3.	Required	Simulation - BMS	MANS-412	2	50 min.	15	30	3
4.	Required	Maritime Law	MANS-431	6	50 min.	15	90	3
5.	Required	ISPS - SSO	MANS-432	2	50 min.	15	30	3
6.	Required	Bachelor Thesis	MANS-490	---	---	---	---	10
7.	Required	Chartering - Insurance	MANS-491	4	50 min.	15	60	3

APPENDIX C

Programme Pathway

COURSE DESCRIPTION

Course Title	COLREGS – Safety of Watch
Course Code	MANS-112
Course Type	Required
Level	1st Cycle
Year / Semester	1st Year, Fall Semester
Teacher's Name	Dr. Andreas Frangos

ECTS	6	Theory	Laboratory	Simulation	Tutorial
		3	---	---	1

Course Purpose and Objectives	The main objectives of the course are to: • familiarize the trainees with the lights, shapes and sounds of Collisions avoidance Regulations • explain the context of the COLREGS • underline the importance of proper application of the COLREGS code • introduce the relevant to the Safety of Watch provisions of the STCW • present the standards for safe Watch keeping
Learning Outcomes	After completion of the course students are expected to be able to: • identify the lights, shapes and sounds of the COLREGS as amended • implement without hesitation the COLREGS code • apply the rules in complicated situations • value the meaning of the relevant to the Safety of Watch provisions of the STCW • appreciate the Safety of Watch standards

Prerequisites	None	Required	None

Course Content	• Lights and Shapes that are exhibited according to the COLREGS code • Lights and Shapes of vessels of different length and type • Lights and Shapes of vessels according to the operation they are engaged with • Sounds in different visibility conditions • Sounds, Lights and Shapes at port • Demonstrate an understand of rules / Study Cases • Contents of STCW as amended • Watch keeping at sea and at port • Guidance regarding the fitness for duty • Guidance regarding watch keeping arrangements and principles to be observed
Teaching Methodology	Lectures, in-class assignments, sound and video equipment, computer, projector
Bibliography	**Required Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
Wright, C.H.	The Collision Regulations	Glasgow, Brown, Son & Ferguson	1989	978-085174566 4

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
IMO	COLREG 1972	IMO	2003	978-92-801-41672
IMO	STCW as amended	IMO	2011	978-92-801-15284

Assessment	Homework, in-class assignments, projects, exams, final exam.
Language	English

COURSE DESCRIPTION

Course Title	Deck Seamanship
Course Code	MANS-132
Course Type	Required
Level	1st Cycle
Year / Semester	1st Year, Spring Semester
Teacher's Name	Dr.Andreas Frangos

ECTS	7	Theory	Laboratory	Simulation	Tutorial
		4	---	---	1

Course Purpose and Objectives	The main objectives of the course are to: • exhibit the various types of vessels • present the vessels typical dimensions • display the function of the various parts and spaces of a vessel • describe the purpose of deck machinery and equipment introduce the basic knots
Learning Outcomes	After completion of the course students are expected to be able to: • distinguish the various types of vessels • locate the ship's dimensions from the vessel's blueprints • name the different parts of the ship and realize their operational contribution • comprehend the proper way to handle the deck machinery and equipment • properly stow, maintain and utilize ropes and wires

Prerequisites	None	Required	None

Course Content	• Vessel description • Compartments - Spaces • Hatch covers • Boats • Maintenance of Life Saving floating devices • Ropes and wire ropes description • Ropes and wires proper stowage, maintenance and safe utilization • Weight lifting systems • Derricks and cranes • Mooring procedures • Vessel's mooring and anchoring maneuvers • Utilization of anchors, chain and cable stowage • Knots & Splicing
Teaching Methodology	Lectures, in-class assignments, sound and video equipment, computer, projector
Bibliography	**Required Textbooks/Reading:**

Bibliography	**Required Textbooks/Reading:**				
	Authors	**Title**	**Publisher**	**Year**	**ISBN**
	Danton, G.	The Theory and Practice of Seamanship	London, Routledge	1996	0-415-14200-8

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Witherby	21st Century Seamanship	Witherby	2015	978-1-85609-632-4
NP 100	The Mariner's Handbook	Hydrographer of the Navy	1989	

Assessment	Homework, in-class assignments, projects, exams, final exam.
Language	English

COURSE DESCRIPTION

Course Title	Mathematics I
Course Code	MANS-101
Course Type	Required
Level	1st Cycle
Year / Semester	1st Year, Fall Semester
Teacher's Name	Dr. Marios Alaeddine

ECTS		Theory	Laboratory	Simulation	Tutorial	Seminar
	5	3	-----	-----	1	----

Course Purpose and Objectives	The main objectives of the course are • basic arithmetical operations; • arithmetical expressions; • basic algebra • linear and quadratics equations and methods of solution • basic statistical methods
Learning Outcomes	After completion of the course students are expected to be able to: • be proficient in calculations involving the basic arithmetical operations and algebra essentials; • deal with arithmetical expressions involving the use of brackets; • construct graphs of linear and polynomial expressions • solve problems in algebra. • perform basic interpolation of functions

Prerequisites	None	Required	MANS -102,

Course Content	**1. ALGEBRA** • sums, differences, products and quotients of simple algebraic expressions, including simple fractions • expansion of the square and the cube, the difference of squares and cubes, the summation of cubes • extraction of common factors, simplification of expressions and collection of common terms • solution of problems leading to linear equations, solution of systems of two equations in two unknowns • quadratic equations • 'absolute error' and 'relative error' • percentage errors in areas and volumes **2. GRAPHS** • draws and labels axes • defines 'origin', 'abscissa', 'ordinate', and describes how a point is identified by its Cartesian co-ordinates • determines suitable scales from given data

- plots points, given their Cartesian co-ordinates
- draws a smooth curve through plotted points
- given the abscissa, reads the value of the ordinate and vice versa
- extracts values from graphs of ship's data
- draws graphs of given functions
- solves simultaneous equations graphically

3. PROPORTION , VARIATION AND INTERPOLATION

- defines the ratio of two quantities, and uses the notation $a : b = a/b$
- uses the notation $a:b :: c:d$ and states that it is equivalent to $a/b = c/d$
- given any three quantities of a proportional equation, calculates the fourth
- explains that map and drawing scales are expressed as ratios
- solves problems involving scales
- states that two quantities which vary so as to maintain a constant ratio are said to vary directly
- states that a quantity is said to vary inversely as another when it varies directly as the reciprocal of the other
- states that a quantity is said to vary jointly as a number of others when it varies directly as their product
- solves problems on direct, inverse and joint variation explains what is meant by linear interpolation
- shows how linear interpolation is an application of proportion
- uses linear interpolation to find intermediate values in tables such as ullage tables and deadweight scales
- given intermediate values, performs inverse interpolation to find the value of the argument
- uses differences in inverse interpolation
- describes the arrangement and use of critical tables
- interpolates in tables with two arguments
- given the value of one argument, uses inverse interpolation to find the value of the other argument
- performs linear extrapolation
- explains, with the aid of a diagram, how the linear assumption may lead to error in the interpolated value
- states that the intervals of arguments used in navigational tables are sufficiently small that linear interpolation produces negligible errors

| Teaching Methodology | Lectures and Assignments |

Bibliography	**Required Textbooks/Reading:**				
	Authors	**Title**	**Publisher**	**Year**	**Library Access**
	M. Sullivan and M. Sullivan III	Precalculus	Pearson	2017 7th Edition	Print copy at library

Recommended Textbooks/Reading:

	Authors	**Title**	**Publisher**	**Year**	**Library Access**
	M. Bittinger, J. Beecher, D. Ellenbogen, J. Penna	Precalculus: Graphs and Models	Pearson	2017 6th Edition	Print copy at library

Assessment	Midterm Exam, Final Exam, Assignments
Language	English

COURSE DESCRIPTION

Course Title	Physics II			
Course Code	MANS-104			
Course Type	Required			
Level	1st Cycle			
Year / Semester	1st Year, Spring Semester			
Teacher's Name	Dr. Marios Alaeddine			
ECTS	4	Theory	Laboratory	Simulation	Tutorial
		2	1	---	----
Course Purpose and Objectives	The main objectives of the course are to: • introduce students to the basic concepts of thermal physics and waves • to assist in the development of strong problem-solving skills • to help cultivate critical thinking in the approach to learning • consolidate the basic principles discussed in the theoretical section of the course with laboratory experiments			
Learning Outcomes	After completion of the course students are expected to: 1. Describe simple harmonic motion, calculate the variables in simple harmonic motion, analyze the period of oscillations with regard to mass and spring stiffness in mass-spring systems. 2. Understand forced oscillations and the importance of resonance in nature and engineering applications. 3. Be able to mathematically express a traveling wave and a standing wave as a result of interference. 4. Understand the principles of electricity and magnetism			
Prerequisites	MANS-102	Required		None
Course Content	1. Simple harmonic motion and Resonance 2. Transverse and longitudinal waves, wave characteristics, interference and standing waves 3. Sound waves, speed of sound, standing waves, Doppler effect 4. Electricity 5. Magnetism Experiments Simple Harmonic Motion Standing waves in string Speed of sound and resonance tube Electric Circuits			

	Magnetic devices
Teaching Methodology	Lectures, Tutorials, Laboratory Work
Bibliography	**Required Textbooks/Reading:**

Required Textbooks/Reading:

Authors	Title	Publisher	Year	Library Access
D. Giancoli	Physics, Principles with applications	Pearson	7th Edition	Copy

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	Library Access
Ben Crowell	Conceptual	http://www.lightandmatter.com/	Ben Crowell	Free to download

Assessment	Midterm Exam, Final Exam, Homework Assignments, Lab reports
Language	English

COURSE DESCRIPTION

Course Title	Mathematics II
Course Code	MANS-103
Course Type	Required
Level	2nd Cycle
Year / Semester	1st Year, Spring Semester
Teacher's Name	Dr. Marios Alaeddine

ECTS		Theory	Laboratory	Simulation	Tutorial	Seminar
	3	2	-----	-----	---------	----

Course Purpose and Objectives	The main objectives of the course are • trigonometric functions and operations; • basic geometry
Learning Outcomes	After completion of the course students are expected to be able to: • be proficient in calculations involving the basic arithmetical operations and algebra essentials; • deal with arithmetical expressions involving the use of brackets; • construct graphs of linear and polynomial expressions • solve problems in algebra. • perform basic interpolation of functions

Prerequisites	MANS-101	Required	None

Course Content	**1. TRIGONOMETRY** • describes the measurement of angle in degrees, minutes and seconds of arc • describes the measurement of angle in circular measure and defines the radian • states that 1 radian is approximately equivalent to 57.3° • defines sine, cosine and tangent as ratios of the sides of a right-angled triangle • defines the reciprocal ratios cosecant, secant and cotangent • states the complementary pairs of ratios • solves problems reducible to right-angled triangles • states the values of trigonometrical functions for angles 0°, 30°,45 °, 60°, 90° (using scientific calculators) • determines the trigonometrical functions for angles of any size • draws graphs of the trigonometrical functions over the range -360° to 360° • states the period of the functions sine, cosine and tangent • uses trigonometrical formula sin2a + cos2a = 1 and sina/cosa = tana in solving simple identities

- solves problems involving the application of objectives on right angled triangle /oblique plane triangles using the cosine and sine formulae
- explains the ambiguous case when using the sine formula

2. MENSURATION
- revises calculations for the perimeters and areas of:
  - a square
  - a rectangle
  - a parallelogram
  - a trapezium
  - a rhombus
  - a triangle
  - a circle
- calculates the areas of sectors and segments of a circle
- calculates the surface areas and volumes of:
  - a cube
  - a rectangular and a triangular prism
  - a cylinder
  - a right circular cone
  - a sphere
- Length and Angle;
- use of instruments to construct simple figures;
- calculate the perimeter, area and volume of rectangular figures;
- angles of triangle and angles formed by the intersection of lines;
basic algebra and solution of linear and quadratics equations

3. GEOMETRY
- distinguishes, equilateral, isosceles, right-angled and scalene triangles
- defines acute, obtuse and reflex angles
- states the sum of the angles of a plane triangle
- proves the property of exterior angles
- explains what is meant by congruent triangles
- solves problems involving the application of objectives
- describes the properties of similar triangles
- constructs triangles from given data
- explains the ambiguous case, given two sides and a non-included angle
- states Pythagoras's theorem, without proof, and uses it to calculate one side of a right-angled triangle, given the other two
- states the relationships between angles formed by a transversal to two parallel straight lines
- defines an arc, a sector, a chord and a segment of a circle
- determines arc length, given radius and angle of sector
- states that angles subtended by a chord in the same segment of a circle are equal
- states that the angle subtended by a chord at the center of a circle is twice the angle subtended at the circumference
- states that the angle subtended at the circumference by a diameter is a right angle

	• defines a quadrilateral, a parallelogram, a trapezium and a rhombus
	• calculates areas of sectors and segments of a circle
	• explains and applies Simpson's first, second and five-eighth rule for their use in the computation of areas, volumes and centroids (no derivations required)
	• constructs:
	  - a perpendicular to a line from a given point
	  - a perpendicular to a line at a given point on the line
	  - a tangent to a circle
	  - the perpendicular bisector of a line
	  - the bisector of an angle
	• divides a line into a given number of equal parts
	• determines:
	  - the circumcentre of a triangle
	  - the in-center of a triangle
	• defines a median of a triangle
	• defines the centroid of a triangle and determines centroids by construction
	• given three points and the angles subtended by pairs of those points at a position, determines the position by plotting
	
	4. SPHERICAL TRIANGLES
	• defines a great circle, small circle, pole and a small circle
	• defines a spherical triangle as a figure on the surface of a sphere bounded by arcs of three great circles
	• defines the angle between two great circles as the angle between the planes in which they lie
	• describes how the length of a side is measured as an angle
	• states that the sum of the angles of a spherical triangle exceeds $180°$ but is less than $540°$
	• states that no side exceeds $180°$
	• explain right-angled spherical triangles and their properties
	• explain Napier's rule for right angled spherical triangles and quadrantal spherical triangles
	• explain polar triangles and their application in the solution of spherical triangles
	• given two parts of a right-angled spherical triangle, uses Napier's rules to solve for any other part
	• states what is meant by a quadrantal triangle 6
	• given two parts of a quadrantal triangle, uses Napier's rules to solve for any other part solves problems involving oblique spherical triangles by use of the cosine and sine formulae
	• uses the haversine formula to solve right-angled spherical triangle and explains its advantage over the sine and cosine formulae
	solves problems on spherical triangles by dropping a perpendicular and solving the resulting right-angled triangle

Teaching Methodology	Lectures and Assignments

Bibliography	**Required Textbooks/Reading:**				

Authors	Title	Publisher	Year	Library Access
M. Sullivan and M. Sullivan III	Precalculus	Pearson	2017 7th Edition	Print copy at library

Authors	Title	Publisher	Year	Library Access
H. Anton, I. Bivens, S. Davis III	Calculus	Wiley	2012 10th Edition	Print copy at library

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	Library Access
M. Bittinger, J. Beecher, D. Ellenbogen, J. Penna	Precalculus: Graphs and Models	Pearson	2017 6th Edition	Print copy at library

Assessment	Midterm Exam, Final Exam, Assignments
Language	English
Assessment	Midterm Exam, Final Exam, Assignments
Language	English

APPENDIX D

Marinem's Projects

Project	Programme	Status	Duration	Short Description	Project Total Funding	MARINEM income
People Localization for save ship evacuation during emergency - Lynceus	FP7 Programme	Completed	36	The objective of the project was to investigate and demonstrate ultra-low power wireless body-area-network technologies for enabling unobtrusive localisation and tracking of people for onboard and overboard search and rescue as well as for safe evacuation of ships during emergency.	2,536,114.90 €	316,791.43 €
Innovative Ship Energy Management for Pollution and Fuel Consumption control - SmartShip	FP7 Programme	Rejected	36	The objective of the SmartShip project is to investigate and demonstrate ultra-low power wireless sensor network technologies for enabling real time and automatic monitoring and continuous control of various energy efficiency parameters and emission footprint in ships. The SmartShip technology aims to revolutionise current energy management and pollution control practices through the development of beyond the state-of-the-art real-time system with its associated monitoring and decision support tools which will significantly contribute towards optimising energy performance, fuel efficiency and operation safety. Through the development of robust wireless sensor technologies, advanced sensor data processing and fusion techniques, innovative decision support processes, low powered microelectronics and digital signal processing algorithms, SmartShip will provide the ship management with a powerful management system which will help taking the best decisions towards improving energy efficiency and reducing fuel consumption and emissions. The SmartShip novel technology will be transferred into the		

Project	Programme	Status	Duration	Budget	Description
				7,260,975.00 €	SME-driven market segments of Heating Ventilation and Airconditioning (HVAC) monitoring, lighting and plant auxiliaries monitor and control, reliability and machine system optimization and predictive maintenance. The proposed research will generate high societal and market impact for the European SMEs, and will enable major technological breakthroughs in the areas of ultra-low power wireless systems, wireless and sensor electronics, digital signal processing, energy efficiency and decision support systems.
An innovative people localisation system for safe evacuation of large passenger ships - Lynceus2Market	HORIZON 2020	Running	36	582,500.00 €	The objective of the LYNCEUS2MARKET project is to improve and optimise current technologies and prototypes developed by the LYNCEUS consortium in order to deliver innovative wireless devices that can be easily integrated in new and existing passenger ship infrastructure providing a low-cost and robust safe evacuation system. This innovative system will enable on-board and overboard people localisation, person activity monitoring, real-time disaster escalation monitoring and adaptive decision support.
Development of an autonomous Container Data Onboard Recorder - ConDOR	HORIZON 2020	Rejected	36		The main purpose of the ConDOR Project is to design and develop a small size, sophisticated, portable, and autonomous device; the ConDOR will be installed inside each container and will be able to maintain various cargo-related data, including weight, the ambient conditions, the location of the container onboard the vessel and/or acceleration. It will also include sensors for detecting hazardous materials or explosive gases, movement and for measuring vibrations.
Increased Resilience and Reduced Risk in Maritime Emergencies -	HORIZON 2020	Passed the 1st stage	36		The MIRROR project contributes to reducing risks and increasing resilience in maritime emergency situations through focused innovations and nowledge creation in ship design, marine equipment and information technologies. Focus is on cruise and RoPax vessels, due to their high risks related to life,

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MIRROR				property and the environment, but various developments have impact beyond these vessels. Various stages in the life-cycle of these vessels are addressed in different operational contexts.
Marine Linkages Towards an Advanced Cooperative United Space - MARELINK	HORIZON 2020	Rejected	36	This project primarily aims to build a "strategic pan European partnership" to promote, develop and further exploit the cooperation of EU marine actors. The proposed project aims, mainly, to identify and analyse the real barriers to integration of the various activities through a perspective and clear methodology, which will enhance compatibility, egulatory, environmental, safety, societal and legal issues taking into consideration the needs and the priorities of the various marine activities and the different European countries. Therefore, the main goal of the project is to bring together representatives and experts of the various marine activities (e.g. renewable energy offshore companies, ports, maritime operators, experts on maritime spatial planning, research institutes for marine studies and institutes related to archaeological and environmental issues of the oceans) with local communities and policy sector in order to discuss their needs and priorities and envision a common future of the oceans' marine space.
Blow Growth Centre of Excellence in the South-Eastern Mediterranean - TRITON	HORIZON 2020		12	he TRITON consortium aims to create a Blue Growth Centre of Excellence in the South-eastern Mediterranean based in Cyprus to act as an enabler of Excellence in Marine and Maritime issues in the broader South-eastern Mediterranean. The Centre will be aligned to the overall Smart Specialization Strategy for Cyprus (S3CY) and the European priorities on specific pillars with competitive advantages to the Cypriot economy. Focusing on sectors such as energy, tourism, transport and shipping, TRITON Centre of Excellence will seek partnering

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Project	Programme	Status	Duration	Description		
				relationships with well-known European institutions that will assist to the transfer of knowledge, co-develop sustainability and research programs, handover best practices and consult towards the creation of a critical mass of infrastructure and human capital in the region.		70,657.97 €
Maritime Clusters supporting Research & Innovation to enhance Blue Economy Entrepreneurship - CoRINThos	Interreg MED Programme	Completed	12	Tackled R&D gaps as a driving factor of maritime clusters, identifying and contextualizing them within Blue Economy sectors and geographical eco systemic synergies, at national and transnational level.	328,844.04 €	
Mediterranean Network for Custom Procedures and Simplification of Clearance in Ports - MEDNET	Interreg MED Programme	Completed	36	Aimed to establish and operate a network of port authorities and transport experts in the Mediterranean region, focusing on the exchange of knowledge and expertise with regard to port and custom procedures and simplification of clearance for vessels and cargoes. This is expected to enhance the common understanding and promote the introduction of information systems to ports operation and potentially to other intermodal modes.	2,881,780.79 €	92,179.44 €
Blue Integrated and Smart Growth in Mediterranean Basin - BrightICT	Interreg MED Programme	Rejected	36	The BrightICT project will empower a selective group of partners that represent different economic or policy sectors and it will create a sustainable network which through an integrated territorially based cooperation approach will promote a more resource-efficient, competitive and bluer economy in the Mediterranean area, based on the use of the state of the art of the new ICT technologies.	Total eligible budget 172,400.00 € ERDF 146,540.00 € Co-financing rate 85.00 % Partner	2,105,800.00 €

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					contribution 25,860.00 €
Promoting innovative NEtworks and cLusters for mArine renewable energy power Grid synergies in Mediterranean Coasts and iSlands - PELAGOS	Interreg MED Programme	Passed 1st stage	36	The project aims to increase the innovation capacities and cooperation of BE ctors in MED through promoting a transnational cluster, bringing them together in order to develop a shared understanding of the challenges and collectively devise workable solutions. PELAGOS will establish a Cluster in Blue Energy that will promote novel technologies and provide a mix of support activities to beneficiaries such as technology providers, enterprises, financial operators, authorities, NGOs end citizens. The project will enhance internationalization of the Cluster members through a range of activities that will jointly identify opportunities of BE in Mediterranean insular and coastal regions. This will be achieved through fine-tuning of existing know-how, development of skills, identification of common business opportunities and facilitation of growth by bridging providers and users in targeted maritime industries. The development of this emerging sector can become an important part of the blue economy, fuelling economic growth in coastal regions and create new, high-quality jobs.	2,396,104.00 € Total eligible budget 238,890.00 € ERDF 203,056.50 € Co-financing rate 85.00 % Partner contribution 35,833.50 €
PROmoting security and safeTy by crEating a MED cLUster on Maritime Surveillance - PROteuS	Interreg MED Programme	Passed 1st stage	36	PROteuS project aims at exploiting the growth potential of the emerging Maritime Surveillance industry that can play a crucial role in the socio-economic development of MED area and in the generation of new job opportunities. This objective will be addressed through the establishment of a MED MS Cluster, fostering innovation and R&D capacities, knowledge and technology transfer, as well as	2,230,312.00 € Partner contribution 30,181.20 € Total eligible budget 201,20 ERDF 171,026.80 €8.00 €

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				transnational cooperation among the involved key MS actors, focusing on maritime security and safety mechanisms in MED area. The Cluster will offer customized services in order to identify and exploit technologies related to MS and will achieve transferability through the creation of concrete linkages with other Blue Growth sectors that face common challenges and growth opportunities.	114,750.00 €
Environmental Protection and Legislation of Balkan Med ports and surrounding areas based on Innovative Tools and Methods - ECOPORTIL	Interreg BALKAN Med Programme	Submitted on 15/04/2016	30	ECOPORTIL aims to improve the environmental quality of ports and support their sustainability, implementing modern methodologies and good practices according to EU and national legislation as well as innovative tools for the training and capacity building of stakeholders in the ports and nearby coastal zones as a prevention measure of pollution and preservation of natural maritime resources. The central scope of the Project is to capitalize the results of project TEN-ECOPORT and the delivered analysis on EU and national standards; to exploit existing methods and monitoring systems at ports and coastal areas in order to provide all essential advances between monitoring and regulation requirements. There will take into account the needs of ports in order to create productive methodologies (common shared guidelines) for implementation of EU and national legislations and there will be provided special education and training processes.	878,000.000 €	
NAYS	Interreg GR-CY Programme	Submitted on 22/04/2016	30	Στόχος του ΝΑΥΣ είναι να αξιοποιήσει τις ναυτιλιακές πληροφορίες προσέγγισης κρουαζιερόπλοιων στους λιμένες υποδοχής Ελλάδας – Κύπρου (λιμάνια εφαρμογής: Ηράκλειο, Ρόδος, Λάρνακα, Λεμεσός) για την αποτελεσματικότερη διαχείριση των εφοδιαστικών αλυσίδων για την τροφοδοσία και εξυπηρέτηση της κρουαζιέρας. Το έργο θα αναλύσει τις προτιμήσεις των επιβατών και θα τις συνδέσει με τοπικές	999,126.63 €	136,383.56 €

	EMFF Work Programme 2016	Successful Starts on 01/09/2016	24	υπηρεσίες και αγορές προϊόντων, με στόχο την ενίσχυση της συνεργασίας με τοπικούς φορείς. Επιπρόσθετα, θα δημιουργήσει ένα δίκτυο συνεργασίας και ανταλλαγής των ναυτιλιακών εταιρειών κρουαζιέρας και της τοπικής αγοράς με τους λιμένες εφαρμογής, με το σχεδιασμό μιας ηλεκτρονικής πλατφόρμας ανταλλαγής πληροφοριών και παροχής υπηρεσιών για την υποστήριξη των στόχων του έργου.
Maritime Clusters Network for Blue Growth - BlueNET				The main goal of the BlueNET Project is to facilitate SMEs collaboration and networking in the Mediterranean and Black Sea regions. Project activities will focus on building up the necessary tools to support transnational networking activities and diffuse their use at territorial level.

The organization of joint communication events will play an important role to raise awareness of local governments, innovation facilitators and SMEs on blue growth issues. Furthermore, the exchange of best practices and the setting up of a joint database will provide information on concrete opportunities of cooperation for SMEs, R&I centers and industrial clusters. Project stakeholders will have the possibility of accessing tools that will make easier the identification of strategic areas and the planning of investments in fast growing sectors, that could have a positive economic impacts on local economic and employment development.

At the end of the Project, a common methodology to collect technology features and innovation needs in each maritime cluster and establish cooperation links on joint innovation paths will be developed and tested. Moreover, a strong cooperation among the partners will grow during the Project and will give rise to a structured process for transnational cluster development, that is expected to continue after project cycle |
| MENTOR - Blue | EMFF Work | Submitted on | 24 | The general objective of this proposal is to set up a regional   722,504 € |

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Career Centre of Eastern Mediterranean and Black Sea	Programme 2016	31/05/2016

platform – the Blue Career Centre - for dialogue between business stakeholders, education & training institutions, research organizations, regulators, the civic society as well as the EU and the Union for the Mediterranean allowing them to jointly develop and carry out measures to close the skill gap, tackle unemployment and make "blue careers" more attractive to the young people of the area. Working closely and actively within the Marine and Maritime Cluster in the Eastern Mediterranean and the Black Sea the Centre will act as a facilitator and mediator of change, encouraging the blue sector industries & businesses to take on leadership roles and see beyond immediate and individual company interests. This way the Cluster will respond to the major concerns related to the skills gap and the shortage of qualified professionals in the respective sectors.

As it has been repeatedly stressed out; at forums and conferences around Europe and at various levels; our coasts and seas have the potential to deliver growth and jobs in the coming years. But as it has also been highlighted in order to achieve Blue Growth i.e. the sustainable growth in the marine and maritime sectors we need highly qualified and skilled professionals. Yet many Blue Sectors are still experiencing difficulties in finding the right employees and many expect that these difficulties will continue throughout the foreseeable future. It is for these reasons that four Marine and Maritime Economic Activities (MEAs) have been selected – at this stage - as of strategic importance in the EM & BS region:

1. Maritime Transport (i.e. shipping, ports, shipbuilding and ship-repairs)
2. Cruise Tourism,
3. Marine Aquaculture (mainly in the Eastern Mediterranean)

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				and 4. Offshore oil and gas. Of these, Maritime Transport is a mature MEA whereas aquaculture and cruise tourism are growing MEAs and offshore oil and gas is an emerging MEA in this area.	
Innovative solutions for marine aquaculture in the Mediterranean basin - Inno-Aqua-MED	EMFF Work Programme 2016		24	The Inno-Aqua-MED will develop investment plans for technical innovation in aquaculture by mobilising public-private partnerships into three bankable/ready-to invest demonstration projects that will increase the competitiveness and image of the sector, improve the quality and nutritional value of the product and decrease the ecological footprint. Based on current sectoral mapping, benchmarking and stakeholder consultation the demonstration projects will focus on: 1. Sustainable innovations in the production chain. 2. Blue biotechnologies for mariculture. 3. Multi-stakeholder offshore operations.	
GOVERNBLUE	Industrial relations and social dialogue	Rejected	18	The project aims to investigate the future of industrial relations in the three future Mediterranean clusters, to develop a new agenda in the social dialogue, based on current economic situation in each area, with the future aim of reaching a new stage of social dialogue and multisector industrial relations, overcoming the current situation of dispersion governance and individual characteristics of each sector.	251,535.38 €