

# VELS



INSTITUTE OF SCIENCE, TECHNOLOGY  
& ADVANCED STUDIES (VISTAS)

(Deemed to be University under section 3 of UGC Act, 1956)

**NAAC** ACCREDITED WITH 'A' GRADE

Velan Nagar, P.V.Vaithiyalingam Road, Pallavaram, Chennai – 600 117

Ph.: 044-2266 2501 / 02 / 03, Fax : 044-2266 2513

E.mail : [vistas@velsuniv.ac.in](mailto:vistas@velsuniv.ac.in) Website : [www.velsuniv.ac.in](http://www.velsuniv.ac.in)

## **SELF-ASSESSMENT REPORT (SAR)**

For Accreditation of Undergraduate Engineering  
Programme (Tier-I)

**B.E., Marine Engineering**



**Submitted to**



NBCC Place, 4th Floor East Tower, Bhisham Pitamah Marg,  
Pragati Vihar New Delhi 110003

Ph.: +91(11)24360620-22, 24360654 Fax: +91(11) 24360682

E-mail: [membersecretary@nbaind.org](mailto:membersecretary@nbaind.org)

**April'2019**

**SAR CONTENTS**

Serial Code & Link to the Item	Item	Page No.
<b>PART A</b>	<b>Institutional Information</b>	1 – 5
<b>PART B</b>	<b>Criteria Summary</b>	
	<b>Program Level Criteria</b>	
1	Vision, Mission and Program Educational Objectives	6 – 9
2	Program Curriculum and Teaching – Learning Processes	10 – 100
3	Course Outcomes and Program Outcomes	101 - 181
4	Students' Performance	182 – 195
5	Faculty Information and Contributions	196 – 200
6	Facilities and Technical Support	201 – 202
7	Continuous Improvement	203 – 204
	<b>Institute Level Criteria</b>	
8	First Year Academics	205 – 213
9	Student Support Systems	214 - 215
10	Governance, Institutional Support and Financial Resources	216 - 244
<b>PART C</b>	<b>Declaration</b>	245
<b>ANNEXURES</b>	I) Programmes offered – VISTAS	
	II) Professional Societies / Chapters and Organizing Engineering events	
	III) Publications	
	IV) Participation in Inter-institute events by students	

**Part A: Institutional Information****I. Institutional Information****1. Name and Address of the Institution:**

School of Maritime Studies  
Vels Institute of Science, Technology & Advanced Studies (VISTAS)  
Off. Rajiv Gandhi Salai, OMR (IT Highway),  
Near Navalur,  
Thalambur, Chennai – 600 130

**2. Name and Address of the Affiliating University:**

Vels Institute of Science, Technology & Advanced Studies (VISTAS)  
Velan Nagar, P.V. Vaithilingam Road,  
Pallavaram, Chennai – 600 117.

**3. Year of establishment of the Institution:**

2005

**4. Type of Institution:**

Institute of National Importance	<input type="checkbox"/>
University	<input type="checkbox"/>
Deemed University	<input checked="" type="checkbox"/>
Autonomous	<input type="checkbox"/>
Any other (Please Specify)	<input type="checkbox"/>

**5. Ownership Status:**

Central Government	<input type="checkbox"/>
State Government	<input type="checkbox"/>
Government Aided	<input type="checkbox"/>
Self Financing	<input type="checkbox"/>
Trust	<input checked="" type="checkbox"/>
Society	<input type="checkbox"/>
Section 25 Company	<input type="checkbox"/>
Any Other (Please specify)	<input type="checkbox"/>

**6. Other Academic Institutions of the Trust/Society/Company etc, if any:**

Name of the Institution(s)	Year of Establishment	Programs of Study	Location
Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai- 600117	2008	Please Refer – Annexure -I	Pallavaram, Chennai- 600117

**7. Details of all the programs being offered by the institution under consideration:**

SL.	Program Name	Year of Start	Intake	Increase in intake if any	Year of Increase	AICTE Approval	Accreditation Status
1.	B.E Marine Engineering	2005	120	-	-	F.No. Southern /2018-19/1-3710357081	-

## 8. Programs to be considered for Accreditation vide this application

S.No	Program Name
1.	B.E Marine Engineering

## 9. Total Number of Employees

## A. Regular Employees (Faculty and Staff):

Items		CAY		CAYm1		CAYm2	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M	14		14		15	
	F	5		5		5	
Faculty in Maths, Science & Humanities	M	1		1		1	
	F	2		1		1	
Non Teaching Staff	M	15		16		15	
	F	5		4		4	

## B. Contractual Staff Employees (Faculty and Staff):

Items		CAY		CAYm1		CAYm2	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
Faculty in Maths, Science & Humanities	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
Non Teaching Staff	M	-	-	-	-	-	-
	F	-	-	-	-	-	-

**10. Total number of Engineering Students:**

Item	CAY	CAYm1	CAYm2
<b>Total No. of Boys</b>	<b>80</b>	<b>80</b>	<b>80</b>
<b>Total No. of Girls</b>	-	-	-
<b>Total No. of Student</b>	<b>80</b>	<b>80</b>	<b>80</b>

**11. Vision of the Institution:**

Vels Institute of Science, Technology and Advanced Studies(VISTAS) **Strives to be an Epitome of Excellence in Higher Education** by effectively providing its students with high standards of education and rigorous training with ample scope for the all round development of personality of the students and to promote positive change and social justice for the betterment of society.

**12. Mission of the Institution:**

- By providing them various kinds of learning processes such as Experimental learning, Experienced learning, Independent learning, Problem based learning, Project based learning, e-learning, Participatory learning and Computer Aided Learning (CAL).
- By actively promoting and preserving higher value and ethics in education apart from sensitizing them towards the societal responsibility.
- By making them to do original, quality and innovative research which can be proven by measurable outcome.
- By providing LMS, KMS and EMS to all the students apart from governance through MIS
- By instilling the spirit of equity, communal and social harmony, sense of tolerance among students apart from enriching them with right citizenship and love for the nation through outreach and extension activities.

**13. Contact Information of the Head of the Institution and NBA coordinator, if designated:**

Name: **Capt. N. Kumar**

Designation: **Director**

Mobile No: **+91 9361852531**

Email Id: **director.smts@velsuniv.ac.in**

**NBA Coordinator, if designated:**

Name: **Capt. N. Kumar**

Designation: **Director**

Mobile No: **+91 9361852531**

Email Id: [director.smts@velsuniv.ac.in](mailto:director.smts@velsuniv.ac.in)

CRITERION 1	Vision, Mission and Program Educational Objectives	50
-------------	--	----

### 1.1 State the Vision and Mission of the Department and Institute (5)

#### Vision of the Institute

Vels Institute of Science, Technology and Advanced Studies(VISTAS) **Strives to be an Epitome of Excellence in Higher Education** by effectively providing its students with high standards of education and rigorous training with ample scope for the all round development of personality of the students and to promote positive change and social justice for the betterment of society.

#### Mission of the Institute

- By providing them various kinds of learning processes such as Experimental learning, Experienced learning, Independent learning, Problem based learning, Project based learning, e-learning, Participatory learning and Computer Aided Learning (CAL).
- By actively promoting and preserving higher value and ethics in education apart from sensitizing them towards the societal responsibility.
- By making them to do original, quality and innovative research which can be proven by measurable outcome.
- By providing LMS, KMS and EMS to all the students apart from governance through MIS
- By instilling the spirit of equity, communal and social harmony, sense of tolerance among students apart from enriching them with right citizenship and love for the nation through outreach and extension activities.



**Department Vision**

- to provide Excellent quality leading Captains and Chief engineers in the shipping industry by innovating new technologies, consistent with its strategic goals and by realizing maximum efficiency through superior management.
- to make the university an epitome of excellence in higher education by effectively providing high quality education and rigorous training to students in multiple streams of choice with ample scope for all round development to make them excel in their profession for betterment in Society.

**Department Mission**

- to be an outstanding Academic Institution always aiming to impart comprehensive training to new aspirants to a maritime career,
- to select potential candidates and train them to be knowledgeable and competent marine engineers in conformance with global standards of the maritime industry,
- to develop Post Sea related training for the seafarers who seek higher certification and
- to continuously update our education and training program in accordance with the latest developments in the Maritime industry through proactive and progressive measures.

**1.2 State the Program Educational Objective (PEOs) (5)**

- Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills and global awareness in successful careers, and continue to improve their skills through lifelong learning and advanced studies;
- Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety other fields, and as licensed engineers in the merchant marine;

- Successfully combine fundamental engineering knowledge, core leadership skills and the practical experience gained at the Academy to turn ideas into reality for the benefit of society;
- Be influential members of multidisciplinary teams, creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products, and clearly communicating the work in an appropriate manner to their customers and colleagues; and
- Personally assume and actively encourage peers to uphold the professional, ethical, social and environmental responsibilities of their profession.

### **1.3 Indicate where the Vision, Mission and PEOs are published and disseminated among Stake Holders (10)**

#### **Internal Stake Holders**

1. Management
2. Head of the Institution
3. Faculty Members
4. Technical Staff
5. Non-Teaching Staff
6. Students

#### **External Stake Holders**

1. Parents
2. Employers
3. Industry
4. Alumni

The Vision and Mission Statements are published in

1. College Website
2. College Brochure

The Vision and Mission Statements are disseminated in

1. Main Notice Board
2. Department Notice Board

#### 1.4 State the process for defining the Vision and Mission of the department, and PEOs of the Program (15)

Considering the institutional Vision and Mission Statements of the department were defined by involving the stakeholders

1. SWOT Analysis was conducted by considering internal stakeholders including management and alumni
2. Quality education, Professional career, higher education, innovation and Creativity

#### 1.5 Establish consistency of PEOs with Mission of the Department (10)

PEO Statements	M1	M2	M3	Justification
PEO1	H	M	L	Mission 1 – Strongly Support Mission 2 – Strongly Support Mission 3 – Strongly Support Mission 4 – Strongly Support
PEO2	H	M	L	Mission 1 – Strongly Support Mission 2 – Likely Support Mission 3 – Strongly Support Mission 4 – Strongly Support
PEO3	H	M	L	Mission 1 – Strongly Support Mission 2 – Strongly Support Mission 3 – Strongly Support Mission 4 – Strongly Support
PEO4	H	M	L	Mission 1 – Strongly Support Mission 2 – Strongly Support Mission 3 – Strongly Support Mission 4 – Strongly Support
PEO5	H	M	L	Mission 1 – Strongly Support Mission 2 – Likely Support Mission 3 – Strongly Support Mission 4 – Likely Support

CRITERION 2	Program Curriculum and Teaching – Learning Process	100
-------------	--	-----

## 2.1 Program Curriculum (30)

### 2.1.1. State the process for designing the program curriculum (10)

#### Department of Marine Engineering

#### B.E Marine Engineering

- To get well versed in engineering concepts (mechanics, graphics & tools).
- To understand structures, mechanic of materials, hydraulics & TD concepts.
- To understand various deck machinery & electrical machinery onboard the ship.
- To understand MAM, safe maintenance of ships & electronics onboard of the ship.
- To understand the marine control system, marine IC engines & safe working practices.
- To understand marine refrigeration & air conditioning, advance MICE & basic naval architecture
- To understand the marine power plant operation, pumping system, advanced naval architecture, testing & protection of electrical system onboard the ship.
- Importance of FPF, marine boilers, legislation, leadership & ship security.

## 2.1.2. Structure of the Curriculum (5)

			Total Number of Credits:			190
Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – I</b>						
CC	15EMR001	Mathematics - I	3	0	0	2
CC	15EMR002	Electrical Engineering Basics	2	0	0	2
CC	15EMR003	Engineering Drawing	3	0	0	3
AECC	15EMR201	Technical English	3	0	0	2
AECC	15EMR202	Workshop Technology	3	0	0	2
AECC	15EMR203	Engineering Mechanics	4	0	0	3
AECC	15EMR204	Applied Mechanics Lab	0	0	2	1
DSE	15EMR101	Electrical Engineering Lab - Basic	0	0	3	2
SEC	15EMR251	Computer Science	1	0	0	1
SEC	15EMR252	Basic Workshop 1	0	0	6	6
<b>TOTAL</b>			<b>19</b>	<b>0</b>	<b>11</b>	<b>24</b>
Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – II</b>						
CC	15EMR004	Mechanics Of Materials	4	0	0	2
CC	15EMR005	Mathematics II	3	0	0	2
CC	15EMR006	Materials Science I	2	0	0	2
CC	15EMR007	Marine Machinery Drawing I	3	0	0	2
AECC	15EMR205	Pumps and Pumping Systems I	3	0	0	3
AECC	15EMR206	Thermodynamics I	4	0	0	3
AECC	15EMR207	Hydraulics Lab	0	0	1	1
DSE	15EMR102	Safe Working Practices	0	0	3	2
SEC	15EMR253	Strength of Materials Lab	0	0	1	1
SEC	15EMR254	Basic Workshop II	0	0	6	6
<b>TOTAL</b>			<b>19</b>	<b>0</b>	<b>11</b>	<b>24</b>

Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – III</b>						
CC	15CMRE31	Electric Motors and Starters I	4	0	0	3
CC	15CMRE32	Electronics I	5	0	0	4
CC	15CMRE33	Material Science II	3	0	0	2
CC	15EMR011	Marine Machine Drawing II	3	0	0	2
AECC	15EMR208	Deck Machinery	3	0	0	3
AECC	15EMR209	Thermodynamics II	4	0	0	3
AECC	15EMR210	Electrical Machines Lab I	0	0	2	2
AECC	15EMR211	Electronics I Lab	0	0	2	2
DSE	15EMR104	Advanced Marine Workshop(Deck/M/C)	0	0	4	3
<b>TOTAL</b>			<b>22</b>	<b>0</b>	<b>8</b>	<b>24</b>
Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – IV</b>						
CC	15EMR012	Electric Motors and Starters II	4	0	0	3
CC	15EMR013	Electronics II	5	0	0	4
CC	15EMR014	Thermal Engineering	3	0	0	2
AECC	15EMR212	Safe Maintenance on Ships	3	0	0	2
AECC	15EMR213	Marine Auxiliary Machinery	4	0	0	3
AECC	15EMR214	Electrical Workshop-Motors/Starters	4	0	0	4
AECC	15EMR229	Electronics II Lab	0	0	3	2
DSE	15EMR105	Advanced Marine Workshop (MAM I)	0	0	2	2
SEC	15EMR251	Lube Oil. Fuel Oil and Cooling Systems	2	0	0	2
<b>TOTAL</b>			<b>25</b>	<b>0</b>	<b>5</b>	<b>24</b>

Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – V</b>						
CC	15EMR015	Marine Internal Combustion Engineering I	5	0	0	4
CC	15EMR016	Control Systems for Marine Machinery	5	0	0	4
AECC	15EMR215	Marine Engineering Practice I	2	0	0	2
AECC	15EMR216	Marine Electrical Technology I	2	0	0	2
DSE	15EMR106	Marine Environmental Pollution Control	3	0	0	2
DSE	15EMR107	Seamanship Practical	0	0	2	1
DSE	15EMR108	Advanced Marine Workshop (MEP I)	0	0	5	4
GE	15EMR162	Seamanship and Commercial Geography	2	0	0	1
GE	15EMR163	Anti-Pollution Lab (In Advanced Mar W/S)	0	0	2	1
SEC	15EMR256	Control Engineering Lab	0	0	2	2
<b>TOTAL</b>			<b>19</b>	<b>0</b>	<b>11</b>	<b>23</b>
<b>SEMESTER – VI</b>						
CC	15EMR017	Marine Internal Combustion Engineering II	5	0	0	4
CC	15EMR018	Ship Construction	3	0	0	3
AECC	15EMR217	Refrigeration, Air-Conditioning & Ventilation Systems	3	0	0	3
AECC	15EMR218	Marine Electrical Technology II	2	0	0	2
AECC	15EMR219	Naval Architecture I	3	0	0	3
AECC	15EMR220	Mechanics of Machines	2	0	0	2
DSE	15EMR110	Advanced Marine Workshop- Refrigeration And Airconditioning Trainer	0	0	1	1
DSE	15EMR111	Electrical Lab II + Electrical Workshop	0	0	5	2
SEC	15EMR258	Ship-in-Campus- Diesel Engine Lab	0	0	4	2
SEC	15EMR259	Ship-in-Campus- Ship Construction	0	0	2	1
<b>TOTAL</b>			<b>18</b>	<b>0</b>	<b>12</b>	<b>23</b>

Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – VII</b>						
CC	15EMR019	Marine Power Plant Operation	4	0	0	4
CC	15EMR020	Monitoring And Protection Of Electrical Systems	3	0	0	2
CC	15EMR021	Electrical Testing and Measuring Equipment	2	0	0	1
AECC	15EMR221	Pumps And Pumping Systems II	3	0	0	3
AECC	15EMR222	Marine Engineering Practice II	2	0	0	2
AECC	15EMR223	Naval Architecture II	3	0	0	3
AECC	15EMR224	Advanced Marine Workshop (MEP II)	0	0	3	3
DSE	15EMR113	Advanced Marine Workshop (Electrical)	0	0	2	1
GE	15EMR167	Control Engineering Lab	0	0	3	2
SEC	15EMR260	Ship-in-Campus(Pumps and Auxiliaries)	0	0	3	2
SEC	15EMR261	ship-in-Campus (Watch-Keeping)	0	0	2	2
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>13</b>	<b>25</b>
Category	Code	Title of the Course	Hour / Week			Credits
			Lecture	Tutorial	Practical	
<b>SEMESTER – VIII</b>						
CC	15EMR022	Fire Prevention, Fire-Fighting and Life-Saving Appliances	3	0	0	3
CC	15EMR023	Marine Boilers And Steam Engineering	3	0	0	2
CC	15EMR024	Elementary Design Of Marine Machinery	2	0	0	2
AECC	15EMR225	Marine Engineering Practice III	2	0	0	2
AECC	15EMR226	Leadership, Team-Building And Ship Security	2	0	0	1
AECC	15EMR227	Engine Room Resources Management	2	0	0	2
AECC	15EMR228	Maritime Legislation	3	0	0	2
DSE	15EMR116	Marine Engineering Practice III-Simulator Lab	0	0	3	2



<b>DSE</b>	15EMR117	Marine Machinery Start-Up (S-I-C)	0	0	2	1
<b>GE</b>	15EMR168	Boiler Shop	0	0	2	1
<b>SEC</b>	15EMR262	Fire-Fighting / Life-Saving Appliances Lab	0	0	4	3
<b>SEC</b>	15EMR263	Communication Lab	0	0	2	2
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>13</b>	<b>23</b>

**2.1.3 State the components of the curriculum (5)**

Program curriculum grouping based on course components

--- Syllabus and Curriculum are framed by Director General of Shipping Norms

Course Component	Curriculum Content (% of the total number of credits of the program)	Total number of contact hours (Per Week)	Total number of credits
Basic Science	-	<b>30 Hrs/Week</b>	-
Engineering Science	<b>35.78%</b>		<b>68</b>
Program Core	<b>33.68%</b>		<b>64</b>
Program Electives	<b>27.89%</b>		<b>53</b>
Open Electives	<b>02.63%</b>		<b>5</b>
<b>Total Number of Credits</b>			<b>190</b>

*Table B.2.1.3*

**2.1.4 State the process used to identify extent of compliance of the curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I (10)**

Following is the process used to identify extent of compliance of University curriculum for attaining the POs and PSOs.

- To get well versed in engineering concepts (mechanics, graphics & tools).
- To understand structures, mechanic of materials, hydraulics & TD concepts.
- To understand various deck machinery & electrical machinery onboard the ship.
- To understand MAM, safe maintenance of ships & electronics onboard of the ship.
- To understand the marine control system, marine IC engines & safe working practices.
- To understand marine refrigeration & air conditioning, advance MICE & basic naval architecture
- To understand the marine power plant operation, pumping system, advanced naval architecture, testing & protection of electrical system onboard the ship.
- Importance of FPDF, marine boilers, legislation, leadership & ship security.

**15EMR001 MATHEMATICS I 3 0 0 3****Course Objective:**

- To understand the arithmetic, geometry
- To impart knowledge on trigonometry and differential calculus

**Course Outcome:**

**CO-1** To know the basic number systems.

**CO-2** To do practical problems by using A.P & G.P

**CO-3** To remember the formulas of binomial theorem.

**CO-4** To know about cone & the diagrams

**CO-5** To know about the basic geometrical concepts.

**CO-6** To learn about the angle, their relation & all the trigonometric formula.

**CO-7** To learn all the differentiation formula.

**CO-8** To do problems in  $n^{\text{th}}$  differentiation.

**CO-9** To solve a real life problems on maxima & minima.

**CO-10** To know the difference between the O.D & P.D

**15EMR002 ELECTRICAL ENGINEERING BASICS 2002****Course objective:**

- To impart knowledge on electrical, electronic and control system.
- To manage operations of electrical and electronic equipment Electrical equipment, Generator and distribution systems.
- To learn about preparing, starting, paralleling and changing over generators.

**Course outcome:**

**CO-1** To understand about basic fundamentals of electric current.

**CO-2** To know about circuits (series & parallel), kirchoff's law & faraday's law.

**CO-3** To understand basic fundamentals of AC circuit.

**CO-4** To know the behaviour of AC in pure resistance, capacitance and inductive circuits.

**CO-5** To understand about polyphase circuit.

**CO-6** To know about power calculation & phase sequence.

**CO-7** To know about basic of electrical machines.

**CO-8** To know about the different type of transformers connection.

**CO-9** To gain knowledge on instrumentation.

**CO-10** To know about MI, MC meters & Megger.

**15EMR003 ENGINEERING DRAWING 3 0 0 3****Course objective:**

- To do Maintenance and repair of shipboard machinery and equipments.
- To improve knowledge on machinery drawings and handbooks.

**Course outcome:**

**CO-1** To understand essential feature of printing lettering on technical drawing.

**CO-2** To understand the orthographic & basic dimension system.

**CO-3** Able to know the draughtmanship skill & to draw free hand sketch on geometrical object.

**CO-4** To understand & able to draw curves like ellipse, parabola & hyperbola.

**CO-5** To understand & able to draw on cycloids, epicycloids & hypocycloids.

**CO-6** To understand & able to visualize & draw on projection of solid with respect to axis parallel to both planes.

**CO-7** To understand & able to project on solid inclined to both vertical plane & horizontal plane.

**CO-8** To understand & able to develop a surface area of prism, cone & pyramid.

**CO-9** To able to construct helical spring of round & square.

**CO-10** To able to construct V thread & square thread.

**15EMR004 MECHANICS OF MATERIALS 4 0 0 3****Course objective:**

- To know about maintenance and repair of shipboard machinery and equipment.
- To impart knowledge on design characteristics and selection of materials in construction of equipment.

**Course outcome:**

**CO-1** To understand about stress.

**CO-2** To understand about strain.

**CO-3** To understand about Circumferential and longitudinal stress in thin cylindrical shells.

**CO-4** To understand about stress on Springs with axial load.

**CO-5** To understand Strain energy due to normal, shear stresses & impact loads.

**CO-6** To understand about Principal planes and principal stresses.

**CO-7** To understand bending of beams.

**CO-8** To understand the application of impact loads.

**CO-9** To understand Deflection of built-in beams and continuous beams by Integration and Macaulay's method.

**CO-10** To understand Castigliano's theorem, and its application to curved bars, strain energy due to twisting.

**15EMR005 MATHEMATICS II 3 0 0 3****Course objective:**

- To able to understand integral calculus.
- To impart knowledge on ordinary differential calculus

**Course outcome:**

**CO-1** To understand knowledge about integral calculus.

**CO-2** To know application of integration to area under a curve, volume by revolution.

**CO-3** To understand about moment of inertia.

**CO-4** To know the applications to area and volume, mass of wire, lamina and a solid.

**CO-5** To understand formation of differential equation.

**CO-6** To know linear differential equations of the first order and first degree, reducible to linear.

**CO-7** To know the application to electrical circuits & orthogonal trajectories.

**CO-8** To know the application of calculus on deflection of beams, struts and columns.

**CO-9** To understand about calculus of finite differences.

**CO-10** To know about difference equations – definition formation and solution, Linear difference equation with constant coefficients.



**15EMR006 MATERIALS SCIENCE I 2002**

**Course objective:**

- To impart knowledge on maintenance and repair of shipboard machinery and equipment.
- To know the Design characteristics and selection of materials in construction of equipment.

**Course outcome:**

**CO-1** To know the basic metallurgy.

**CO-2** To know about the metals & the process involved.

**CO-3** To gain knowledge about metals used in ship building.

**CO-4** To know the properties of metals & non metals.

**CO-5** To know the characteristics and limitations of process used for fabrication and repair.

**CO-6** To understand the process of heat treatment of carbon steel.

**CO-7** To know the properties considered in the fabrication and repair of systems and components

**CO-8** To know the parameters considered in the fabrication and repair of systems and components

**CO-9** To understand iron carbon equilibrium diagram.

**CO-10** To understand about Non-ferrous alloys. Welding, gas-cutting.

**15EMR007    MARINE MACHINERY DRAWING I    3 0 0 3**

**Course objective:**

- To do Maintenance and repair of shipboard machinery and equipments.
- To improve knowledge on machinery drawings and handbooks.

**Course outcome:**

**CO-1** To understand orthographic projection.

**CO-2** To understand about the details of sectioning.

**CO-3** To know about screw, threads & fasteners.

**CO-4** To know about various types of locking arrangements of nuts.

**CO-5** To understand design characteristics of bearings & seals.

**CO-6** To understand design characteristics lubrication arrangement, ball and roller bearings.

**CO-7** To know about thread formation, Nuts, Bolts & Studs.

**CO-8** To understand general conventions for drawing of threads in engineering drawings.

**CO-9** To understand Interpretation of machinery drawings.

**CO-10** To understand Interpretation of hydraulic and pneumatic diagrams.

**15CMRE31 ELECTRIC MOTORS AND STARTERS I 4 0 0 3****Course objective:**

- To operate electrical, electronic, control systems, Electrical motors
- To know the starting methodologies of electrical motors.

**Course outcome:**

**CO-1** To know the principles, constructional details and protection of DC Series, shunt and compound-wound motors and generators.

**CO-2** To know about self Excitation, generation of back-EMF and load/voltage characteristics.

**CO-3** To know about methods of voltage control, paralleling procedures & load sharing for DC Generators.

**CO-4** To understand types of starters, characteristics between speed & torque, speed control of DC motors.

**CO-5** To know about theory of rotating magnetic fields in AC machines.

**CO-6** To know the relation between slip, rotor emf and frequency, torque-speed characteristics.

**CO-7** To understand the theory of synchronous motors.

**CO-8** To understand the theory of induction motors.

**CO-9** To understand the constructional details of synchronous motors.

**CO-10** To understand the constructional details of induction motors.

**15CMRE32 ELECTRONICS I 5 0 0 4****Course objective:**

- To operate electrical, electronic and control systems.
- To know the characteristics of basic electronic circuit elements.

**Course outcome:**

**CO-1** To understand about electron emission.

**CO-2** To understand the application of electron emission.

**CO-3** To understand the types of semi conductors.

**CO-4** To understand the characteristics of semi conductors.

**CO-5** To understand about transistors & its characteristics.

**CO-6** To understand about the basic of digital electronics.

**CO-7** To understand about regulators & oscillators.

**CO-8** To understand about the amplifiers.

**CO-9** To understand the flow chart for manual control systems.

**CO-10** To understand the flow chart for automatic control systems.

**15CMRE33 MATERIAL SCIENCE II 3 0 0 2****Course objective:**

- To do maintenance and repair of shipboard machinery and equipment.
- To know the design characteristics and selection of materials in construction of equipment.

**Course outcome:**

**CO-1** To understand about vibrations.

**CO-2** To understand about failure modes caused by vibrations.

**CO-3** To understand about the metallurgy of steel and cast Iron.

**CO-4** To understand about properties and applications of materials used in machinery on board ships.

**CO-5** To understand about the engineering process.

**CO-6** To understand the knowledge about materials & welding.

**CO-7** To understand mechanical testing of materials.

**CO-8** To understand Destructive testing of materials.

**CO-9** To understand the testing of materials.

**CO-10** To understand the non destructive examination of the materials.

**15CMRE34 MARINE MACHINE DRAWING II 3 0 0 3****Course objective:**

- To do maintenance and repair of shipboard machinery and equipment.
- To able to Interpret machinery drawings and handbooks.
- To know the interpretation of piping, hydraulic and pneumatic diagrams.

**Course outcome:**

**CO-1** To understand & able to draw the assembly & dismantling of air inlet valve.

**CO-2** To understand & able to draw assembly & dismantling of automatic valve.

**CO-3** To understand & able to draw assembly & dismantling of starting air pilot valve.

**CO-4** To understand & able to draw assembly & dismantling of boiler mounting full bore safety valve.

**CO-5** To understand & able to draw assembly & dismantling of high lift safety valve.

**CO-6** To understand & able to draw assembly & dismantling of plate type gauge glass.

**CO-7** To understand & able to draw assembly & dismantling of four stroke piston.

**CO-8** To understand & able to draw assembly & dismantling of bilge suction strainer & fuel oil strainer.

**CO-9** To understand & able to draw assembly & dismantling of telemotor receiver.

**CO-10** To understand & able to draw assembly & dismantling of reducing valve.

**15CMRE41 ELECTRIC MOTORS AND STARTERS II 4 0 0 3****COURSE OBJECTIVE:**

- To operate electrical, electronic and control systems.
- To impart knowledge on Electrical motors starting methodologies.

**Course outcome:**

**CO-1** To understand about three phase ac induction motor.

**CO-2** To understand about three phase synchronous motor.

**CO-3** To understand motor control & protection.

**CO-4** To understand about speed control of motors.

**CO-5** To understand about three phase generators.

**CO-6** To understand about three phase transformers.

**CO-7** To understand the various starting methods for ac machines.

**CO-8** To understand Coupling and breaking connection between switchboard and distribution panels.

**CO-9** To understand basic electric propulsion system.

**CO-10** To understand power distribution system.

**15CMRE42 ELECTRONICS II 5 0 0 4****Course objective:**

- To gain knowledge on Operate electrical, electronic and control systems.
- To know the Sequential control circuits and associated system devices.

**Course outcome:**

**CO-1** To understand the concept of differential amplifier.

**CO-2** To understand about the operation amplifier theory.

**CO-3** To gain knowledge about the converters.

**CO-4** To understand about various sensors onboard ship.

**CO-5** To understand about digital integrated circuits.

**CO-6** To understand about the electronic control equipment.

**CO-7** To understand communication systems, Modulation and Demodulation, their necessity and circuit explanation.

**CO-8** To understand the various application of communication devices.

**CO-9** To understand about the electronic equipments.

**CO-10** To understand about Depiction and understanding of flow-charts, symbols utilization, and processes involved.



**15CMRE43 THERMAL ENGINEERING 3 0 0 2****Course objective:**

- To manage the operation of propulsion plant machinery Plan and schedule operations, surveillance, performance assessment.
- Able to maintain safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand the working of air compressors.

**CO-2** To understand the calculation of work done.

**CO-3** To understand about the properties of steam.

**CO-4** To solve numericals based on the properties of steam.

**CO-5** To understand Operation principle and basic construction of and materials of steam turbine.

**CO-6** To understand Elementary principles of steam turbines including simple velocity diagrams for impulse and reaction turbines.

**CO-7** To understand combustion & Chemical equations for complete combustion.

**CO-8** To understand theory minimum air required & effect of excess air.

**CO-9** To understand Gas turbine – open cycle gas turbine-operation, principle and basic construction.

**CO-10** To understand Gas dynamics, Gas nozzles and Steam nozzles.

**15EMR015 MARINE INTERNAL COMBUSTION ENGINEERING I 5 0 0 4**

**Course objective:**

- To operate main and auxiliary machinery and associated control systems

**Course outcome:**

**CO-1** To understand the various thermodynamic cycles that are used in IC Engines.

**CO-2** To be able to relate the thermodynamic cycles to the actual working of the engines and solve problems based on the cycles.

**CO-3** To be able to classify IC Engines based on various parameters.

**CO-4** To be able to draw the Valve timing Diagram of the 4-Stroke and 2-Stroke IC Engines.

**CO-5** To understand the various components that make up the IC Engines.

**CO-6** To understand the function of each component along with their material of construction.

**CO-7** To understand the concept of scavenging in IC Engines and the various scavenging methods currently in use

**CO-8** To understand the concept of Supercharging in IC Engines and the various Supercharging methods currently in use.

**CO-9** To understand the various thermodynamic cycles that is used in the functioning of Gas Turbine.

**CO-10** To understand the various components associated with the Gas turbines and the derivation for various efficiencies.

**15EMR016 CONTROL SYSTEMS FOR MARINE MACHINERY 5 0 0 4****Course objective:**

- Able to Operate electrical, electronic and control systems, Manage operation of electrical and electronic control equipment, Operation, surveillance, performance assessment.
- To maintain safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand about basic control engineering.

**CO-2** To understand Fundamentals of automatic control.

**CO-3** To understand Static and dynamic characteristics of measuring instruments.

**CO-4** To understand Construction and operation of electrical testing and measuring equipment.

**CO-5** To understand about transmission of signals.

**CO-6** To understand principles, operation, application of pneumatic, electrical and hydraulic servomotors.

**CO-7** To understand Theory and characteristics of P-I-D control, and its tuning.

**CO-8** To understand Generator distribution system, steam boiler, oil purifier, refrigeration, pumping systems, steering gear, cargo handling equipment and deck machinery.

**CO-9** To understand Design features and system configuration of automatic control equipment and safety devices.

**CO-10** To understand Features of Pneumatic and Hydraulic control equipment.

**15EMR017 MARINE INTERNAL COMBUSTION ENGINEERING II      5 0 0 4**

**Course objective:**

- Able to operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand Propulsive characteristics of Diesel engines.

**CO-2** To understand Fuel atomization, Ignition quality, Fuel injectors and its detail. Ignition delay, after burning.

**CO-3** To understand Marine Diesel Engine – trunk and Crosshead types.

**CO-4** To understand Compression pressure ratio and its effect on engines.

**CO-5** To understand Assessment of engine power, and running adjustments to maintain performance.

**CO-6** To understand lubrication, linear wear and preventive measures, combinations of lubricating oil its effect and preventive measures.

**CO-7** To understand Control and Alarm systems associated with automatic operation of a Diesel Power Plant.

**CO-8** To understand Turbochargers, supercharging and scavenge system.

**CO-9** To understand the Causes and prevention of crank case explosions.

**15EMR018 SHIP CONSTRUCTION 3 0 0 3****Course objective:**

- To maintain seaworthiness of the ship, Control trim, stability and stress.

**Course outcome:**

**CO-1** To understand Common terms used in the measurement of steel ships.

**CO-2** To understand Descriptions and sketches of structural members in ordinary types of steel ships.

**CO-3** To understand Water-tight doors, Hatches, Rudders, Bow-thrusters, Propellers, Watertight bulkheads.

**CO-4** To understand Ventilation arrangements for pump rooms in tankers and for cargo holds and oil fuel tanks.

**CO-5** To understand Double-bottom and deep tank filling and pumping arrangements.

**CO-6** To understand about Compartmental drainage.

**CO-7** To understand about Ship stresses- hogging and sagging, racking, panting, pounding & slamming.

**CO-8** To understand Structural arrangements forward and aft to withstand panting and pounding.

**CO-9** To understand Functioning of Ship Classification Societies.

**CO-10** To understand Periodical surveys for retention of Class, and Statutory Surveys.

**15EMR019 MARINE POWER PLANT OPERATION 4 0 0 4**

**COURSE OBJECTIVE:**

- To operate main and auxiliary machinery and associated control systems

**Course outcome:**

**CO-1** To understand watch keeping procedures.

**CO-2** To understand watch keeping routines & operations.

**CO-3** To understand the safe working practices.

**CO-4** To understand importance of **PPE** & emergency procedures.

**CO-5** To understand about safe system of working.

**CO-6** To understand about various hazards.

**CO-7** To understand action to be taken in case of emergency.

**CO-8** To understand action to be taken in case of stoppage of machinery.

**CO-9** To understand action in the event of failure of main engine & boiler.

**CO-10** To understand emergency procedure for restarting the machinery.

**15EMR020 MONITORING AND PROTECTION OF ELECTRICAL SYSTEMS 3 0 0**  
**2**

**Course objective:**

- Able to Maintain and repair of electrical and electronic equipment.
- To manage trouble-shooting, restoration of electrical and electronic control equipment to operating condition.

**Course outcome:**

**CO-1** To understand flow diagrams & circuits.

**CO-2** To understand Electric and electronic symbols and interpretations of flow diagrams and circuits.

**CO-3** To understand Trouble shooting of electrical and electronic control equipment.

**CO-4** To understand Interpretation of circuit symbols.

**CO-5** To understand about the protection of generators.

**CO-6** To understand about precautions against electric shock and related hazards.

**CO-7** To understand Electrical distribution system.

**CO-8** To understand Function test of electrical, electronic control equipment and safety devices.

**CO-9** To understand Fault-finding in Control Systems.

**CO-10** To understand Testing and calibration of sensors and transducers of monitoring systems.

**15EMR021 ELECTRICAL TESTING AND MEASURING EQUIPMENT 2 0 0 2****Course objective:**

- able to do Maintenance and repair of electrical and electronic equipment

**Course outcome:**

**CO-1** Able to identify the test equipment needed for testing IR value of electrical equipment and the important of IR value.

**CO-2** Attains knowledge of taking IR value of electrical equipment by knowing the points for testing.

**CO-3** Able to tell the name of equipment required for various working voltages of electrical equipment.

**CO-4** Knows the operating principle of equipment including its parts.

**CO-5** Knows the type of test equipment to be used on electrical equipment to check various parameters like **V ac & dc, current ac & dc, resistance & capacitance** .

**CO-6** Have the clear picture of analog & digital testing measuring equipments.

**CO-7** Have the knowledge of various indicating electrical equipments & meters for volts, amps, frequency, power factor & speed.

**CO-8** Have vast knowledge of various measurement that is required in electrical field like meters for indication recorded as & integrating meters like **KWH** meters to show the consumption of electrical energy over a period of time.

**CO-9** Have current knowledge of connecting volt & amp meters in the circuit for indication. Also have an idea for measuring excess parameters beyond the capacity of meters by using additional attachments.

**CO-10** Can able to identify types of electrical different meters for AC & DC measurement.



**15EMR022 FIRE PREVENTION, FIRE-FIGHTING AND LIFE-SAVING APPLIANCES 3 0 0 3****Course objective:**

- Able to Prevent, control and fight fires on board
- To able to operate life-saving appliances.

**Course outcome:**

**CO-1** To understand fire hazard onboard ship & fire basics.

**CO-2** To understand control of fire onboard ship.

**CO-3** To understand fire protection built in ship.

**CO-4** To understand fire detection & safety system.

**CO-5** To understand different fire fighting equipments.

**CO-6** To understand maintenance & testing of fire fighting appliances.

**CO-7** To understand techniques adopted for extinguishing fire at different location onboard ship.

**CO-8** To understand ship board organization for fire & emergency for different types of ships.

**CO-9** To understand construction & operation of life saving appliances.

**CO-10** To understand construction, operation & maintenance of EEBD & neil Robertson stretcher.

**15EMR023 MARINE BOILERS AND STEAM ENGINEERING 3 0 0 2****Course objective:**

- able to Operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand various types of marine boilers.

**CO-2** To understand about the mountings in boiler.

**CO-3** To understand about the various operation of boilers.

**CO-4** To understand about the care & maintenance of boilers.

**CO-5** To understand Furnace arrangement for oil burning.

**CO-6** To understand Procedure of liquid fuel burning in open furnace.

**CO-7** To understand the operation of steam turbines.

**CO-8** To understand the maintenance of the steam turbine.

**CO-9** To understand Types of condensers, constructional details, location & working principles.

**CO-10** To understand Effect of Change of temperature, circulating water quantity, change of main engine power, condenser surface.

**15EMR024 ELEMENTARY DESIGN OF MARINE MACHINERY 2 0 0 2**

**Course objective:**

- Able to manage the operation of propulsion plant machinery, Plan and schedule operations Operation, surveillance, performance assessment.
- To maintain safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand the procedure in machine design.

**CO-2** To understand the Concepts of design, procedure and processes.

**CO-3** To understand the elementary design of Main propulsion Engine (Diesel Engine).

**CO-4** To understand the elementary design of Auxiliary Diesel Generator & gas turbine.

**CO-5** To understand the elementary design of Main propulsion Engine (Steam Turbine).

**CO-6** To understand the elementary design of Turbo-electric propulsion. Turbo-generator.

**CO-7** To understand about start up procedures.

**CO-8** To understand about the shut down procedures.

**CO-9** To understand safety of operation of Main Propulsion and Auxiliary equipment.

**CO-10** To understand to take performance assessment.

**15EMR201 TECHNICAL ENGLISH 3 0 0 3**

**Course objective:**

- Able to get adequate knowledge of the English Use in written and oral form.

**Course outcome:**

**CO-1** To understand Simple, Compound and Complex sentences.

**CO-2** To understand Reading text: skimming for general information.

**CO-3** To understand the characteristics of technical style.

**CO-4** To understand Listening and transferring of information from text to graphic forms.

**CO-5** To understand reading comprehension.

**CO-6** To understand Listening and guided note-taking.

**CO-7** To understand grammar & vocabulary.

**CO-8** To understand Marine Vocabulary.

**CO-9** To understand Extensive listening.

**CO-10** To understand intensive listening.

**15EMR202      WORKSHOP TECHNOLOGY                      3 0 0 3****Course objective:**

- Able to Maintain and repair shipboard machinery and equipments.
- To gain appropriate basic mechanical knowledge and skills.

**Course outcome:**

**CO-1** To understand common workshop tools.

**CO-2** To understand Pattern maker's tools, Smithy tools and Mouldings tools.

**CO-3** To understand measuring tools.

**CO-4** To understand the inspection of measuring tools.

**CO-5** To understand about permanent joints.

**CO-6** To understand the self secured joints.

**CO-7** To understand Principles of electric Arc welding.

**CO-8** To understand Common faults in welded joints.

**CO-9** To understand machine process in manufacture.

**CO-10** To understand Manufacturing of components, gauges, deck machinery, gearing, clutches.

**15EMR203 ENGINEERING MECHANICS 4 0 0 4****Course objective:**

- Able to do Maintenance and repair of shipboard machinery and equipment Design characteristics.
- To know the selection of materials in construction of equipment.

**Course outcome:**

**CO-1** To understand scalar & vector quantities.

**CO-2** To understand Graphic representation of Forces.

**CO-3** To understand Graphs and equations for displacement, speed, velocity and uniform acceleration.

**CO-4** To understand Problems on constant force or force with linear variation.

**CO-5** To understand Simple lifting machines.

**CO-6** To understand Moment of inertia of material bodies.

**CO-7** To understand . Centrifugal force and its application to conical pendulum, unloaded governor, curved tracks and machine parts.

**CO-8** To understand Dynamic balancing of masses rotating in one plane.

**CO-9** To understand the term friction.

**CO-10** To understand Energy and power lost due to friction in simple bearings.

**15EMR204 APPLIED MECHANICS LAB 0 0 2 1****Course objective:**

- Able to do Maintenance and repair of shipboard machinery and equipment Design characteristics.
- To select materials in construction of equipment.

**Course outcome:**

**CO-1** To understand Principles of Moment.

**CO-2** To understand the magnitude and nature of forces acting on the different members.

**CO-3** To understand about Young's Modulus of a Loaded Beam.

**CO-4** To understand about co-efficient of friction.

**CO-5** To understand about uniplanar forces.

**CO-6** To understand the Mechanical Advantage, Velocity Ratio, Theoretical Effort, Efficiency, Friction, the equation giving the relation between Load and Actual Efforts.

**CO-7** To understand about acceleration due to gravity.

**CO-8** To understand Moment of Inertia and Radius of Gyration of a Fly Wheel.

**15EMR205 PUMPS AND PUMPING SYSTEMS I 3 0 0 3****Course objective:**

- To able to Operate fuel, lubrication, ballast and other pumping systems and associated control systems.
- To know the Operational characteristics of pumps and piping systems, including control systems.

**Course outcome:**

**CO-1** To understand Properties of fluid.

**CO-2** To understand Equilibrium of floating bodies.

**CO-3** To understand Bernoulli's equation and applications.

**CO-4** To understand Flow rate measurement.

**CO-5** To understand the concepts of flow through pipes.

**CO-6** To understand Coefficients of velocity, contraction of area and discharge.

**CO-7** To understand about impact of jets.

**CO-8** To understand Blade diagrams for a centrifugal pump.

**CO-9** To understand Fluid flow and characteristics of major ship's pumping systems.

**CO-10** To understand Operation and material construction of devices/equipment in the system.



**15EMR206 THERMODYNAMICS I 4 0 0 4****Course objective:**

- Able to Manage the operation of propulsion plant machinery Plan and schedule operations.
- Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand about the basic thermodynamic definitions.

**CO-2** To understand Problems involving changes of phase and not more than three substances.

**CO-3** To understand First law of thermodynamics and its application to various processes.

**CO-4** To understand Relationship between pressure, temperature and volume.

**CO-5** To understand Statements of the Second Law of Thermodynamics.

**CO-6** To understand about Thermodynamic temperature scale.

**CO-7** To understand properties of mixture of gases & gas vapors.

**CO-8** To understand Equivalent Molecular weight, Density, specific volume, specific Heat and molar heat capacity of a gas mixture.

**CO-9** To understand about compressors & IC engines.

**CO-10** To understand Calculation of work done, indicator diagrams.

**15EMR207    HYDRAULICS LAB    0 0 2 1**

**Course objective:**

- To able to understand Operational fuel, lubrication, ballast and other pumping systems and associated control systems.
- To understand the Operational characteristics of pumps and piping systems, including control systems.

**Course outcome:**

**CO-1** To understand about venturimeter.

**CO-2** To understand about pelton wheel.

**CO-3** To understand about co-efficient of velocity of contraction.

**CO-4** To understand about co-efficient of discharge of water through orifice/s.

**CO-5** To understand about the friction co-efficient for the flow of water through a pipe.

**15EMR208 DECK MACHINERY 3 0 0 3**

**Course objective:**

- To able to Operate main and auxiliary machinery and associated control systems, Deck machinery.

**Course outcome:**

**CO-1** To understand construction & working of windlass & mooring winches.

**CO-2** To understand bow thruster system & controls.

**CO-3** To understand types of cargo cranes ( electro hydraulic & total hydraulic).

**CO-4** To understand various crane movement & safety.

**CO-5** To understand various hydraulic systems.

**CO-6** To understand hydraulic circuits.

**CO-7** To understand construction of LSA.

**CO-8** To understand operation & maintenance of LSA.

**CO-9** To understand various types of steering gear.

**CO-10** To understand operation & testing of steering gear.

**15EMR209 THERMODYNAMICS II4 0 0 3****Course objective:**

- To able to Manage the operation of propulsion plant machinery Plan and schedule operations, surveillance, performance assessment.
- To maintain safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand Steam and Two Phase System.

**CO-2** To understand Non flow processes with Steam.

**CO-3** To understand Steam Cycle: Carnot's cycle for steam and ideal efficiency.

**CO-4** To understand Reheating and Regenerative Feed Heating and their effect on Thermal Efficiency.

**CO-5** To understand Boilers and Evaporators.

**CO-6** To understand Boilers and Calculations

**CO-7** To understand Steam Turbines: General Principles of impulse and Reaction Turbines.

**CO-8** To understand Effect of Friction on blades, Applied Problems.

**CO-9** To understand Steam Engines.

**CO-10** To understand Efficiency ratio, Engine Efficiency, Energy Balance, Applied Problems.

**15EMR210 ELECTRICAL MACHINES LAB I 0 0 2 2****Course objective:**

- Able to operate electrical, electronic and control systems, Electrical motors including starting methodologies.

**Course outcome:**

**CO-1** To understand about the continuity test.

**CO-2** To understand about speed controls of motor.

**CO-3** To understand about starters.

**CO-4** To understand about constant current & voltage.

**CO-5** To understand about wattmeter.

**CO-6** To understand about three phase four wire system.

**CO-7** To understand about usage of energy meter.

**CO-8** To understand about load test on dc shunt generator.

**CO-9** To understand about transformers.

**CO-10** To understand about open circuit characteristics.

**15EMR211 ELECTRONICS I LAB      0 0 2 2****Course objective:**

- Able to Operate electrical, electronic and control systems, Flowchart for automatic and control systems.

**Course outcome:**

**CO-1** To understand about half & full wave rectifiers.

**CO-2** To understand characteristics of semiconductor diode.

**CO-3** To understand characteristics of zener diode.

**CO-4** To understand Characteristics of Thermistor.

**CO-5** To understand Characteristics of LED.

**CO-6** To understand Characteristics of Field Effect Transistor.

**CO-7** To understand Characteristics of SCR.

**CO-8** To understand Characteristics of TRIAC.

**CO-9** To understand Speed Control of DC motor using SCR.

**15CMRE45 SAFE MAINTENANCE ON SHIPS 3 0 0 2****Course objective:**

- able to Maintenance and repair of shipboard machinery and equipment Safety measures to be taken for repair and maintenance.
- To do the safe isolation of shipboard machinery and equipment required before personnel are permitted to work on such machinery or equipment.

**Course outcome:**

**CO-1** To understand about risk assessment.

**CO-2** To understand General safety and cleanliness on board.

**CO-3** To understand about the usage of Personal protective equipment.

**CO-4** To understand the standard communication system onboard.

**CO-5** To understand the risks of working aloft & outboard.

**CO-6** To understand about unmanned machinery spaces.

**CO-7** To understand about machinery maintenance.

**CO-8** To understand about high voltage systems.

**CO-9** To understand signs & notices.

**CO-10** To understand portable fire extinguishers.

**15EMR213 MARINE AUXILIARY MACHINERY 4 0 0 3****Course objective:**

- able to operate main and auxiliary machinery and associated control systems Shafting installations, including propeller.
- able to operate other auxiliaries, including various pumps, air compressor, purifier, fresh water generator, heat exchanger, refrigeration, air-conditioning and ventilation systems etc.

**Course outcome:**

**CO-1** To understand Propulsion transmission systems.

**CO-2** To understand Types of propellers and features.

**CO-3** To understand Heat Exchangers.

**CO-4** To understand Fouling of tubes.

**CO-5** To understand principles, operation, types of Steering Gear.

**CO-6** To understand principles, operation, types of Stabilizers & Bow Thrusters.

**CO-7** To understand air compressors.

**CO-8** To understand Air Bottles – Construction and mountings.

**CO-9** To understand Evaporators and distillers.

**CO-10** To understand Construction, characteristics and operation of Fresh Water Generators.



**15EMR214 ELECTRICAL WORKSHOP – MOTORS/STARTERS 4 0 0 4****Course objective:**

- Able to operate electrical, electronic and control systems Electrical motors including starting methodologies.

**Course outcome:**

**CO-1** To study about squirrel cage induction motor.

**CO-2** To study about wound rotor induction motor.

**CO-3** To study about capacitor start induction motor.

**CO-4** To study about capacitor start / capacitor run induction motor.

**CO-5** To understand Stator armature winding of 3ph squirrel cage type induction motor.

**CO-6** To understand three phase ac motor starters.

**CO-7** To understand single phase transformer winding.

**CO-8** To understand three phase transformer winding.

**CO-9** To understand about soft starting.

**CO-10** To understand auto transformer starter.

**15EMR215    ELECTRONICS II LAB                    0 0 3 2**

**Course objective:**

- Able to Operate electrical, electronic and control systems Sequential control circuits and associated system devices.

**Course outcome:**

**CO-1** To understand about push pull amplifier.

**CO-2** To understand Integrator and Differentiator.

**CO-3** To understand Inverting and Non inverting amplifier.

**CO-4** To understand Logic Gates truth tables.

**CO-5** To understand multiplexers & de multiplexers.

**CO-6** To understand Analog to Digital converter.

**CO-7** To understand Digital to Analog Converter.

**CO-8** To understand 555 Timer.

**15EMR216 MARINE ENGINEERING PRACTICE I 2 0 0 2****Course objective:**

- Able to use hand tools, machine tools and measuring instruments for fabrication and repair on board.

**Course outcome:**

**CO-1** To be aware of different types of material.

**CO-2** To understand the properties of material.

**CO-3** To understand the choice of material for main engine.

**CO-4** To understand the choice & application of materials for steam turbines & gas turbines.

**CO-5** To understand the safe working practice of power tools & hand tools.

**CO-6** To understand the working & usage of specialized overhauling tools of machinery.

**CO-7** To understand the work process of construction using different welding process.

**CO-8** To understand the tests carried out on a typical periodical survey.

**CO-9** TO be aware of various mediums & application onboard for safety

**CO-10** To be aware of different chemicals used on board.

**15EMR217 MARINE ELECTRICAL TECHNOLOGY I 2 0 0 2****Course objective:**

- able to Manage operation of electrical and electronic control equipment Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery , Maintenance and repair of electrical and electronic equipment.

**Course outcome:**

**CO-1** To understand Starting, parallel operation and changing of alternators.

**CO-2** To understand Maintenance required on Alternators and motors and paralleling equipment.

**CO-3** To understand Emergency Generator & Different Starting methods including auto-start.

**CO-4** To understand Emergency batteries construction and its different types.

**CO-5** To understand Safety devices on emergency switch board.

**CO-6** To understand maintenance routine of all the equipment, including circuit breakers.

**CO-7** To understand Switchboard construction.

**CO-8** To understand Cables & temperature classification.

**CO-9** To understand Motor & Control Equipments.

**CO-10** To understand enclosures & protective devices on motors.

**15EMR218 REFRIGERATION, AIR-CONDITIONING & VENTILATION SYSTEMS 3 0 0 3****Course objective:**

- Able to operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand basic refrigeration concepts.

**CO-2** To understand refrigeration system components.

**CO-3** To understand operation, maintenance & troubleshooting of refrigeration plant.

**CO-4** To understand temperature monitoring system & automatic operation.

**CO-5** To understand basic air conditioning principles & concepts.

**CO-6** To understand air conditioning system components & its types.

**CO-7** To understand air conditioning duct layouts, operation & HVAC control.

**CO-8** To understand trouble & operation & maintenance.

**CO-9** To understand ventilation requirements for different ship areas.

**CO-10** To understand types of blower for ventilation.

**15EMR219 MARINE ELECTRICAL TECHNOLOGY II 2002****Course objective:**

- Able to do Maintenance and repair of electrical and electronic equipment.

**Course outcome:**

**CO-1** To understand Marine electrical equipment.

**CO-2** To understand Alarm system (types, supply) on board.

**CO-3** To understand Maintenance of electrical systems, fault finding & repair.

**CO-4** To understand Detection of faults on electrical circuits

**CO-5** To understand Special electrical practice.

**CO-6** To understand Rules and regulations & operation electric propulsion system.

**CO-7** To understand Electrical systems for operation in flammable areas.

**CO-8** To understand Special electrical practice for oil, gas and chemical tankers.

**CO-9** To understand electrical fire fighting.

**CO-10** To understand precautions against electric shock and related hazards.

**15EMR220 NAVAL ARCHITECTURE I 3 0 0 3****Course objective:**

- Able to Maintain seaworthiness of the ship Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating.

**Course outcome:**

**CO-1** To understand Principal terms used in Naval Architecture.

**CO-2** To understand Hydrostatic calculations.

**CO-3** To understand specific terms in naval architecture.

**CO-4** To understand effect of addition and removal of masses.

**CO-5** To understand Simpson's rules, application to area and volume.

**CO-6** To understand Tchebycheff's rule and their applications.

**CO-7** To understand Transverse stability of ships.

**CO-8** To understand inclining experiment & free surface effect.

**CO-9** To understand Transverse stability at large angles of heel.

**CO-10** To understand curves of statical stability & dynamical stability.

**15EMR221      MECHANICS OF MACHINES      2 0 0 2**

**Course objective:**

- Able to do Maintenance and repair of shipboard machinery and equipment.

**Course outcome:**

**CO-1** To understand Relative motion between bodies moving in different planes.

**CO-2** To understand Analytical determination of velocity and acceleration.

**CO-3** To understand Function of a flywheel.

**CO-4** To understand Effect of centrifugal tension on flywheel.

**CO-5** To understand Flat belts and effect of centrifugal tension.

**CO-6** To understand Roller & inverted tooth chains.

**CO-7** To understand Balancing of masses rotating in one or different planes.

**CO-8** To understand vector representation of torque and angular momentum.

**CO-9** To understand Free Harmonic vibrations, linear motion of an elastic system, and Angular motion of an elastic system.

**CO-10** To understand Differential equation of motion.



**15EMR222 PUMPS AND PUMPING SYSTEMS – II 3 0 0 3****Course objective:**

- Able to operate fuel, lubrication, ballast and other pumping systems and associated control systems, Manage fuel, lubrication and ballast operations.

**Course outcome:**

**CO-1** To be able to draw the typical bilge pumping arrangement in the Engine room showing the various components.

**CO-2** To be able to draw the typical sludge pumping arrangement in the Engine room showing the various components.

**CO-3** To be able to draw the Ballasting and De-ballasting pipeline arrangement in a typical tanker ship.

**CO-4** To be able to explain the IG system on an Oil tanker with emphasis on how it protects the cargo space.

**CO-5** To be able to draw the typical cargo pumping arrangement in a tanker ship.

**CO-6** To sketch in detail an Oily water separator used on board.

**CO-7** To sketch in detail the Oil Discharge Monitoring control system (ODMCS) used on board.

**CO-8** To be able to apply Dimensional Analysis to solve complex hydraulic equations.

**CO-9** To be able to explain the testing of Fuel oil on board the ship and ashore.

**CO-10** To be able to explain the testing of Lube oil on board the ship and ashore.

**15EMR223 MARINE ENGINEERING PRACTICE II 2002**

**Course objective:**

- able to Maintain and repair of shipboard machinery and equipment.

**Course outcome:**

**CO-1** To be aware of principles of clarifier & purifier.

**CO-2** To be aware of purifier parts, assembly / disassembly procedures.

**CO-3** To get working knowledge of purification piping layout, gravity disc selection & desludging procedure.

**CO-4** To understand the sequence of operation of purifier.

**CO-5** To be aware of rules & regulation of automation on slips.

**CO-6** To understand the procedures & hazards of hot work onboard ships.

**CO-7** To understand the main engine cylinder head removal inspection.

**CO-8** To understand the use & application of hydraulic tightening tools.

**CO-9** To be well versed with overhaul of the compressor valves.

**CO-10** To understand the working of different types of centrifugal pumps.

**15EMR224      NAVAL ARCHITECTURE II    3 0 0 3****Course objective:**

- able to Maintain seaworthiness of the ship, Control trim, stability and stress.

**Course outcome:**

**CO-1** To understand Curves of buoyancy and weight, curves of load, shearing force and bending moments.

**CO-2** To understand Longitudinal strength, moment of inertia of section & section modulus.

**CO-3** To understand Trim because of filling / flooding several tanks with different densities.

**CO-4** To understand method for determination of floodable lengths.

**CO-5** To understand relation between powers & relation between pressure and speed.

**CO-6** To understand various efficiencies & calculation of effective power

**CO-7** To understand Action of the rudder in turning a ship.

**CO-8** To understand Types of rudder, model experiments and turning trials.

**CO-9** To understand Blade element theory, law of similitude and model tests with propellers.

**CO-10** To understand Motion of ship on waves.

**15EMR225    ADVANCED MARINE WORKSHOP (MEP II)    0 0 3 3**

**Course objective:**

- To Maintenance and repair of shipboard machinery and equipment (Table A – III/1).

**Course outcome:**

**CO-1** To understand fuel oil separator- purifier.

**CO-2** To understand fuel oil separator- clarifier.

**CO-3** To understand purification system for Fuel Oil using a Purifier-Clarifier.

**CO-4** To understand procedures to be followed when doing hot work, gas cutting, arc welding.

**CO-5** To understand procedures to be followed for moving heavy machinery in engine room & working aloft.

**CO-6** To understand for procedures to be followed for Main Engine overhaul.

**CO-7** To understand crankshaft deflection.

**CO-8** To understand precaution to be taken for main bearing clearances.

**CO-9** To understand checks of running auxiliary machinery.

**15EMR226 MARINE ENGINEERING PRACTICE III 2002****Course objective:**

- Able to manage safe and effective maintenance and repair procedures.
- To Detect and identify the cause of machinery malfunctions and correct faults Ensure safe working practices.

**Course outcome:**

**CO-1** To understand Detection and identification of the cause of machinery malfunctions and correct faults .

**CO-2** To understand destructive and non-destructive testing.

**CO-3** To understand Unplanned or break-down maintenance.

**CO-4** To understand inspection and adjustment of all relevant equipment.

**CO-5** To understand Theoretical knowledge of Marine Engineering Practice

**CO-6** To understand Manageable breakdowns and Emergency Repairs.

**CO-7** To understand Management and conduct of ship maintenance by Planned Maintenance.

**CO-8** To understand Surveys for maintenance and renewal of Class, and Statutory Certificates.

**CO-9** To understand Planning and execution of safe maintenance activity and repair procedures.

**CO-10** To understand Trials and restoration of the Plant after repairs.

**15EMR227 LEADERSHIP, TEAM-BUILDING AND SHIP SECURITY 2 0 0 1****Course objective: ]**

- Able to gain Application of leadership and team working skills, Maintain the conditions set forth in a ship security plan.
- To recognize the security risks and threats.
- To undertake regular security inspections of the ship and proper usage of security equipment.

**Course outcome:**

**CO-1** To understand Knowledge of shipboard Personnel management.

**CO-2** To understand training of shipboard personal.

**CO-3** To understand Human resource management.

**CO-4** To understand Training ,development & Negotiation skills.

**CO-5** To understand Ability to apply task and workload management.

**CO-6** To understand Personal assignments, Time, resource constraints & Prioritization.

**CO-7** To understand Knowledge and ability to apply decision-making techniques.

**CO-8** To understand Situation and Risk Assessment.

**CO-9** To understand Drills and exercises under IMO Codes and Circulars.

**CO-10** To understand General knowledge of various types of security equipment and systems.

**15EMR228 ENGINE ROOM RESOURCES MANAGEMENT 2002****Course objective:**

- Able to maintain a safe Engineering watch, Use internal communication systems.

**Course outcome:**

**CO-1** To be well versed in utilizing available resources in engine room.

**CO-2** To know about the quality and safety conventions.

**CO-3** To be well versed in allocating the resources.

**CO-4** To know about multi cultural environment.

**CO-5** To understand the concept of prioritization.

**CO-6** To understand the concept of workload management.

**CO-7** To understand the effectiveness of communication onboard and ashore.

**CO-8** To be well versed in taking decisions.

**CO-9** To be well versed in implementing the project plans.

**CO-10** To understand the standard operating procedure for typical engine room and maintenance.

**15EMR229 MARITIME LEGISLATION 3 0 0 2**

**Course objective:**

- Able to monitor compliance with legislative requirements.

**Course outcome:**

**CO-1** To understand Knowledge of relevant International Maritime Law embodied in international agreements.

**CO-2** To understand Requirements and responsibilities under the SOLAS 1974, Load Lines Convention 1966, and STCW Convention 1978.

**CO-3** To understand International Health Regulations.

**CO-4** To understand the practical applications of medical guides

**CO-5** To understand International Labor Organization

**CO-6** To understand Regulations and responsibilities under International Instruments affecting the Safety of Ships.

**CO-7** To understand Surveys and Audits, certification and their validity.

**CO-8** To understand Certificates and documents required on board ships.

**CO-9** To understand ISM Code and its requirements.

**CO-10** To understand Safety Management System, Documentation and Certification.



**15EMR101 ELECTRICAL ENGINEERING LAB - BASIC 0 0 3 1****Course objective:**

- Able to operate electrical, electronic and control system Manage operations of electrical and electronic equipment Operation, surveillance.

**Course outcome:**

**CO-1** To understand Measurement of resistance using battery, voltmeter and ammeter.

**CO-2** To understand Measurement of voltage using voltmeter – description of voltmeter.

**CO-3** To understand Measurement of current using ammeter – description of ammeter.

**CO-4** To understand Measurement of power in a DC circuit .

**CO-5** To understand Measurement of power in an AC circuit, and calculation of power factor.

**CO-6** To understand parallel operation of DC Generators.

**CO-7** To understand parallel operation of AC Generators.

**CO-8** To understand Applications of HV equipment and advantages of HV.

**CO-9** To understand Battery charging circuit.

**15EMR103 SAFE WORKING PRACTICES 0 0 2 1****Course objective:**

- able to do Maintenance and repair of shipboard machinery and equipment Safety measures to be taken for repair and maintenance.

**Course outcome:**

**CO-1** To understand General shipboard safety procedures.

**CO-2** To understand Procedures for isolating, and safety checks prior to overhaul of machineries.

**15EMR104 ADVANCED MARINE WORKSHOP (DECK M/C) 0 0 4 2****Course objective:**

- Able to operate main and auxiliary machinery, associated control systems and Deck machinery.

**Course outcome:**

**CO-1** To understand Windlass and Mooring Winches.

**CO-2** To understand Circuit diagrams of hydraulic systems.

**CO-3** To understand Cranes – Electro-hydraulic and totally hydraulic systems.

**CO-4** To understand the safety features installed on Cranes.

**CO-5** To understand Hydraulic and Mechanical hatch-cover operation.

**CO-6** To understand Operation of hydraulic ramps, bow-doors on ferries.

**CO-7** To understand Constructional features, operation and maintenance required for Life Boat Winch.

**CO-8** To understand Constructional features, operation and maintenance required for accommodation Ladder Winch.

**CO-9** To understand Steering Gear - 4 ram and 2 ram type.

**CO-10** To understand Testing of steering departure and arrival port.

**15EMR105 ADVANCED MARINE WORKSHOP (MAM I) 0 0 2 2****Course objective:**

- able to operate main and auxiliary machinery and associated control systems Shafting installations, including propeller and other auxiliaries.

**Course outcome:**

**CO-1** To understand Inspection of propulsion transmission systems.

**CO-2** To understand Types of propellers and features.

**CO-3** To understand Heat Exchangers.

**CO-4** To understand filters.

**CO-5** To understand Steering Gear, Stabilizers & Bow Thrusters.

**CO-6** To understand overhaul of air compressors.

**CO-7** To understand safe starting & operation of air compressors.

**CO-8** To understand inspection of air bottles.

**CO-9** To understand Construction, characteristics and operation of Fresh Water Generators.

**15EMR106 MARINE ENVIRONMENTAL POLLUTION CONTROL 3 0 0 2****Course objective:**

- Able to ensure compliance with pollution prevention requirements.

**Course outcome:**

**CO-1** To understand marine environmental pollution & its impact.

**CO-2** To understand precaution for oil transfer.

**CO-3** To understand operation of pollution prevention equipments.

**CO-4** To understand MARPOL requirements & documentation.

**CO-5** To understand various convention (ballast water management).

**CO-6** To understand various annexes in MARPOL.

**CO-7** To understand OPA 90 & antifouling convention.

**CO-8** To understand environmental impact of accidental & operational discharges.

**CO-9** To understand emergency actions to protect & safeguard the environment.

**15EMR107 SEAMANSHIP PRACTICAL 0 0 2 1****Course objective:**

- Able to understand semen duties, ship departments, signals, lights etc.

**Course outcome:**

**CO-1** To understand seamen & their duties.

**CO-2** To understand general ship knowledge.

**CO-3** To understand nautical terms.

**CO-4** To understand navigational lights.

**CO-5** To understand signals.

**CO-6** To understand mooring.

**CO-7** To understand types of knots.

**CO-8** To understand cable stopper.

**CO-9** To understand general knowledge of principles of navigation.

**CO-10** To understand about echosounder.

**15EMR108 ADVANCED MARINE WORKSHOP (MEP I) 0 0 5 4****Course objective:**

- Able to use hand tools, machine tools and measuring instruments for fabrication and repair on board.

**Course outcome:****CO-1** To understand about dismantling of main engine cylinder liner.**CO-2** To understand about material for boilers.**CO-3** To understand about material for gas turbines.**CO-4** To understand safety measures taken while using power tools & machine tools.**CO-5** To understand the process of welded repair and construction.**CO-6** To understand Destructive and Non-destructive testing of welds.**CO-7** To understand Use of various types of sealants and packings.**CO-8** To understand about precision measuring instruments.

**15EMR109 MARINE HYDRAULIC SYSTEMS 5 0 0 4****Course objective:**

- Able to understand the importance of various aspects of Marine Hydraulic Systems prevalent on board ships, with specific reference to main, auxiliary hydraulic systems, rotary and liners drives, control, operational, safety and emergency operation of all hydraulic systems.

**Course outcome:**

**CO-1** To understand Introduction to Marine Hydraulic systems.

**CO-2** To understand the usage of marine hydraulic systems.

**CO-3** To understand Marine hydraulics for application of rotary and linear motion drives on winches.

**CO-4** To understand Marine hydraulics for application of rotary and linear motion drives on windlass.

**CO-5** To understand Marine hydraulics for application for deck cranes & hatch covers of cargo ships.

**CO-6** To understand Marine hydraulics for application grabs for cargo ships.

**CO-7** To understand hydraulic system of steering gear.

**CO-8** To understand safety feature of steering system.

**CO-9** To understand Operational, safety and emergency operation of all hydraulic systems.



**15EMR110 ADVANCED MARINE WORKSHOP – REFRIGERATION AND AIRCONDITIONING TRAINER 0 0 1 1****Course objective:**

- Able to operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand the circuit of refrigeration system.

**CO-2** To understand the circuit of air conditioning system.

**15EMR111 ELECTRICAL LAB II + ELECTRICAL WORKSHOP 0052****Course objective:**

- able to Maintenance and repair of electrical and electronic equipment.

**Course outcome:**

**CO-1** To understand the alarm system onboard.

**CO-2** To understand the fault & repair on generators & motors.

**CO-3** To understand about distribution systems.

**CO-4** To understand about testing equipments.

**CO-5** To understand about electrical protective devices.

**CO-6** To understand the electrical systems for operation in flammable region.

**CO-7** To understand the maintenance of Ex-protected apparatus.

**CO-8** To understand about safe electrical practice.

**CO-9** To understand about electric fire fighting.

**CO-10** To understand about electric shock & electric hazards.

**15EMR113 ADVANCED MARINE WORKSHOP (ELECTRICAL) 0 0 2 1****Course objective:**

- Able to Maintenance and repair of electrical and electronic equipment.

**Course outcome:**

**CO-1** To understand about insulation tester.

**CO-2** To understand about continuity tester.

**CO-3** To understand use of multi tester.

**CO-4** To understand use of clamp meter.

**CO-5** To understand about analog & digital voltmeters.

**CO-6** To understand about analog & digital ammeters.

**CO-7** To understand about analog & digital tachometers.

**CO-8** To understand about analog & digital frequency meters.

**CO-9** To understand about analog & digital factor meters.

**15EMR116 MARINE ENGINEERING PRACTICE III - SIMULATOR LAB****0 0 3 2****Course objective:**

- Able to manage safe and effective maintenance and repair procedures, Detect and identify the cause of machinery malfunctions and correct faults, Ensure safe working practices.

**Course outcome:**

**CO-1** To understand Plant arrangements on Simulator Panels.

**CO-2** To understand Instrumentation and Control System for Main and Auxiliary Machineries.

**CO-3** To understand Procedures for Pumps and Pumping Systems.

**CO-4** To understand Procedures for Air Compressors, Purifiers, Hydrophore System.

**CO-5** To understand Procedures for Diesel operated aux. engines.

**CO-6** To understand Procedures for Steam driven Turbine Generator.

**CO-7** To understand Procedures for Aux. Boiler & Exhaust Boiler.

**CO-8** To understand Procedures for Main Propulsion Diesel Engine.

**CO-9** To understand Procedures for Inert Gas and COPT system.

**CO-10** To understand Procedures for Incinerator plant OWS.

**15EMR117 MARINE MACHINERY START-UP(S-I-C) 0 0 2 1****Course objective:**

- able to manage the operation of propulsion plant machinery Plan and schedule operations Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** To understand bilge pumping system.

**CO-2** To understand ballast pumping system.

**CO-3** To understand steam and condensate line.

**CO-4** To understand Feed water line.

**CO-5** To understand cooling water line.

**CO-6** To understand cargo oil pumping system in oil tankers.

**CO-7** To understand fuel oil line.

**15EMR158 SEAMANSHIP AND COMMERCIAL GEOGRAPHY 2001****Course objective:**

- Able to understand seamen duties, mooring practice, anchors etc.

**Course outcome:**

**CO-1** To understand about the duties of seaman.

**CO-2** To understand about nautical terms.

**CO-3** To understand about ropes & knots.

**CO-4** To understand about mooring.

**CO-5** To understand about anchors.

**CO-6** To understand General knowledge of principles of navigation compasses & echo sounder.

**CO-7** To understand major ports in the world.

**CO-8** To understand economics of sea transport.

**CO-9** To understand the major shipping routes.

**CO-10** To understand the fishing zones.

**15EMR159 ANTI-POLLUTION LAB (IN ADVANCED MAR W/S) 0 0 2 1****Course objective:**

- able to ensure compliance with pollution prevention requirements.

**Course outcome:**

**CO-1** To understand about the operation carried during bunkering, loading & tank cleaning.

**CO-2** To understand sopep equipments.

**CO-3** To understand the environmental impact of accidental oil discharge.

**CO-4** To understand preventive measure to avoid oil spills.

**15EMR160 E/R SIMULATOR PRACTICES 2 0 0 1****Course objective:**

- Able to understand the importance of various aspects of E/R Simulator System and other prevalent systems on board ships, with specific reference to main, auxiliary, cargo machinery safety and operation of all systems.

**Course outcome:**

**CO-1** To understand Introduction to E/R simulator system.

**CO-2** To understand operation control of main engine, aux. engine and others.

**CO-3** To understand objectives of engine room.

**CO-4** To understand manning procedures of engine room.

**CO-5** To understand functions of monitoring panels.

**CO-6** To understand about watch keeping.

**CO-7** To understand the functions of troubleshooting.

**CO-8** To understand about safe operation in engine room.

**CO-9** To understand about the emergency operation.

**15EMR161 CONTROL ENGINEERING LAB 0032****Course objective:**

- Able to Maintenance and repair of electrical and electronic equipment, Manage trouble-shooting, restoration of electrical and electronic control equipment to operating condition.

**Course outcome:**

**CO-1** able to operate & explain the control process of the fluids viscosity.

**CO-2** To Understand the configuration of various parameters to achieve required viscosity- air pressure, PI control, steam or electrical heater.

**CO-3** To Learn the configuration required for measuring flow control of fluids – temperature, pressure, differential pressure.

**CO-4** To operate oil mist detector understands the importance.

**CO-5** Able to set the set point to reach the output using PID controller.

**CO-6** Able to make motor winding using CNC machine.

**CO-7** Have the knowledge of operating VMC machine & the types of cutter used with it.

**CO-8** Able to control the dc motor speed using electronic server control system.

**CO-9** Able to operate 3 phase induction motor on single phase supply using electronic microprocessor control method.

**CO-10** Have the knowledge of software version of SCADA. Its configuration of operation using PLC & sensors.



**15EMR162 BOILER SHOP 0021****Course objective:**

- Able to operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand inspection of boiler mountings.

**CO-2** To understand safety valve overhauling.

**CO-3** To understand plate type gauge glass overhauling.

**CO-4** To understand main steam stop valve overhauling.

**CO-5** To understand the overhauling of soot blower.

**CO-6** To understand the condition of furnace & checks to be carried on furnace.

**CO-7** To understand the procedure of boiler blowing down.

**CO-8** To understand boiler annual survey.

**15EMR251      COMPUTER SCIENCE      1 0 0 1**

**Course objective:**

- Able to Use Computer Applications (PMS, E Learning, LAN network)etc, Internet and Shipboard Applications.

**Course outcome:**

**CO-1** To understand the evolution of information processing.

**CO-2** To understand about motherboard structure.

**CO-3** To understand about machine language.

**CO-4** To understand fourth generation languages.

**CO-5** To understand concept & functions of operating system.

**CO-6** To understand about DOS & its functions.

**CO-7** To understand about internet topology.

**CO-8** To understand about world wide web.

**CO-9** To understand the application of computers onboard.

**CO-10** To understand about artificial intelligence.

**15EMR252 BASIC WORKSHOP 1 0 0 6 3****Course objective:**

- Able to gain appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair.
- To ensure a safe working environment and for using hand tools, machine tools and measuring instruments.

**Course outcome:**

**CO-1** To make a hexagon block from a round bar by chipping and filing

**CO-2** To make a Male-Female V- fitting.

**CO-3** To make a T-Fitting.

**CO-4** To make a dove tail fitting

**CO-5** To make a Square fitting

**CO-6** To make a H fitting.

**CO-7** To make outside calipers of given dimensions.

**15EMR254 STRENGTH OF MATERIALS LAB 0 0 1 1****Course OBJECTIVE:**

- Able to do Maintenance and repair of shipboard machinery and equipment Design characteristics.
- To know about the Selection of materials in construction of equipment.

**Course outcome:**

**CO-1** To understand Rockwell hardness test.

**CO-2** To understand Brinell hardness test.

**CO-3** To understand Universal testing machine – stress – strain curve.

**CO-4** To understand Torsion test on mild steel rod.

**CO-5** To understand Impact test – Izod and Charpy test.

**CO-6** To understand Compression test on a coil spring.

**15EMR255 BASIC WORKSHOP II 0063****Course objective:**

- Able to appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair on board.
- To know about the Safety measures to be taken to ensure a safe working environment and for using hand tools, machine tools measuring instruments.

**Course outcome:**

**CO-1** To understand about grinding tools.

**CO-2** To understand the procedure for Grinding of cutting tools & welded joints.

**CO-3** To understand technique involved in lathe work.

**CO-4** To understand about shapping.

**CO-5** To understand about drilling.

**CO-6** To understand about arc welding.

**CO-7** To understand about various joints in arc welding.

**CO-8** To understand about gas welding & gas cutting.

**15EMR258 LUBE OIL, FUEL OIL, AND COOLING SYSTEMS 2 0 0 2****Course objective:**

- Able to operate main and auxiliary machinery and associated control systems Fluid flow
- To know the characteristics of lubricating oil, fuel oil and cooling systems.

**Course outcome:**

**CO-1** To understand about engine room layout.

**CO-2** To understand about the layout of various type of ships.

**CO-3** To understand the layout of lube oil pipeline system.

**CO-4** To understand Main circulation system and Continuous by-pass purification system.

**CO-5** To understand the layout of fuel oil pipeline system.

**CO-6** To understand the components of fuel oil system.

**CO-7** To understand the layout of fuel oil bunker & transfer system.

**CO-8** To understand about bunker procedures & precautions.

**CO-9** To understand the layout of main jacket cooling water system.

**CO-10** To understand about the components in jacket cooling system.

**15EMR260 CONTROL ENGINEERING LAB 0 0 2 2****Course objective:**

- able to operate electrical, electronic and control systems, Manage operation of electrical and electronic control equipment, Operation, surveillance, performance assessment.
- To maintain safety of propulsion plant and auxiliary machinery.

**Course outcome:**

**CO-1** Is able to operate & explain the control process of the fluids viscosity.

**CO-2** Understand the configuration of various parameters to achieve required viscosity- air pressure, PI control, steam or electrical heater.

**CO-3** Learns the configuration required for measuring flow control of fluids – temperature, pressure, differential pressure.

**CO-4** In position to operate oil mist detector understands the importance.

**CO-5** Able to set the set point to reach the output using PID controller.

**CO-6** Able to make motor winding using CNC machine.

**CO-7** Have the knowledge of operating VMC machine & the types of cutter used with it.

**CO-8** Able to control the dc motor speed using electronic server control system.

**CO-9** Able to operate 3 phase induction motor on single phase supply using electronic microprocessor control method.

**CO-10** Have the knowledge of software version of SCADA. Its configuration of operation using PLC & sensors.

**15EMR263 SHIP-IN-CAMPUS – DIESEL ENGINE LAB 0 0 4 2****Course objective:**

- Able to operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand about repair & maintenance of main engine.

**CO-2** To understand about repair & maintenance of auxiliary engine.

**15EMR264 SHIP-IN-CAMPUS – SHIP CONSTRUCTION 0 0 2 1****Course objective:**

- Able to maintain seaworthiness of the ship.

**Course outcome:**

**CO-1** To understand about the vertical portion of ship's hull.

**CO-2** To understand about the curved portion of stern of ship's hull.

**CO-3** To understand about the layout of machinery spaces.

**CO-4** To understand about the steering gear.

**CO-5** To understand about the construction of rudder.

**CO-6** To understand about stern tube & propeller.



**15EMR266 SHIP-IN-CAMPUS (PUMPS AND AUXILIARIES) 0 0 3 2**

**COURSE OBJECTIVE:**

- Able to operate fuel, lubrication, ballast and other pumping systems and associated control systems  
Manage fuel, lubrication and ballast operations.

**Course outcome:**

**CO-1** To understand about starting of a pump.

**CO-2** To understand Safety precaution before starting maintenance work on a pump.

**CO-3** To understand about centrifugal pump.

**CO-4** To understand about reciprocating pump.

**CO-5** To understand about screw pump.

**CO-6** To understand about gear pump.

**CO-7** To understand about the trials after overhauling.

**CO-8** To understand about oily water separator & bilge pump.

**CO-9** To understand about cargo oil pump & stripping pump.

**15EMR267 SHIP-IN-CAMPUS (WATCH-KEEPING) 0 0 2 2****Course objective:**

- Able to maintain safe engineering watch Operate main and auxiliary machinery and associated control systems.

**Course outcome:**

**CO-1** To understand Procedures for Handing Over/Taking over a Watch.

**CO-2** To understand routine work on watch keeping.

**CO-3** To understand Purification and clarification of fuel oil.

**CO-4** To understand Safe Working Practices & Risk Assessment.

**CO-5** To understand about personal protective equipment.

**CO-6** To understand the fire precautions.

**CO-7** To understand about the permit to work systems.

**CO-8** To understand emergency procedures.

**CO-9** To understand rescue operation for injured person.

**CO-10** To understand Procedures for Emergency Steering.

**15EMR268 FIRE-FIGHTING/LIFE-SAVING APLLIANCES LAB 0 0 4 3**

**Course objective:**

- Able to Prevent, control and fight fires on board, Operate life-saving appliances.

**Course outcome:**

**CO-1** To understand fire hazard onboard ship & fire basics.

**CO-2** To understand control of fire onboard ship.

**CO-3** To understand fire protection built in ship.

**CO-4** To understand fire detection & safety system.

**CO-5** To understand different fire fighting equipments.

**CO-6** To understand maintenance & testing of fire fighting appliances.

**CO-7** To understand techniques adopted for extinguishing fire at different location onboard ship.

**CO-8** To understand ship board organization for fire & emergency for different types of ships.

**CO-9** To understand contruction & operation of life saving appliances.

**CO-10** To understand construction, operation & maintenance of EEBD & neil Robertson stretcher.

**15EMR270 WATCH KEEPING PRINCIPLES AND PRACTICES 0 0 2 2****COURSE OBJECTIVE:**

- To understand the importance of Watch Keeping Principles and Practices aspects of Ships and others.  
The concepts on watch keeping at different situations and data, record and check lists maintained etc.

**Course Outcome:**

CO – 1: To understand the elements of watch keeping principles and practices

CO – 2: To understand the concepts on watch keeping at different situations

CO – 3: To understand emergency response plans

**2.2 Teaching – Learning Processes (70)****2.2.1 Describe processes followed to improve quality of Teaching & Learning (15)**

1. Academic calendar of events is prepared well in advance before the commencement of the semester based on college calendar of events.
2. Subject allotment is done well in advance for the staff the prepare their corresponding subjects lesson plan, course plan, any PowerPoint presentations of the lecturer notes.
3. The faculty of the department adopts various innovative Teaching & Learning methodologies to create the best learning environment for student
4. The methodologies include black board teaching, presentations, video lecturing.
5. The duration for Lecturer session may be 60 minutes to 120 minutes based on the subjects.
6. The duration for Laboratory is 3 Hours.
7. Assignments are given to students for their better performance
8. Tutorial/Remedial classes are conducted for the slow learners based on their performance in the internal exams.

### 2.2.2 Quality of end semester examination, internal semester question papers, assignment and evaluation (15)

- The department conducts three internal assessment test and one model examination
- Each test covers one third of the syllabus
- The tests are conducted for a maximum of 20 Marks for CA Test and maximum of 100 marks of Model Examination
- The duration of CA Test is one hour and Model Examination is three hours.
- Question Papers:
  - For each subjects, question bank is prepared well in advanced
  - The mark split up for the question bank is as follows
  - 10 Questions X 2 Marks = 20 Marks
  - 5 Questions X 16 Marks (either or type) = 80 Marks
- Assignments
  - Assignment issue and submission dates are announced by the respective faculty members
  - 5 marks will be assigned for Assignments.
- Evaluation
  - The faculties after every internal assessment test they explain the solution of the questions in the class which will enable them to perform well in the final examination
  - If the student remains absent for all the tests conducted, the CA marks are marked as Absent in the result

### 2.2.3 Quality of Student Projects (20)

**As per DGS Norms, no projects will be allotted.**

### 2.2.4 Initiatives related to industry reaction (10)

- The college encourages the students to participate in inter collegiate contents to demonstrate their skills, paper presentations, etc
- Ship visits are arranged on each semester for the all students to gather the hand on experience in the real ships

**2.2.5 Initiatives related to industry internship/summer training (10)**

**Not Applicable for B.E Marine Engineering Course**

CRITERION 3	Course Outcomes and Program Outcomes	175
-------------	--------------------------------------	-----

### 3.1 Establish the correlation between the courses and the Program Outcomes (Pos) & Course – B.E Marine Engineering

Marine engineering applies basic engineering principles to systems designed to operate in predominately aquatic environments.

- This includes not only all types of seafaring vessels, docks, harbors, freight-handling facilities, oil platforms, wind turbines and shipbuilding facilities, but also engines, motors, navigational and communications devices, rigging, tools, foul-weather gear and safety equipment.
- Marine engineering employs techniques from many engineering disciplines.
- A four-year program may be sufficient to acquaint the student with the breadth of subject areas pertinent to marine engineers, but is unlikely to offer much depth in any single discipline.
- Basic courses include the following:
  - Engineering analysis principles
  - Fluid mechanics
  - Marine structures
  - Wave mechanics
  - Naval architecture
  - Ship dynamics

**Program Specific Outcomes (PSOs)****To enable the student to emerge as:**

PSO 01: To get well versed in basics of electronics

PSO 02: To understand the concept of Basics of Electric Motors and Starters

PSO 03: To get well versed in Engineering Drawing

PSO 04: To get well versed in Marine Machinery Drawing

PSO 05: To get well versed in Thermodynamics

PSO 06: To apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems

PSO 07: To get well versed in engineering concepts (mechanics, graphics & tools).

PSO 08: To understand structures, mechanic of materials, hydraulics & TD concepts.

PSO 09: To understand various deck machinery & electrical machinery onboard the ship.

PSO 10: To understand MAM, safe maintenance of ships & electronics onboard of the ship.

PSO 11: To understand the marine control system, marine IC engines & safe working practices.

PSO 12: To understand marine refrigeration & air conditioning, advance MICE & basic naval architecture

PSO 13: To understand the marine power plant operation, pumping system, advance naval architecture, testing & protection of electrical system onboard the ship.

PSO 14: Importance of FPF, marine boilers, legislation, leadership & ship security.



### 3.2 Attainment of Course Outcomes (50)

#### 3.2.1. Describe the assessment tools and processes used to gather the data upon which the evaluation of Course Outcome is based (10)

Assessment tools are categorized into two methods to assess the course outcomes as:

#### Direct Methods and Indirect Methods

Direct Assessment Methods		
Sl.NO	Direct Assessment	Method Description
1.	<b>Internal Assessment Test</b>	The Internal Assessment Marks in a theory paper shall be based on three CAT Test and One Model Examinations.  An improvement test may be conducted for the desirous students before the end of the semester to give an opportunity to such students to improve their Internal Assessment Marks.
2.	<b>Lab Assignments and Experiments</b>	Lab Assignment can be one of the measuring criteria to mainly assess student's practical knowledge with their designing capabilities.  In case of Practical, the IA marks shall be based on their lab performance.
3.	<b>Theory Semester Examination</b>	Semester End Examinations are the main metric assess whether all the course outcomes are attained.  Semester End Examinations is more focused on attainment of course outcomes and use a descriptive exam.
4.	<b>Practical Semester Examination</b>	Practical Semester End Examinations conducted on every semester end to assess their practical knowledge
5.	<b>Assignments and Seminar</b>	Assignments and Seminar will be given to student by their respective faculty members

to get more knowledge on the subjects

### Indirect Assessment Methods

Sl.NO	Indirect Assessment	Method Description
1.	Student Feedback	Collect variety of information about outcome based education in teaching and learning process
2.	Feedback Form on Facilities	Collect variety of information about the facilities from the students.
3.	Alumni: Survey Questionnaire	Collect variety of information about program Satisfaction and college from the Alumni students

### 3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (65)

C – Course Outcomes

Outcome of the course are based on the Exams conducted Internally as well as Semester Exams

Assessment Methods	Attainment Levels	
Internal & External Assessment	Level 1 Score: 3	Percentage of Students scoring more than 80% in Internal Assessment Tools & University Exam
	Level 2 Score: 2	Percentage of Students scoring more than 60% in Internal Assessment Tools & University Exam
	Level 3 Score: 1	Percentage of Students scoring more than 40% in Internal Assessment Tools & University Exam

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR001				
Course Name	MATHEMATICS - I				
CO Code	C101				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C101.1	C101.2	C101.3	C101.4	C101.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR001				
Course Name	MATHEMATICS - I				
CO Code	C101				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C101.1	C101.2	C101.3	C101.4	C101.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR001</b>				
<b>Course Name</b>	<b>MATHEMATICS - I</b>				
<b>CO Code</b>	<b>C101</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C101.1</b>	<b>C101.2</b>	<b>C101.3</b>	<b>C101.4</b>	<b>C101.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.75	2.75	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	<b>15EMR002</b>				
<b>Course Name</b>	<b>ELECTRICAL ENGINEERING BASICS</b>				
<b>CO Code</b>	<b>C102</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 11</b>			<b>CO Batch</b>	<b>Batch A</b>
<b>Assessment Tool</b>	<b>C102.1</b>	<b>C102.2</b>	<b>C102.3</b>	<b>C102.4</b>	<b>C102.5</b>
<b>Class Test 1</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (A Batch)</b>	<b>2.75</b>	<b>2.75</b>	<b>2.75</b>	<b>2.5</b>	<b>2.25</b>

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR002				
Course Name	ELECTRICAL ENGINEERING BASICS				
CO Code	C102				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C102.1	C102.2	C102.3	C102.4	C102.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR002</b>				
<b>Course Name</b>	<b>ELECTRICAL ENGINEERING BASICS</b>				
<b>CO Code</b>	<b>C102</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C102.1</b>	<b>C102.2</b>	<b>C102.3</b>	<b>C102.4</b>	<b>C102.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.5	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.5	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.75	2.75	2.5	2.25
<b>Overall CO Attainment</b>	<b>3</b>				



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR003				
Course Name	ENGINEERING DRAWING				
CO Code	C103				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C103.1	C103.2	C103.3	C103.4	C103.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR003				
Course Name	ENGINEERING DRAWING				
CO Code	C103				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C103.1	C103.2	C103.3	C103.4	C103.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR003</b>				
<b>Course Name</b>	<b>ENGINEERING DRAWING</b>				
<b>CO Code</b>	<b>C103</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C103.1</b>	<b>C103.2</b>	<b>C103.3</b>	<b>C103.4</b>	<b>C103.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.50	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.75	2.75	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	<b>15EMR201</b>				
<b>Course Name</b>	<b>TECHNICAL ENGLISH</b>				
<b>CO Code</b>	<b>C104</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 11</b>			<b>CO Batch</b>	<b>Batch A</b>
<b>Assessment Tool</b>	<b>C104.1</b>	<b>C104.2</b>	<b>C104.3</b>	<b>C104.4</b>	<b>C104.5</b>
<b>Class Test 1</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (A Batch)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.25</b>

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15EMR201</b>				
<b>Course Name</b>	<b>TECHNICAL ENGLISH</b>				
<b>CO Code</b>	<b>C104</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C104.1</b>	<b>C104.2</b>	<b>C104.3</b>	<b>C104.4</b>	<b>C104.5</b>
<b>Class Test 1</b>	2	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	2	-	-
<b>Model Exam</b>	-	-	-	2	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	2.5	2.5	2.5	2.5	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (B Batch)</b>	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR201</b>				
<b>Course Name</b>	<b>TECHNICAL ENGLISH</b>				
<b>CO Code</b>	<b>C104</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C104.1</b>	<b>C104.2</b>	<b>C104.3</b>	<b>C104.4</b>	<b>C104.5</b>
<b>A Batch</b>	3.00	3.00	3.00	3.00	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.88	2.88	2.88	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR202				
Course Name	WORKSHOP TECHNOLOGY				
CO Code	C105				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C105.1	C105.2	C105.3	C105.4	C105.5
Class Test 1	3	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	3	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	3	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR202				
Course Name	WORKSHOP TECHNOLOGY				
CO Code	C105				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C105.1	C105.2	C105.3	C105.4	C105.5
Class Test 1	3	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	3	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	3	2.75	2.75	2.5	2.25



**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR202</b>				
<b>Course Name</b>	<b>WORKSHOP TECHNOLOGY</b>				
<b>CO Code</b>	<b>C105</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C105.1</b>	<b>C105.2</b>	<b>C105.3</b>	<b>C105.4</b>	<b>C105.5</b>
<b>A Batch</b>	3.00	2.75	2.75	2.50	2.25
<b>B Batch</b>	2.75	2.75	3.00	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.75	2.88	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR203				
Course Name	ENGINEERING MECHANICS				
CO Code	C106				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C106.1	C106.2	C106.3	C106.4	C106.5
Class Test 1	2	-	-	-	-
Class Test 2	-	3	-	-	-
Class Test 3	-	-	3	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	3	3	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	3	3	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR203				
Course Name	ENGINEERING MECHANICS				
CO Code	C106				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C106.1	C106.2	C106.3	C106.4	C106.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR203</b>				
<b>Course Name</b>	<b>ENGINEERING MECHANICS</b>				
<b>CO Code</b>	<b>C106</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C106.1</b>	<b>C106.2</b>	<b>C106.3</b>	<b>C106.4</b>	<b>C106.5</b>
<b>A Batch</b>	2.75	3.00	3.00	2.50	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.88	2.88	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR251				
Course Name	COMPUTER SCIENCE				
CO Code	C107				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C107.1	C107.2	C107.3	C107.4	C107.5
Class Test 1	3	-	-	-	-
Class Test 2	-	3	-	-	-
Class Test 3	-	-	3	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	3	3	3	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	3	3	3	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR251				
Course Name	COMPUTER SCIENCE				
CO Code	C107				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C107.1	C107.2	C107.3	C107.4	C107.5
Class Test 1	3	-	-	-	-
Class Test 2	-	3	-	-	-
Class Test 3	-	-	3	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	3	3	3	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	3	3	3	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR251</b>				
<b>Course Name</b>	<b>COMPUTER SCIENCE</b>				
<b>CO Code</b>	<b>C107</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C107.1</b>	<b>C107.2</b>	<b>C107.3</b>	<b>C107.4</b>	<b>C107.5</b>
<b>A Batch</b>	3.00	3.00	3.00	2.50	2.25
<b>B Batch</b>	3.00	3.00	3.00	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	3.00	3.00	3.00	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	<b>15EMR004</b>				
<b>Course Name</b>	<b>MECHANICS OF MATERIALS</b>				
<b>CO Code</b>	<b>C108</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 11</b>			<b>CO Batch</b>	<b>Batch A</b>
<b>Assessment Tool</b>	<b>C108.1</b>	<b>C108.2</b>	<b>C108.3</b>	<b>C108.4</b>	<b>C108.5</b>
<b>Class Test 1</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>2</b>	<b>3</b>	<b>2.5</b>	<b>2</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (A Batch)</b>	<b>2.5</b>	<b>3</b>	<b>2.75</b>	<b>2.5</b>	<b>2.25</b>



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15EMR004</b>				
<b>Course Name</b>	<b>MECHANICS OF MATERIALS</b>				
<b>CO Code</b>	<b>C108</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C108.1</b>	<b>C108.2</b>	<b>C108.3</b>	<b>C108.4</b>	<b>C108.5</b>
<b>Class Test 1</b>	2	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	2	-	-
<b>Model Exam</b>	-	-	-	1	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	2.5	2.5	2.5	2	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (B Batch)</b>	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR004</b>				
<b>Course Name</b>	<b>MECHANICS OF MATERIALS</b>				
<b>CO Code</b>	<b>C108</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C108.1</b>	<b>C108.2</b>	<b>C108.3</b>	<b>C108.4</b>	<b>C108.5</b>
<b>A Batch</b>	2.50	3.00	2.75	2.50	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.88	2.75	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR005				
Course Name	MATHEMATICS - II				
CO Code	C109				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C109.1	C109.2	C109.3	C109.4	C109.5
Class Test 1	1	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	-	-	-
Model Exam	-	-	-	-	-
Assignment	3	3	3	3	3
Internal Attainment	2	2	1.5	1.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.5	2.5	2.25	2.25	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15EMR005</b>				
<b>Course Name</b>	<b>MATHEMATICS - II</b>				
<b>CO Code</b>	<b>C109</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C109.1</b>	<b>C109.2</b>	<b>C109.3</b>	<b>C109.4</b>	<b>C109.5</b>
<b>Class Test 1</b>	2	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	2	-	-
<b>Model Exam</b>	-	-	-	1	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	2.5	2.5	2.5	2	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (B Batch)</b>	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR005</b>				
<b>Course Name</b>	<b>MATHEMATICS - II</b>				
<b>CO Code</b>	<b>C109</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C109.1</b>	<b>C109.2</b>	<b>C109.3</b>	<b>C109.4</b>	<b>C109.5</b>
<b>A Batch</b>	2.50	2.50	2.25	2.25	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.63	2.50	2.38	2.25
<b>Overall CO Attainment</b>	<b>2</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR006				
Course Name	MATERIALS SCIENCE - I				
CO Code	C110				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C110.1	C110.2	C110.3	C110.4	C110.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR006				
Course Name	MATERIALS SCIENCE - I				
CO Code	C110				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C110.1	C110.2	C110.3	C110.4	C110.5
Class Test 1	3	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	3	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	3	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR006</b>				
<b>Course Name</b>	<b>MATERIALS SCIENCE - I</b>				
<b>CO Code</b>	<b>C110</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C110.1</b>	<b>C110.2</b>	<b>C110.3</b>	<b>C110.4</b>	<b>C110.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>B Batch</b>	3.00	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.75	2.75	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	<b>15EMR007</b>				
<b>Course Name</b>	<b>MARINE MACHINERY DRAWING - I</b>				
<b>CO Code</b>	<b>C111</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 11</b>			<b>CO Batch</b>	<b>Batch A</b>
<b>Assessment Tool</b>	<b>C111.1</b>	<b>C111.2</b>	<b>C111.3</b>	<b>C111.4</b>	<b>C111.5</b>
<b>Class Test 1</b>	2	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	2	-	-
<b>Model Exam</b>	-	-	-	2	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	2.5	2.5	2.5	2.5	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (A Batch)</b>	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR007				
Course Name	MARINE MACHINERY DRAWING - I				
CO Code	C111				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C111.1	C111.2	C111.3	C111.4	C111.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR007</b>				
<b>Course Name</b>	<b>MARINE MACHINERY DRAWING - I</b>				
<b>CO Code</b>	<b>C111</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C111.1</b>	<b>C111.2</b>	<b>C111.3</b>	<b>C111.4</b>	<b>C111.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.75	2.75	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR205				
Course Name	PUMPS AND PUMPING SYSTEM - I				
CO Code	C112				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C112.1	C112.2	C112.3	C112.4	C112.5
Class Test 1	2	-	-	-	-
Class Test 2	-	3	-	-	-
Class Test 3	-	-	3	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	3	3	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	3	3	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR205				
Course Name	PUMPS AND PUMPING SYSTEM - I				
CO Code	C112				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C112.1	C112.2	C112.3	C112.4	C112.5
Class Test 1	3	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	3	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	3	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR205</b>				
<b>Course Name</b>	<b>PUMPS AND PUMPING SYSTEM - I</b>				
<b>CO Code</b>	<b>C112</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C112.1</b>	<b>C112.2</b>	<b>C112.3</b>	<b>C112.4</b>	<b>C112.5</b>
<b>A Batch</b>	2.75	3.00	3.00	2.75	2.25
<b>B Batch</b>	3.00	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.88	2.88	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15EMR206				
Course Name	THERMODYNAMICS - I				
CO Code	C113				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C113.1	C113.2	C113.3	C113.4	C113.5
Class Test 1	1	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.5	2.5	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15EMR206				
Course Name	THERMODYNAMICS - I				
CO Code	C113				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C113.1	C113.2	C113.3	C113.4	C113.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.5	2.25



**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15EMR206</b>				
<b>Course Name</b>	<b>THERMODYNAMICS - I</b>				
<b>CO Code</b>	<b>C113</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C113.1</b>	<b>C113.2</b>	<b>C113.3</b>	<b>C113.4</b>	<b>C113.5</b>
<b>A Batch</b>	2.50	2.50	2.75	2.50	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.63	2.75	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE31				
Course Name	ELECTRIC MOTORS AND STARTERS - I				
CO Code	C114				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C114.1	C114.2	C114.3	C114.4	C114.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE31				
Course Name	ELECTRIC MOTORS AND STARTERS - I				
CO Code	C114				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C114.1	C114.2	C114.3	C114.4	C114.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.75	2.5	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE31</b>				
<b>Course Name</b>	<b>ELECTRIC MOTORS AND STARTERS - I</b>				
<b>CO Code</b>	<b>C114</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C114.1</b>	<b>C114.2</b>	<b>C114.3</b>	<b>C114.4</b>	<b>C114.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.50	2.75	2.50	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.75	2.63	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE32				
Course Name	ELECTRONICS - I				
CO Code	C115				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C115.1	C115.2	C115.3	C115.4	C115.5
Class Test 1	3	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	3	2	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	3	2.5	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE32				
Course Name	ELECTRONICS - I				
CO Code	C115				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C115.1	C115.2	C115.3	C115.4	C115.5
Class Test 1	2	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2	2	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.5	2.5	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE32</b>				
<b>Course Name</b>	<b>ELECTRONICS - I</b>				
<b>CO Code</b>	<b>C115</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C115.1</b>	<b>C115.2</b>	<b>C115.3</b>	<b>C115.4</b>	<b>C115.5</b>
<b>A Batch</b>	3.00	2.50	2.75	2.75	2.25
<b>B Batch</b>	2.75	2.50	2.50	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.50	2.63	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE33				
Course Name	MATERIAL SCIENCE - II				
CO Code	C116				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C116.1	C116.2	C116.3	C116.4	C116.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.5	2.75	2.5	2.5	2.25



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE33				
Course Name	MATERIAL SCIENCE - II				
CO Code	C116				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C116.1	C116.2	C116.3	C116.4	C116.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE33</b>				
<b>Course Name</b>	<b>MATERIAL SCIENCE - II</b>				
<b>CO Code</b>	<b>C116</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C116.1</b>	<b>C116.2</b>	<b>C116.3</b>	<b>C116.4</b>	<b>C116.5</b>
<b>A Batch</b>	2.50	2.75	2.50	2.50	2.25
<b>B Batch</b>	2.50	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.50	2.75	2.63	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE34				
Course Name	MARINE MACHINERY DRAWING - II				
CO Code	C117				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C117.1	C117.2	C117.3	C117.4	C117.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE34				
Course Name	MARINE MACHINERY DRAWING - II				
CO Code	C117				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C117.1	C117.2	C117.3	C117.4	C117.5
Class Test 1	1	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	-	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2	1.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.5	2.25	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE34</b>				
<b>Course Name</b>	<b>MARINE MACHINERY DRAWING - II</b>				
<b>CO Code</b>	<b>C117</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C117.1</b>	<b>C117.2</b>	<b>C117.3</b>	<b>C117.4</b>	<b>C117.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.50	2.50	2.25	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.63	2.50	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	<b>15CMRE35</b>				
<b>Course Name</b>	<b>DECK MACHINERY</b>				
<b>CO Code</b>	<b>C118</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 11</b>			<b>CO Batch</b>	<b>Batch A</b>
<b>Assessment Tool</b>	<b>C118.1</b>	<b>C118.2</b>	<b>C118.3</b>	<b>C118.4</b>	<b>C118.5</b>
<b>Class Test 1</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>2.5</b>	<b>2.5</b>	<b>2</b>	<b>2</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (A Batch)</b>	<b>2.75</b>	<b>2.75</b>	<b>2.5</b>	<b>2.5</b>	<b>2.25</b>

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE35				
Course Name	DECK MACHINERY				
CO Code	C118				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C118.1	C118.2	C118.3	C118.4	C118.5
Class Test 1	1	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2	2	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.5	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE35</b>				
<b>Course Name</b>	<b>DECK MACHINERY</b>				
<b>CO Code</b>	<b>C118</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C118.1</b>	<b>C118.2</b>	<b>C118.3</b>	<b>C118.4</b>	<b>C118.5</b>
<b>A Batch</b>	2.75	2.75	2.50	2.50	2.25
<b>B Batch</b>	2.50	2.50	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.63	2.63	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

<b>Course Code</b>	15CMRE36				
<b>Course Name</b>	THERMODYNAMICS - II				
<b>CO Code</b>	C119				
<b>Batch</b>	B.E Marine Engineering - 11			CO Batch	Batch A
<b>Assessment Tool</b>	<b>C119.1</b>	<b>C119.2</b>	<b>C119.3</b>	<b>C119.4</b>	<b>C119.5</b>
<b>Class Test 1</b>	3	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	3	-	-
<b>Model Exam</b>	-	-	-	2	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	3	2.5	3	2.5	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (A Batch)</b>	3	2.75	3	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	15CMRE36				
<b>Course Name</b>	THERMODYNAMICS - II				
<b>CO Code</b>	C119				
<b>Batch</b>	B.E Marine Engineering - 12			CO Batch	Batch B
<b>Assessment Tool</b>	<b>C119.1</b>	<b>C119.2</b>	<b>C119.3</b>	<b>C119.4</b>	<b>C119.5</b>
<b>Class Test 1</b>	2	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	1	-	-
<b>Model Exam</b>	-	-	-	2	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	2.5	2.5	2	2.5	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (B Batch)</b>	2.75	2.75	2.5	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE36</b>				
<b>Course Name</b>	<b>THERMODYNAMICS - II</b>				
<b>CO Code</b>	<b>C119</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C119.1</b>	<b>C119.2</b>	<b>C119.3</b>	<b>C119.4</b>	<b>C119.5</b>
<b>A Batch</b>	3.00	2.75	3.00	2.75	2.25
<b>B Batch</b>	2.75	2.75	2.50	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.75	2.75	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE41				
Course Name	ELECTRIC MOTORS AND STARTERS - I				
CO Code	C120				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C120.1	C120.2	C120.3	C120.4	C120.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15CMRE41</b>				
<b>Course Name</b>	<b>ELECTRIC MOTORS AND STARTERS - I</b>				
<b>CO Code</b>	<b>C120</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C120.1</b>	<b>C120.2</b>	<b>C120.3</b>	<b>C120.4</b>	<b>C120.5</b>
<b>Class Test 1</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>2.5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (B Batch)</b>	<b>2.75</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.25</b>

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE41</b>				
<b>Course Name</b>	<b>ELECTRIC MOTORS AND STARTERS - I</b>				
<b>CO Code</b>	<b>C120</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C120.1</b>	<b>C120.2</b>	<b>C120.3</b>	<b>C120.4</b>	<b>C120.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.75	2.50	2.50	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.63	2.63	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE42				
Course Name	ELECTRONICS - II				
CO Code	C121				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C121.1	C121.2	C121.3	C121.4	C121.5
Class Test 1	2	-	-	-	-
Class Test 2	-	3	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	3	2	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	3	2.5	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE42				
Course Name	ELECTRONICS - II				
CO Code	C121				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C121.1	C121.2	C121.3	C121.4	C121.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.75	2.75	2.75	2.5	2.25



**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE42</b>				
<b>Course Name</b>	<b>ELECTRONICS - II</b>				
<b>CO Code</b>	<b>C121</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C121.1</b>	<b>C121.2</b>	<b>C121.3</b>	<b>C121.4</b>	<b>C121.5</b>
<b>A Batch</b>	2.75	3.00	2.50	2.75	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.75	2.88	2.63	2.63	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE43				
Course Name	THERMAL ENGINEERING				
CO Code	C122				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C122.1	C122.2	C122.3	C122.4	C122.5
Class Test 1	3	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	3	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	3	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15CMRE43</b>				
<b>Course Name</b>	<b>THERMAL ENGINEERING</b>				
<b>CO Code</b>	<b>C122</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C122.1</b>	<b>C122.2</b>	<b>C122.3</b>	<b>C122.4</b>	<b>C122.5</b>
<b>Class Test 1</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 2</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Class Test 3</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>
<b>Model Exam</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>
<b>Assignment</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Internal Attainment</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>1.5</b>
<b>External Attainment (University Exam)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total Attainment (B Batch)</b>	<b>2.75</b>	<b>2.75</b>	<b>2.75</b>	<b>2.75</b>	<b>2.25</b>

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE43</b>				
<b>Course Name</b>	<b>THERMAL ENGINEERING</b>				
<b>CO Code</b>	<b>C122</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C122.1</b>	<b>C122.2</b>	<b>C122.3</b>	<b>C122.4</b>	<b>C122.5</b>
<b>A Batch</b>	3.00	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.88	2.75	2.75	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE44				
Course Name	SAFE MAINTENANCE ON SHIPS				
CO Code	C123				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C123.1	C123.2	C123.3	C123.4	C123.5
Class Test 1	2	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2.5	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.75	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE44				
Course Name	SAFE MAINTENANCE ON SHIPS				
CO Code	C123				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C123.1	C123.2	C123.3	C123.4	C123.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2.5	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.75	2.75	2.75	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15CMRE44</b>				
<b>Course Name</b>	<b>SAFE MAINTENANCE ON SHIPS</b>				
<b>CO Code</b>	<b>C123</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C123.1</b>	<b>C123.2</b>	<b>C123.3</b>	<b>C123.4</b>	<b>C123.5</b>
<b>A Batch</b>	2.75	2.75	2.75	2.75	2.25
<b>B Batch</b>	2.50	2.75	2.75	2.75	2.25
<b>Average Attainment (A &amp; B)</b>	2.63	2.75	2.75	2.75	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15CMRE45				
Course Name	MARINE AUXILIARY MACHINERY				
CO Code	C124				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C124.1	C124.2	C124.3	C124.4	C124.5
Class Test 1	1	-	-	-	-
Class Test 2	-	1	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	2	-
Assignment	3	3	3	3	3
Internal Attainment	2	2	2	2.5	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.5	2.5	2.5	2.75	2.25



**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

Course Code	15CMRE45				
Course Name	MARINE AUXILIARY MACHINERY				
CO Code	C124				
Batch	B.E Marine Engineering - 12			CO Batch	Batch B
Assessment Tool	C124.1	C124.2	C124.3	C124.4	C124.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	2	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2.5	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (B Batch)	2.5	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

Course Code	15CMRE45				
Course Name	MARINE AUXILIARY MACHINERY				
CO Code	C124				
Batch	Batch A & B				
CO'S	C124.1	C124.2	C124.3	C124.4	C124.5
A Batch	2.50	2.50	2.50	2.75	2.25
B Batch	2.50	2.75	2.75	2.50	2.25
Average Attainment (A & B)	2.50	2.63	2.63	2.63	2.25
Overall CO Attainment	<b>3</b>				

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch A**

Course Code	15SMRE41				
Course Name	LUBE OIL FUEL OIL AND COOLING SYSTEMS				
CO Code	C125				
Batch	B.E Marine Engineering - 11			CO Batch	Batch A
Assessment Tool	C125.1	C125.2	C125.3	C125.4	C125.5
Class Test 1	1	-	-	-	-
Class Test 2	-	2	-	-	-
Class Test 3	-	-	1	-	-
Model Exam	-	-	-	1	-
Assignment	3	3	3	3	3
Internal Attainment	2	2.5	2	2	1.5
External Attainment (University Exam)	3	3	3	3	3
Total Attainment (A Batch)	2.5	2.75	2.5	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****CO Attainment for Batch B**

<b>Course Code</b>	<b>15SMRE41</b>				
<b>Course Name</b>	<b>LUBE OIL FUEL OIL AND COOLING SYSTEMS</b>				
<b>CO Code</b>	<b>C125</b>				
<b>Batch</b>	<b>B.E Marine Engineering - 12</b>			<b>CO Batch</b>	<b>Batch B</b>
<b>Assessment Tool</b>	<b>C125.1</b>	<b>C125.2</b>	<b>C125.3</b>	<b>C125.4</b>	<b>C125.5</b>
<b>Class Test 1</b>	-	-	-	-	-
<b>Class Test 2</b>	-	2	-	-	-
<b>Class Test 3</b>	-	-	2	-	-
<b>Model Exam</b>	-	-	-	1	-
<b>Assignment</b>	3	3	3	3	3
<b>Internal Attainment</b>	1.5	2.5	2.5	2	1.5
<b>External Attainment (University Exam)</b>	3	3	3	3	3
<b>Total Attainment (B Batch)</b>	2.25	2.75	2.75	2.5	2.25

**CO ATTAINMENT CALCULATION OF A COURSE****Overall CO Attainment for Batch A & Batch B**

<b>Course Code</b>	<b>15SMRE41</b>				
<b>Course Name</b>	<b>LUBE OIL FUEL OIL AND COOLING SYSTEMS</b>				
<b>CO Code</b>	<b>C125</b>				
<b>Batch</b>	<b>Batch A &amp; B</b>				
<b>CO'S</b>	<b>C125.1</b>	<b>C125.2</b>	<b>C125.3</b>	<b>C125.4</b>	<b>C125.5</b>
<b>A Batch</b>	2.50	2.75	2.50	2.50	2.25
<b>B Batch</b>	2.25	2.75	2.75	2.50	2.25
<b>Average Attainment (A &amp; B)</b>	2.38	2.75	2.63	2.50	2.25
<b>Overall CO Attainment</b>	<b>3</b>				

### 3.3. Attainment of Program Outcomes and Program Specific Outcomes (75)

#### 3.3.1. Describe assessment tools and processes used for measuring the attainment of each Program Outcome and Program Specific Outcomes (10)

##### Program Outcomes

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problem
- 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3. Design / development of solutions: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 4. Conduct Investigation of complex problem:** Use research – based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
- 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9. Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

**10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**11. Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**12. Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

### PROGRAM SPECIFIC OUTCOMES (PSOs):

Students will be able to

1. Design and modify embedded system based products which will find applications in the fields of Communication and automation.
2. Develop algorithms for real life applications in signal & image processing.
3. Design efficient low power electronic circuits.

### Sample CO-PO and CO-PSO Mapping

Course: Mathematics - II

SNO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C114	2	2	2	2	1	-	-	2	2	2	2	2
C114	2	2	2	2	1	-	-	2	2	2	2	2
C114	2	2	2	2	1	-	-	2	2	2	2	2
C114	2	2	2	2	1	-	-	2	2	2	2	2
C114	2	2	2	2	1	-	-	2	2	2	2	2

SNO	PSO1	PSO2	PSO3
C114.1	2	2	-
C114.2	2	2	-
C114.3	2	2	-
C114.4	2	2	-
C114.5	2	2	-
C114	2	2	-

<b>CRITERION 4</b>	<b>Student's Performance</b>	<b>150</b>
--------------------	------------------------------	------------

<b>Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)</b>	<b>CAY 2018 – 19</b>	<b>CAYm1 2017 – 18</b>	<b>CAYm2 2016 - 17</b>
Sanctioned intake of the program (N)	80	80	80
Total number of students admitted in first year minus number of students migrated to other programs / institution plus no. of students migrated to this program (N1)	80	78	80
Number of students admitted in 2 <sup>nd</sup> year in the same batch via later entry	0	2	80
Separate division students, if applicable	NA		
Total number of students admitted in the program	80	80	80

<b>Year of entry</b>	<b>N1 + N2 + N3 (As defined above)</b>	<b>Number of students who have successfully graduated without backlogs in any semester/year of study (Without Backlog means no compartment or failures in any semester/year of study)</b>			
		<b>I Year</b>	<b>II Year</b>	<b>III Year</b>	<b>IV Year</b>
CAY	80	Exams to conduct	56	62	61
CAYm1	80(78+2)	56	62	61	68
CAYm2	80	61	62	56	22

Table B.4b



**4.1 Enrolment Ratio (20)**Enrolment Ratio =  $N1/N$ 

Year	N1	N	Enrolment ratio = $N1/N$	Percentage	Marks
2018 – 19	80	80	1	100.00	20
2017 – 18	78	80	0.975	97.50	20
2016 – 2017	80	80	1	100.00	20

**4.2 Success Rate in the stipulated period of the program (20)****4.2.1 Success rate without backlogs in any semester/year of study (15)**

Item	LYG	LYGm1	LYGm2
Number of students admitted in the corresponding First Year + admitted in 2 <sup>nd</sup> Year via later entry and separate division, if applicable	82	78	80
Number of students who have graduated without backlogs in the stipulated period	68	22	30
Success Index (SI)	0.829	0.282	0.375

**4.2.2 Success rate in stipulated period (15)**

Item	LYG	LYGm1	LYGm2
Number of students admitted in the corresponding First Year + admitted in 2 <sup>nd</sup> Year via later entry and separate division, if applicable	82	78	80
Number of students who have graduated without backlogs in the stipulated period	68	22	30
Success Index (SI)	0.829	0.282	0.375
Average Success Index	$1.486/3 = 0.4953$		

**4.3 Academic Performance in Second Year (10)**

Academic Performance	CAY	CAYm1	CAYm2
Mean of CGPA or Mean Percentage of all successful Students (X)	68.06	70.33	68.32
Total No. of Successful Students (Y)	56	71	75
Total No. of Students appeared in the examination (Z)	78	79	79
API = $X*(Y/Z)$	53.68	63.20	64.86
Average API = $(AP1 + AP2 + AP3)/3$	60.58		

**4.4 Placement, Higher Studies and Entrepreneurship (30)**

Year	Z=No. of students Placed + No. of students admitted for higher studies with valid qualifying scores in GATE or equivalent State or National Level Tests , GRE, GMAT+ opted Entrepreneurship	N= No. of Students appeared in final year examination	Placement, Higher Studies and Entrepreneurship Ratio (Z/N)
CAYm 1	70	74	0.26
CAYm 2	21	18	0.86
CAYm 3	27	30	0.90
Average Placement, Higher Studies and Entrepreneurship Ratio			0.67
Percentage			67

4.4a. Provide the placement data in the below mentioned format with the name of the program and the assessment year:

SL. NO	ROLL. NO	NAME OF THE STUDENT	COMPANY NAME	CLASS IV EXAM
1	499 B	ADARS S.V	K-LINE SHIPPING MANAGEMENT	SEATIME IN PROGRESS
2	500 B	AKHIL MURALI		
3	501 B	ANAND KRISHNAN	K-LINE SHIPPING MANAGEMENT	YES
4	502 B	ANTHUVAN JOHN KENNADY A	PRINCE SHIPPING SERVICES COMPANT FZE	SEATIME IN PROGRESS
5	503 B	ASHOKRAJ A	PRAGATI MARINE SERVICES PRIVATE LIMITED	SEATIME IN PROGRESS
6	504 B	ATHEESWARAN.M	ETIHAD SHIPPING COMPANY	YES
7	505 B	BALACHANDAR K	SANMAR SHIPPING COMPANY	SEATIME IN PROGRESS
8	506 B	BALAMURUGAN R	JOUD GROUP SHIPPING COMPANY LLC	SEATIME IN PROGRESS
9	507 B	BHARATHI MOHAN M	ORIENT EXPRESS LINES SINGAPORE	SEATIME IN PROGRESS
10	508 B	DAVID RAJ A	ETIHAD ENGINEERING & MARINE CO LLC	APPEARING IN EXAM
11	509 B	DEEPAN R	COSCO HK SHIPPING CO LTD	APPEARING IN EXAM
12	510 B	DEEVAHAR R	EAST INDIA SHIPPING AGENCIES	APPEARING IN EXAM
13	511 B	DHIVAGAR V	ETIHAD ENGINEERING & MARINE CO LLC	SEATIME IN PROGRESS
14	512 B	EBENEZER CLEMENT J	SEAPORT INTERNATIONAL SHIPPING CO LLC	SEATIME IN PROGRESS
15	513 B	EDWIN ASHOK .A	TRANS SEA MARINE SERVICES LLC	SEATIME IN PROGRESS
16	514 B	FELIX L	SVITZER HAZIRA PVT LTD	APPEARING IN EXAM
17	515 B	GOKUL ANAND A	ADMIRAL MARINE SERVICES PVT LTD	SEATIME IN PROGRESS
18	516 B	GOKULAKRISHNAN. J	ETIHAD ENGINEERING & MARINE CO LLC	APPEARING IN EXAM
19	517 B	HARIHARAN A	OCEAN SHIPPING AND TRADING SERVICES	SEATIME IN PROGRESS
20	518 B	JAINUDEEN .H	IPC MARINE SERVICES LLC	SEATIME IN PROGRESS
21	519 B	JAYAVEL M	AK SHIP MANAGEMENT & SERVICES	APPEARING IN EXAM

22	520 B	JEEVAHAN A.P	ORIENT EXPRESS LINES SINGAPORE	SEATIME IN PROGRESS
23	521 B	JENNISH G	OMEGA SHIP MANAGEMENT PRIVATE LIMITED	APPEARING IN EXAM
24	522 B	KAMADA PHANI KIRAN	VARUN SHIPPING CO LTD	SEATIME IN PROGRESS
25	523 B	NALLURI TARUN	AMBA SHIPPING & LOGISTICS PVT	SEATIME IN PROGRESS
26	524 B	NANDHA KUMAR N	UNION FALCON SHIPPING LLC	SEATIME IN PROGRESS
27	525 B	NAVEEN A	SYNERGY MARINE PTE LTD	APPEARING IN EXAM
28	526 B	NAVEEN R	STELLAR OCEAN TRANSPORT LLC	SEATIME IN PROGRESS
29	527 B	NAVINBABU J	ADMIRAL MARINE SERVICES PVT LTD	SEATIME IN PROGRESS
30	528 B	NIKSON FRANCIS	FLEET MANAGEMENT INDIA PVT.LTD	APPEARING IN EXAM
31	529 B	NIRMAL R	BLUE SKY SHIPPING & TRADING CO	SEATIME IN PROGRESS
32	530 B	NITESH CHOUDHARY	GULF TRUST SHIP FUEL SUPPLY	SEATIME IN PROGRESS
33	531 B	PARTHIBAN .S	ETIHAD ENGINEERING AND MARITIME SERVIES	APPEARING IN EXAM
34	532 B	PRASAD KUMAR A		
35	533 B	PRAVEEN KUMAR C	PREMIUM SHIP SERVICES LLP	SEATIME IN PROGRESS
36	534 B	PRAVIN KRISHNAN P	UNIMAR MARINE SERVICES PRIVATE LIMITED	SEATIME IN PROGRESS
37	535 B	PULA VARUN	UNISEAS MARINE SERVICES PRIVATE LIMITED	APPEARING IN EXAM
38	536 B	PUTTA UDAY ARUN KUMAR	OCEAN SPARKLE LIMITED	SEATIME IN PROGRESS
39	537 B	RAJESH KUMAR J	INTERTEK MARITIME MID EAST	SEATIME IN PROGRESS
40	538 B	RAJ PRABAKARAN R	EAST INDIA SHIPPING AGENCIES	APPEARING IN EXAM
41	539 B	RAMADURAI U		
42	540 B	SAGAR .B	AL MADEENA SHIPPING MANAGEMENT	SEATIME IN PROGRESS
43	541 B	SAI ARJUN V	SIAM LUCKY MARINE CO LTD	APPEARING IN EXAM
44	542 B	SARAVANA DINESH R	WEST ASIA MARITIME LTD	APPEARING IN EXAM
45	543 B	SARAVANA KUMAR A	MIDDLE EAST MARINE LLC	SEATIME IN PROGRESS

46	544 B	SAROJ ROBINSON I	YOU MARITIME SERVICES LLC	SEATIME IN PROGRESS
47	545 B	SATHEESH KUMAR M		
48	546 B	SATHISH KUMAR R	EAST INDIA SHIPPING AGENCIES	APPEARING IN EXAM
49	547 B	SATHISH KUMAR S	ETIHAD ENGG & MARINE SERVICES	SEATIME IN PROGRESS
50	548 B	SATHISH.V	OCEAN SPARKLE LIMITED	SEATIME IN PROGRESS
51	549 B	SENTHIL KUMARAN S	NAIF MARINE SERVICES CO	SEATIME IN PROGRESS
52	550 B	SHAIK.DILEEP	VM MARINE INTERNATIONAL	APPEARING IN EXAM
53	551 B	SHARAD MEHRA	EMIRATES INTERNATIONAL SHIPPING	SEATIME IN PROGRESS
54	552 B	SINTO. FRANCIS	NATIONAL AJMAN PETROLEUM CO LLC	SEATIME IN PROGRESS
55	553 B	SREYAS S	SADHAV SHIPPING LTD	SEATIME IN PROGRESS
56	554 B	SUBASH RAJA T	ADMIRAL MARINE SERVICES PVT LTD	SEATIME IN PROGRESS
57	555 B	SURESH P	TRANSHAV SHIP MANAGEMENT PTE	APPEARING IN EXAM
58	556 B	SURYA G	SYNERGY MARINE PTE LTD	SEATIME IN PROGRESS
59	557 B	SYED SHARIQUE ZEYA	K-LINE SHIPPING MANAGEMENT	SEATIME IN PROGRESS
60	558 B	TAMILSELVAN J T	JINDAL ITF LTD	APPEARING IN EXAM
61	559 B	TONY THOMAS	VARUN SHIPPING CO LTD	APPEARING IN EXAM
62	560 B	VIBIN RAJ M	GULF LINER SHIPPING AGENCIES	SEATIME IN PROGRESS
63	561 B	VIGNESH G	ABB SHIP MANAGEMENT PVT LTD	APPEARING IN EXAM
64	562 B	VINEETH .V	UNITED MARINE CO SRL	APPEARING IN EXAM
65	563 B	VISHAL R	K-LINE SHIPPING MANAGEMENT	APPEARING IN EXAM
66	564 B	VIVEK RAJ	DSG SHIP SERVICES PRIVATE LIMITED	APPEARING IN EXAM
67	565 B	YOKESH D	GOLDEN CROWN SHIPPING CO LLC	SEATIME IN PROGRESS
68	566 B	ARUN KUMAR G	ADMIRAL SHIPPING LLC	SEATIME IN PROGRESS

69	567 B	ELAVARASAN J.K	GOLDEN CROWN SHIPPING CO LLC	SEATIME IN PROGRESS
70	568 B	JOSHI KINTESH PANKAJ	CENTTAL SHIP MANAGEMENT DMCC	APPEARING IN EXAM
71	569 B	MOHAMEDNIZAR J	OMSAN SHIPPING SO SA	SEATIME IN PROGRESS
72	570 B	MUTHURAM R	CHETTINAD MARINE & OFFSHORE CO (I) PVT LTD	APPEARING IN EXAM
73	571 B	RAJESH M	GOOD RESULT MARINE SERVICES PVT LTD	APPEARING IN EXAM
74	572 B	SATHISH MURUGAN M	INTERNATIONAL MANAGEMENT CO	SEATIME IN PROGRESS
75	573 B	GUNA SEKARAN P		
76	574 B	SARANRAJ S	SIAM LUCKY MARINE CO LTD	SEATIME IN PROGRESS
77	575 B	PAULRAJ T	OCEAN SPARKLE LTD	SEATIME IN PROGRESS

## B.E - 8

SL. NO	ROLL NO	NAME OF THE STUDENT	COMPANY NAME	CLASS IV EXAM
1	580 B	AJITH KUMAR R K	ADMIRAL MARINE SERVICE PVT LTD	YES
2	581 B	ARAVIND G	SAFE & SURE MARINE SERVICES PVT LTD	APPEARING IN EXAM
3	582 B	CHARLES CLINTON D SILVA	K-LINE SHIPPING MANAGEMENT	APPEARING IN EXAM
4	583 B	GOKUL R	K-LINE SHIPPING MANAGEMENT	APPEARING IN EXAM
5	584 B	GUNASEKARAN K	CROAL REEF NAVIGATION INDIA PRIVATE LIMITED	SEATIME IN PROGRESS
6	585 B	KIRUBAHARAN L	OCEAN SPARKLE LIMITED	YES
7	586 B	KUNDAN KUMAR	OCEAN SPARKLE LIMITED	SEATIME IN PROGRESS
8	587 B	LAKSHMIPATHI G	SVS MARINE SERVICES PVT LTD	SEATIME IN PROGRESS
9	589 B	PRASANTH V	VAMSEE SHIPPING CARRIER PVT. LTD	YES
10	590 B	RADHAKRISHNAN R	EAST INDIA SHIPPING INDIA LIMITED	YES
11	591 B	VIGNESH R	GREATSHIP INDIA LIMITED	APPEARING IN EXAM
12	592 B	RAVI RAJ CHENA	SYNERGY MARITIME PRIVATE LTD	SEATIME IN PROGRESS

13	594 B	SAM JONATHAN N	DYNACOM TANKERS MANAGEMENT PVT LTD	APPEARING IN EXAM
14	595 B	MYADAM MALLIKARJUNA	MITSUMI O.S.K. LINES	APPEARING IN EXAM
15	596 B	GAUTAM KUMAR SINGH	K-LINE SHIPPING MANAGEMENT	YES
16	597 B	RUPESH KUMAR RANJAN	CORAL REEF NAVIGATION INDIA PRIVATE LIMITED	SEATIME IN PROGRESS
17	598 B	ABHAY KUMAR THAKUR	SVS MARINE SERVICES PVT LTD	APPEARING IN EXAM
18	599 B	DUDELA SAI MANOJ	TW SHIP MANAGEMENT PRIVATE LIMITED	SEATIME IN PROGRESS
19	600 B	ANUJ KUMAR SINGH	K-LINE SHIPPING MANAGEMENT	APPEARING IN EXAM
20	601 B	YADAV VINOD HARILAL	DREDGING CORPORATION OF INDIA LTD	SEATIME IN PROGRESS
21	603 B	NITHIN CHANDRA S	SYNERGY MARITIME PRIVATE LTD	APPEARING IN EXAM
22	604 B	RAJAGOPAL . M. T	EAST INDIA SHIPPING INDIA LIMITED	YES
23	605 B	SURIYA PRAKASH B	OCEAN SPARKLE LIMITED	APPEARING IN EXAM
24	606 B	RAJKUMAR R	CALM SEAS SHIPPING & MARITIME SERVICES PVT LTD	
25	607 B	RADHA KRISHNAN C	OCEAN SPARKLE LIMITED	YES
26	608 B	SUDHARSAN J	OCEAN SPARKLE LIMITED	YES
27	609 B	VASANTH C	K-LINE SHIPPING MANAGEMENT	YES
28	610 B	RAMNATH SARAVANAN B	DESTAN SHIP MANAGEMENT PRIVATE LIMITED	SEATIME IN PROGRESS






यात्राओं का विवरण /			
क्रम सं. Sr. No	पोल का नाम और शासकीय संख्या एवं टनमात्र Name of Ship and Official No. and tonnage †	निम्नलिखित की तारीख एवं स्थान Date and place of	
		* नियुक्ति * Engagement	* उन्मोचन * Discharge
(1)	<b>M.T. VAMSEE - II</b> OFF NO : 3383 IMO NO : 8718342 GRT : 652 TON NRT : 258 TON KW : 767 VISAKHAPATNAM	24.09.2016 CHENNAI	08.05.2017 VIZAG
(2)			

\* इन स्तंभों को नियुक्ति एवं उन्मोचन के समय भरा जाए।  
 \* These columns are to be filled in at the time of Engagement & Discharge.

4

Details of Voyages		
सीफायर की श्रेणी Rank of Seafarer	समुद्र यात्रा का विवरण एनवी / एनवीसी / एचटी Description of Voyage FG / NCV / HT	(1) मास्टर और (2) शिपिंग मास्टर / कंसुलर अधिकारी के हस्ताक्षर और कार्यालय की मुहर Signature of (1) Master and (2) Shipping Master / Consular Officer with Office stamp
T.M.E	NCV	(1)  <b>MASTER</b> <b>MT VAMSEE II</b> (2)
		(1)
		(2)

† इंजीनियर की पुस्तिका में किलोवॉट दर्शाएं। रेडियो अधिकारी की पुस्तिका में वाणिज्य मोल परिवहन (संकट एवं सुरक्षा रेडियो संचार) नियम, 1995 के अनुसार पोल का सकल टनमात्र और बेतार श्रेणी दर्शाएं।  
 † In Engineer's Book insert Kilo Watts. In Radio Officer's Book insert gross tonnage and wireless classification of Ship as per Merchant Shipping (Distress and Safety Radio Communication) Rules, 1995.

5



Original/Photocopy\* Copy No. 02

**ARTICLE OF AGREEMENT FOR EMPLOYMENT OF SEAFARERS**  
(please fill up in capital letters in black ballpoint or by computer)

Online Submission No. : SMO(C)/2016/15075 Dated : 13-OCT-2016

This agreement is made between shipowner/ shipowner's agent and seafarer as detailed below in accordance with collective bargaining agreement sector wise indicated below and M.S. Act. 1958, (as amendment) & regulation 2.1 of Maritime Labour Convention 2006, & as per terms and conditions stated overleaf.

<b>I. Applicable Recognized Collective Bargaining Agreement</b>	
1. NMR(INDIA)	
<b>II. Details of Ship Owner</b>	
1. Name : <u>VAMSEE SHIPPING CARRIER PVT. LTD.</u>	4. Postal Address & e-Mail : <u>A-10, 2nd Avenue Arambagar - HR@VAMSEESHIPPING.COM</u>
2. Telephone / Fax No. :	
3. Contact Person : <u>K.DATYAKAR</u>	
<b>III. Details of Ship Owner's / Agent</b>	
1. Name :	5. Postal Address & e-Mail :
2. RPSL No. : Valid Till :	
3. Telephone / Fax No. :	
4. Contact Person :	
<b>IV. Details of Ship : (Place of work)</b>	
1. Name : <u>VAMSEE II</u>	6. G.T. : <u>552</u>
2. Port of Registry : <u>VISAKHAPATANAM</u>	4. IMO No. : <u>6718342</u>
3. Official No. : <u>3383</u>	7. Power (Kw / BHP) :
5. Crew including Master : <u>11</u>	8. Trade & area of Operation :
<b>V. Details of Seafarers :</b>	
1. Name : <u>VAIYAPURE PRASANTH</u>	9. Communication Details (Postal Address) <u>6029 JAYAPRAKASH STREET VELLIVOKAM</u>
2. Nationality : <u>INDIAN</u>	Email : <u>prasanthvaiyapure@gmail.com</u>
3. Date & Place of Birth : <u>30-AUG-1993 &amp; CHENNAI</u>	Tel. No. : Mobile : <u>9445842406</u>
4. INDOB No. : <u>12EL2128</u>	7. Passport No. : <u>M6212666</u>
6. CDC No. : <u>CHN 100588</u>	Place of Issue : <u>Chennai</u>
Place of Issue : <u>CHENNAI</u>	Issue Date : <u>20/10 12:00 AM</u>
Issue Date : <u>08-JUN-2016</u>	Expiry Date :
Expiry Date : <u>08-JUN-2026</u>	8 a. NOK's Postal Address : <u>NO.8329, 36TH JAYAPRAKASH STREET, K.M COLONY, CHENNAI- 600092</u>
8. Next of Kin (NOK) : Name : <u>R.VAIYAPURE</u>	
Relationship : <u>FATHER</u>	
e-Mail : Tel. No. : <u>9000291756</u>	
9. Details of Competency Certificate : CDC Grade / No. : Place of Issue : Date of Issue : Date of Expiry : Limitations (if any) :	10. Details of special ship type endorsement (if applicable) : Type of endorsement : Level / Certificate No. : Place of Issue : Date of Issue : Date of Expiry :
11. Details of Medical Certificate : Issuing Authority : <u>DR.A.H.SALAJI APPROVED BY DG SHIPPING</u>	Approval No. : <u>56213</u> Issue Date : <u>08-JAN-2016</u> Expiry Date : <u>08-JAN-2018</u>
<b>VI. Details of Employment :</b>	
5. Capacity / Rank Employed : <u>Trainee Marine Engineer</u>	7. Monthly Allowment Availed : <u>No</u> (If Yes fill the following)
2. Engagement Period : <u>3</u> Months	Allowment Amount in Rs.
3. Paid Annual Leave / Month : <u>3</u> Days (Minimum of 2.5 Days)	No. of Months :
4. Hours of Rest : <u>7</u> Hours (Minimum of 77 hours Per week)	Name of Beneficiary :
5. Amount of monthly basic wages Rs. <u>3000</u> and emoluments as applicable	Relationship :
6. Rate of monthly PF :	Address :
8. Rate of monthly Gratuity :	Phone No. : Mobile No. :
9. Total PF Contribution due at the time of sign off :	
10. Total Gratuity (SWPS) due at the time of sign off :	
11. Reason for Sign off :	Paid off on Date : Paid off on Place :

Report generated on : 13/10/2016 11:12 AM

Page 1 of 5

**VAMSEE**

SHIPPING COMPANY PRIVATE LIMITED

**FORM OF TESTIMONIAL FOR SEA-SERVICE (ENGINEERS)**

Annex B

(For Ministry of Shipping Examination purpose only)

This is to certify that the following is full and true statement of sea-service performed by

**V. PRASANTH** PP No-M6213966 CDC No-CHN102369 under my supervision on **M.T.VAMSEE II**

Official No-3383, IMO No-8718342, Port of Registry **VISAKHAPATNAM**.

Period of service		Rank of officer and actual seniority of watch	Type of Main Engine and Boilers, Single or Twin Screw, KW	Nature of Duties (for appropriate description see below)
From	To			
28.11.2016	24.03.2017	TRAINEE MARINE ENGINEER	<b>MAIN ENGINE</b> MAKE/HANSHIN DIESEL ENGINE 4 STROKE 6 CYLINDER, NO-LH-28-D RPM 320, MODEL-LH-28-D, KW 767, SINGLE SCREW P/P <b>AUX ENGINE</b> MAKE/YANMAR-03, 6 CYL,RPM 1200 , KVA 120, MODEL:SK7L-T H/S/E-01 MITSUBI-DEUTZ MD6-65TA, RPM 1800, KVA 60	II B

During the whole period stated above, this engineer officer was on articles of agreement.

No of days actual spent at sea : 40



Signature of Master or Engr. Suptd  
**MASTER**  
**M.T. VAMSEE II**  
 (Name of Master or Engr. Suptd)

Signature of Chief Engineer Officer  
**CHIEF ENGINEER**  
**M.T.V** CDC NO-CHN102369  
 Name of Chief Engineer Officer

Description of duties	
I. On fitters work either by day or regular watch a) Within Main Engine and Boiler spaces b) Outside Main Engine and Boiler spaces c) On refrigerating or other machinery not essential to the propulsion of the vessel d) On Auxiliary Engines separated from main propelling units, but worked in conjunction therewith. II. On regular watch on Main Engine as: a) Senior in full charge. b) First assistant. c) Second assistant III. On regular watch on Main Boiler a) In charge of all stoke holds, b) In charge of section or one stoke hold only c) As Boiler Room assistant.	IV. On regular watch on Main Engine and Boiler simultaneously a). senior in full charge b). first assistant c). second assistant In ships where watches on least on other than tradition system of not less than eight out or each twenty four hours, a brief description of the duration and frequency of the watches should given. Mention of periods on day work or on fitters work by watch should be made. This is particularly applicable to vessels that 1. Have a centralized control room 2. Are fully or partly automated 3. Have a arrangement such as the engine room is unmanned for some part of the twenty four hours

NOTE : It is recommended that this form be used when Engineer is reported on or when the chief engineer leaves the ship



Baart sarkar  
 GOVERNMENT OF INDIA  
 naivaka ka Baartiya raTThya DaTabasa  
 INDIAN NATIONAL DATABASE OF SEAFARERS  
 nau Bhavan, 10, ranujal Bao[-Kamamal nagar-  
 NAU BHAVAN, 10, R.K. MARG  
 balad-[sTT / BALLARD ESTATE, maha[-/ Mumbai - 400 001  
 F@sa / Fax : (9122) 22618078 [-nala / E-Mail : lbsindos@vsnl.net

prasaikt ikya jata h ik Eal

This is to certify that Mr./Mrs./Miss. PRASANTH V

jamaitiq

sal. Di. sal. sa.:

pasapaT-sa.:

Date of Birth : 20/08/1993

C.D.C. No. : ---

P.P. No. : ---

(jari kranaa dSa )

ka [Disa sa.:

AanaIt ikya gaya h .

of ( Issuing Country ) INDIA

has been allotted INDoS No : 12EL2128

Address : 63/29 JAYAPRAKASH STREET VILLIVAKKAM

City : CHENNAI

State : TAMILNADU

Postal Code : 600082

Phone No. : 9444784782

jari kra kl itiq

Date of issue

01-OCT-12

Computer generated certificate, signature is not required.

**4.5.1. Professional societies/chapters and organizing engineering events (5)**

(The Department shall provide relevant details)

Details enclosed. **ANNEXURE - II**

**4.5.2. Publication of technical magazines, newsletters, etc. (5)**

(The Department shall list the publications mentioned earlier along with the names of the editors, publishers, etc.)

Details enclosed. **ANNEXURE - III**

**4.5.3 Participation in inter-institute events by students of the program of study (10)**

(The Department shall provide a table indicating those publications, which received awards in the events/conferences organized by other institutes)

Details enclosed. **ANNEXURE – IV**

<b>CRITERION 5</b>	<b>Faculty Information and Contribution</b>	<b>200</b>
--------------------	---	------------

Name	PAN No.	Highest Qualification	Date of Receiving Degree	Area of Specialization	Current Designation	Date (Designated as Prof/Assoc. Prof.)	Initial Date of Joining	Association Type	At present working with the Institution (Yes/No)	In case of NO, Date of Leaving	IS H O D?
Capt. N. Kumar	AFVPK 8426Q	Master (FG), MICS, MBA	25-09-2001	Nautical Science, Navigation	Director		04-09-2007	Regular	Yes		Yes
Mr. M. Rajesh	AQMP M6236 E	M.E (Auto), MEO CLASS 1	09-03-2007	Marine Engineering	Course Coordinator		02-05-2011	Regular	Yes		Yes
Mr. Thanika chalam . V	ABJPT6 609C	B.E (Mech), MEO CLASS 1	17-07-2001	Marine Engineering	Course Coordinator		01-03-2017	Regular	Yes		Yes
Mr. K. Anbazh ahan	AAEPA 4575A	M.E, MEO CLASS 1 MOTOR	13-08-2008	Marine Engineering	Senior Faculty		10-04-2017	Regular	Yes		No
Mr. Manass eh Karnan Christo pher	BBYP C4663H	B.E, MEO CLASS 1 MOTOR	30-07-2001	Marine Engineering	Senior Faculty		01-03-2018	Regular	Yes		No
Mrs. J. Jayachri sty Priskilla	BSIPJ3 424N	Ph.D	30-06-2018	Mathe matics	Lectur er		10-07-2018	Regular	Yes		No

Mr. R. Rajapriyan	ASLP R3674 E	M.Tech (CSE)	15-10-2015	Computer Science	Lecturer		03-01-2011	Regular	Yes		No
Mr. A. Britto	ANIPB 3686Q	M.Sc	20-11-1998	Mathematics	Lecturer		01-07-2006	Regular	Yes		No
Mr. M. Venkata Ramana	AABP M0947 M	B.E (Mech)	07-03-1990	Mechanical Engg	Lecturer		01-02-2012	Regular	Yes		No
Mr. S. Chandrasekeran	AIFPC 0462M	M.Tech (Auto)	20-04-2017	Marine Engineering	Lecturer		03-01-2013	Regular	Yes		No
Mrs. A. Anitha	BBJPA 1947F	M.E (PED)	31-01-2012	Electronics	Lecturer		09-12-2013	Regular	Yes		No
Mrs. P. Narmadha Devi	AQLP P6006 A	M.E (PED)	28-09-2012	Electronics	Lecturer		02-04-2014	Regular	Yes		No
Mr. I. John Christlin Mathews	AWZP J2563J	M.PHIL	20.10.2014	English	Lecturer		30-07-2014	Regular	Yes		No
Ms. T. Subhashini	FGQP S3816 H	M.E (PED)	28-11-2014	Electrical	Lecturer		01-07-2016	Regular	Yes		No
Mrs. G. Sharmila	FGFPS 6736B	M.E (VLSI)	29-01-2016	Electrical	Lecturer		02-01-2017	Regular	Yes		No
Mr. Prem Anand . R. S	ATKP S8220 K	B.E (Marine)	27-11-2012	Marine Engineering	Lecturer		01-06-2017	Regular	Yes		No
Mr. L. Ranjith Kumar	ANAP R3427 R	M.E (CIM)	29-01-2016	Mechanical Engg	Lecturer		15-06-2017	Regular	Yes		No
Mrs. K. Bhuvaneshwari	BFNP B2596 B	M.Tech	06-03-2016	Electronics	Lecturer		01-07-2015	Regular	No	29-12-2016	No

Mr. G. Muralidharan	AEVP M9209 G	B.E. Mechanical, MEO CLASS 1	01-07-2008	Marine Engineering	Senior Faculty		14-07-2016	Regular	No	24-04-2017	No
Mr. S. Thalapathy Vigneshwar	FATPS 5715N	M.Tech	03-08-2015	Naval Architecture	Lecturer		12-01-2016	Regular	No	12-05-2017	No
Mr. B.S. Johar	AJOPJ 9907B	B.E. (Mech), MEO CLASS 1	11-01-2002	Marine Engineering	Course Coordinator		02-05-2006	Regular	No	31-07-2017	Yes
Mr. N. Sivasankaran	AEGP S0243 F	M.E. (Production Engg)	17-02-1992	Marine Engineering	Senior Faculty		11-07-2011	Regular	No	31-07-2017	No



Mr. S. Aravind	BCBP A2503 C	BE (MECH), MEO CLASS 2	16-04-2009	Marine Engineering	Senior Faculty		03-03-2015	Regular	No	31-07-2017	No
Mr. V. L. Mangesh	ACXP V7414 Q	M.Tech (Auto), MEO CLASS 4	26-10-1999	Marine Engineering	Lecturer		13-11-2010	Regular	No	28-02-2018	No
Mr. Sridhar . A	CCMP S0752 H	B.S (Marine), MEO CLASS 1	18-11-2013	Marine Engineering	Senior Faculty		16-06-2017	Regular	No	30-04-2018	No
Mr. A. Mohan	BKAP M0958 E	M.E ENGG DES	29-01-2016	Marine Engineering	Lecturer		02-01-2017	Regular	No	04-09-2018	No
MR. K. Sujit Kumar	CYCP K8035 K	M.TECH (NAVAL)	19-01-2016	Naval Architecture	Lecturer		25-07-2016	Regular	Yes		No

Mr. S. Sravan Kumar	DKWP S0814 P	M.TECH (NAVAL)	30-10-2015	Naval Architecture	Lecturer		15-06-2017	Regular	Yes		No
Ms. P. Maheswari	BWYP P4772 R	M.SC (PHYSICS)	29-06-2004	Physics	Lecturer		21-06-2010	Regular	Yes		No

### 5.1 Student Faculty Ratio

Year of Study	CAY		CAYm1		CAYm2	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students
2 <sup>nd</sup> Year	80	3	80	1	80	0
3 <sup>rd</sup> Year	80	0	80	0	80	0
4 <sup>th</sup> Year	80	0	80	0	80	0
Sub Total	240	3	240	1	240	0
Total	243		241		240	

Description	2018 – 19	2017 – 18	2016 – 17
Total No. of Students	243	241	240
No. of Faculties	17	17	17
Student Faculty Ratio	1:20	1:20	1:20
Average SFR	25.02		

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

	Total Number of regular faculties in the department	Total Number of contractual faculty in the department
CAY	10	-
CAYm1	10	-
CAYm2	9	-

<b>CRITERION 6</b>	<b>Facilities and Technical Support</b>	<b>80</b>
--------------------	---	-----------

### 6.1 Adequate and well equipped laboratories, and technical manpower (40)

Sl.	Name of the Laboratory	No. of Students per Setup	Name of the Important Equipment	Weekly Utilization Status	Technical Manpower Support		
					Name of the Staff	Designation	Qualification
1.	Ship In Campus	20	Ship In Campus	As per TT	Mr. Nandhakumar	SIC Incharge	B.E Marine
2.	Advanced Marine Workshop	20	Lathe Machine	As per TT	Mr. Damu	Workshop Incharge	Diploma
3.	Strength of Materials Lab	20	All Equipments	As per TT	Mr. Venkataramana	Lecturer	M.E
4.	Electronics Lab	20	All Equipments	As per TT	Mrs. A. Anitha	Lecturer	M.E
5.	Electrical Lab	20	All Equipments	As per TT	Mrs. Narmadha Devi	Lecturer	M.E

### 6.2 Laboratories Maintenance and Ambience (10)

#### Maintenance:

- Do's and Don'ts and safety measures rules are displayed in each laboratory
- Well Trained Technical Staff are available
- Calibration of the each lab is done frequently
- Servicing of each lab is done frequently

#### Ambience:

- Department has experienced faculty to educate the students
- Good Chairs and tables available in each lab
- Good lighting systems
- Lab manuals are available in Labs

### 6.3 Safety Measures in Laboratories (10)

- First Aid box available in each Lab
- Fire Extinguishers are kept in each lab
- A clean and organized laboratories are maintained
- Use of Cell phones is prohibited.

### 6.4 Project Laboratory

**\*\*\*Not Available\*\*\***

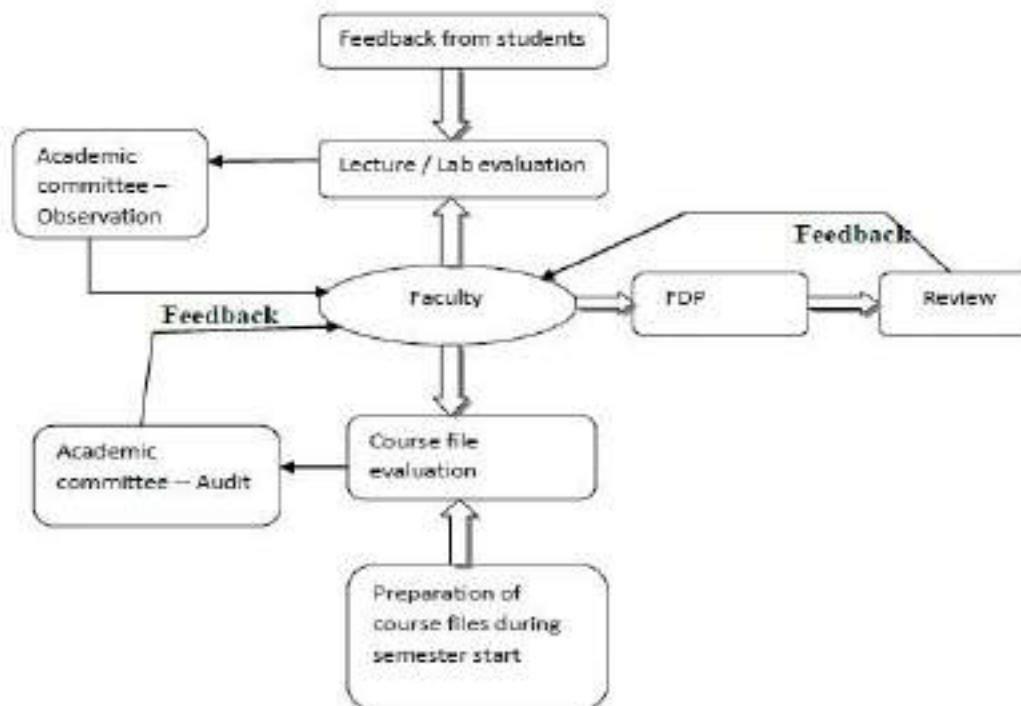
**As per DGS Norms**

<b>CRITERION 7</b>	<b>Continuous Improvement</b>	<b>75</b>
--------------------	-------------------------------	-----------

### 7.1. Actions taken based on the results of evaluation of each of the COs, POs & PSOs (30)

- Counseling Session arranged for the cadets who failed in the semester end examinations
- Need more attention to the students to provide remedial class to failed students
- Please refer Trainee Counseling Session Files

### 7.2 Academic audit and actions taken thereof during the period of Assessment (15)



**7.3. Improvement in Placement, Higher Studies and Entrepreneurship (10)**

Year	Z=No. of students Placed + No. of students admitted for higher studies with valid qualifying scores in GATE or equivalent State or National Level Tests , GRE, GMAT+ opted Entrepreneurship	N= No. of Students appeared in final year examination	Placement, Higher Studies and Entrepreneurship Ratio (Z/N)
CAYm 1	70	74	0.26
CAYm 2	21	18	0.86
CAYm 3	27	30	0.90
<b>Average Placement, Higher Studies and Entrepreneurship Ratio</b>			<b>0.67</b>
<b>Percentage</b>			<b>67</b>

**7.4. Improvement in the quality of students admitted to the program (20)**

- Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage marks in Physics, Chemistry and Mathematics in 12<sup>th</sup> Standard and percentage marks of the lateral entry students.
- 60% Marks required in Physics, Chemistry & Mathematics required and 50% in English mandatory to get admission in B.E Marine Engineering.
- Medical fitness is another important criteria eligible to join in B.E Marine Engineering
- Other criteria includes age between 17 and 25 as on 31<sup>st</sup> of July or on the date of commencement of the course whichever is earlier.
- Medical Standards: eye sight 6/6 and with no color blindness

<b>CRITERION 8</b>	<b>FIRST YEAR ACADEMICS</b>	<b>50</b>
--------------------	-----------------------------	-----------

### 8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Date for the first year course to calculate the FYSFR:

No. of Courses(s): 1

#### 1. B.E Marine Engineering (Total Intake: 80) \*As per DGS Norms

Year	Number of Students (approved intake strength)	Number of faculty (considering fractional load)	FYSFR	*Assessment = (5X20)/ FYSFR (Limited to Max. 5)
2018-19	80	20	1:20	4
2017-18	80	20	1:20	4
2016-17	80	20	1:20	4
Average	80	20	1:20	4

### 8.2 Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification =  $(5x + 3y)/RF$ ,  $x$  = Number of Regular Faculty with Ph.D.,  $y$  = Number of Regular Faculty with Post-graduate qualification  $RF$  = Number of faculty members required as per SFR of 20:1, Faculty definition as defined in 5.1

Year	X	Y	RF	Assessment of Faculty Qualification $(5x + 3y)/RF$
2018 – 19	1	19	20	3.1
2017 – 18	-	18	18	3.0
2016 – 17	-	18	18	3.0
Average Assessment				3.03

### 8.3 First Year Academic Performance (10)

*Academic Performance = ((Mean of 1<sup>st</sup> Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination)*

*Successful students are those who are permitted to proceed to the second year.*

**The Course for B.E Marine Engineering (2018 – 2019) Academic year was commenced on 1<sup>st</sup> of August 2018 and examinations will be held on November 2018.**

### 8.4 Attainment of Course outcomes of first year courses (10)

#### 8.4.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done.

- Internal Exams
  - Three Internal Exams (Continuous Assessment Test) for a maximum of 20 marks are conducted.
  - One Model Examination for the maximum of 100 marks is conducted.
  - Internal Marks split up are as follows
    - CAT 1 – 5 Marks
    - CAT 2 – 5 Marks
    - CAT 3 – 5 Marks
    - Model – 10 Marks
    - Assignment – 5 Marks
    - Assessment by Faculty – 5 Marks
    - Attendance – 5 Marks
    - Total – 40 Marks
  - Semester End Examinations for the maximum of 100 marks in conducted for each subjects in which converted into maximum of 60 Marks
  - The summation of these two performances of a student is considered as cumulative assessment for a prescribed course out come
  - For laboratory assessment, the performance of a student in conduction as follows
    - Internal Marks
      - Record – 10 Marks
      - Observation – 10 Marks
      - Attendance – 10 Marks
      - Performance – 10 Marks
      - Total – 40 Marks
    - External Marks
      - Lab Experiment – 40 Marks
      - Viva – 20 Marks
      - Total – 60 Marks

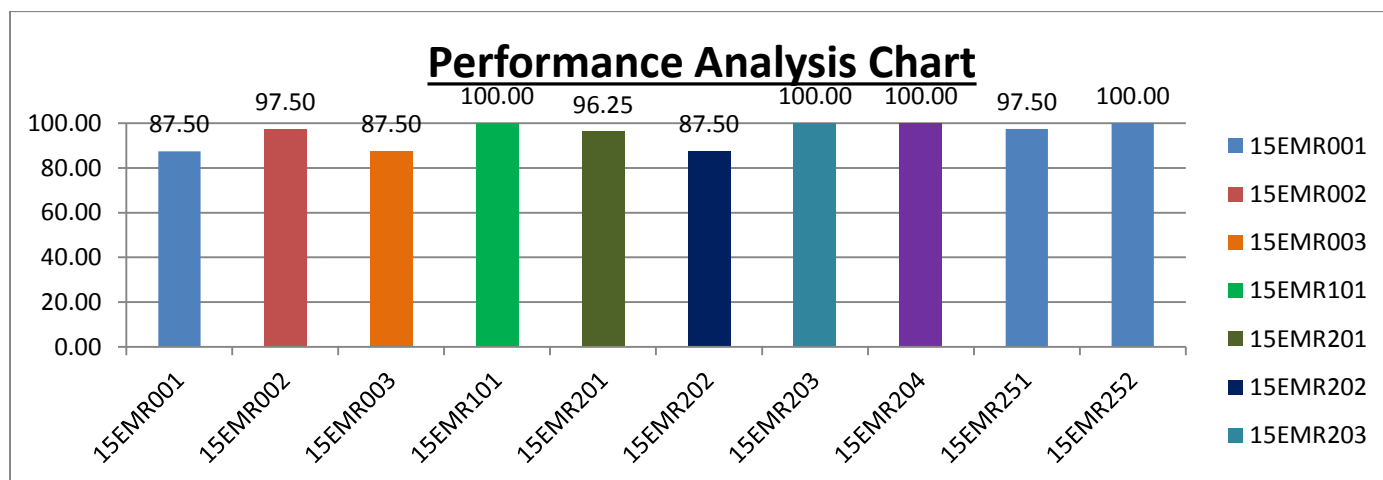


## 8.4.2 Record the attainment of Course Outcomes of all first year courses (5)

2015 – 2016

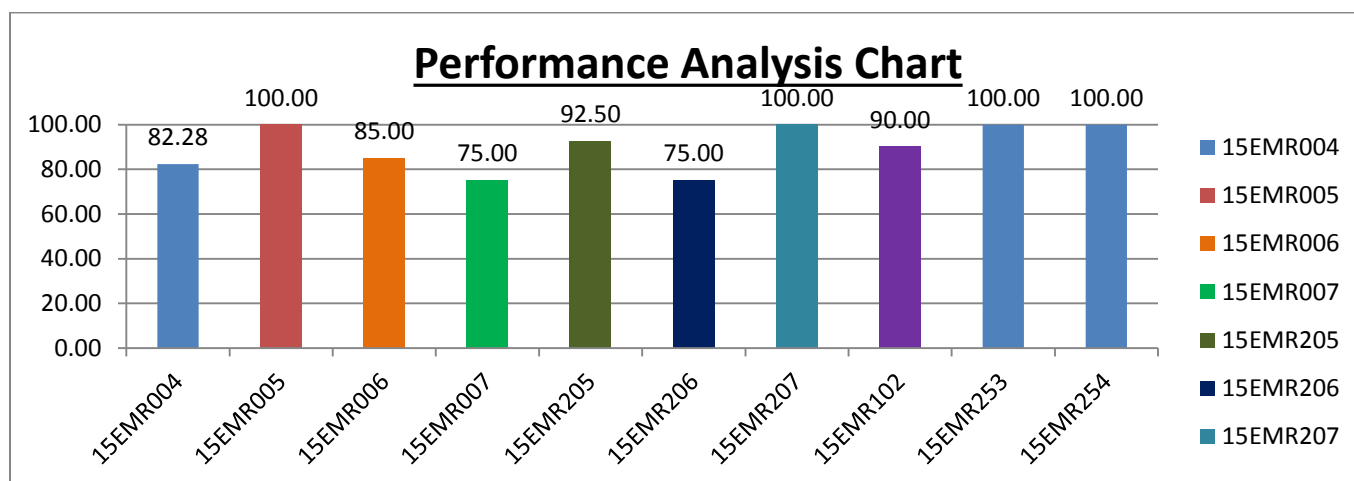
**B.E 11 - 2015 / Semester - I / Performance Analysis Report for the Semester Examinations Nov 2015**

S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR001	MATHEMATICS - I	80	80	70	10	0	0	87.50
2	15EMR002	ELECTRICAL ENGINEERING BASICS	80	80	78	2	0	0	97.50
3	15EMR003	ENGINEERING DRAWING	80	80	70	10	0	0	87.50
4	15EMR101	PRACTICAL - ELECTRICAL ENGINEERING LAB - BASIC	80	80	80	0	0	0	100.00
5	15EMR201	TECHNICAL ENGLISH	80	80	77	3	0	0	96.25
6	15EMR202	WORKSHOP TECHNOLOGY	80	80	70	10	0	0	87.50
7	15EMR203	ENGINEERING MECHANICS	80	80	80	0	0	0	100.00
8	15EMR204	PRACTICAL - APPLIED MECHANICS	80	80	80	0	0	0	100.00
9	15EMR251	COMPUTER SCIENCE	80	80	78	2	0	0	97.50
10	15EMR252	PRACTICAL - BASIC WORKSHOP I	80	80	80	0	0	0	100.00



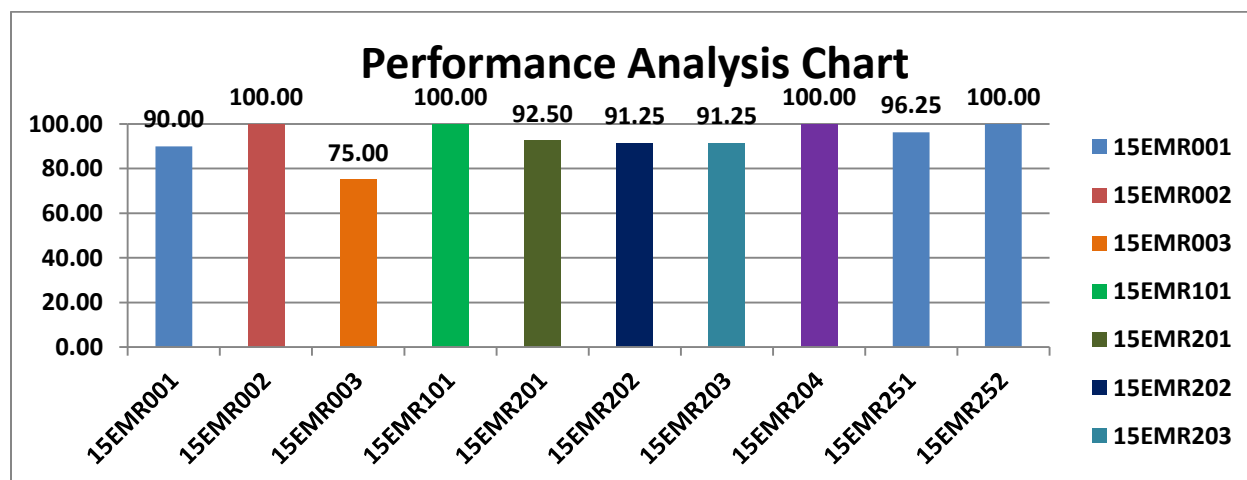
**B.E 11 - 2015 / Semester - II / Performance Analysis Report for the Semester Examinations May 2016**

S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR004	MECHANICS OF MATERIALS	80	79	65	14	1	0	82.28
2	15EMR005	MATHEMATICS - II	80	80	80	0	0	0	100.00
3	15EMR006	MATERIALS SCIENCE - I	80	80	68	12	0	0	85.00
4	15EMR007	MARINE MACHINERY DRAWING - I	80	80	60	20	0	0	75.00
5	15EMR205	PUMPS AND PUMPING SYSTEMS - I	80	80	74	6	0	0	92.50
6	15EMR206	THERMODYNAMICS - I	80	80	60	20	0	0	75.00
7	15EMR207	PRACTICAL - HYDRAULICS	80	80	80	0	0	0	100.00
8	15EMR102	PRACTICAL - SAFE WORKING PRACTICES	80	80	72	8	0	0	90.00
9	15EMR253	PRACTICAL - STRENGTH OF MATERIALS	80	80	80	0	0	0	100.00
10	15EMR254	PRACTICAL - BASIC WORKSHOP II	80	80	80	0	0	0	100.00



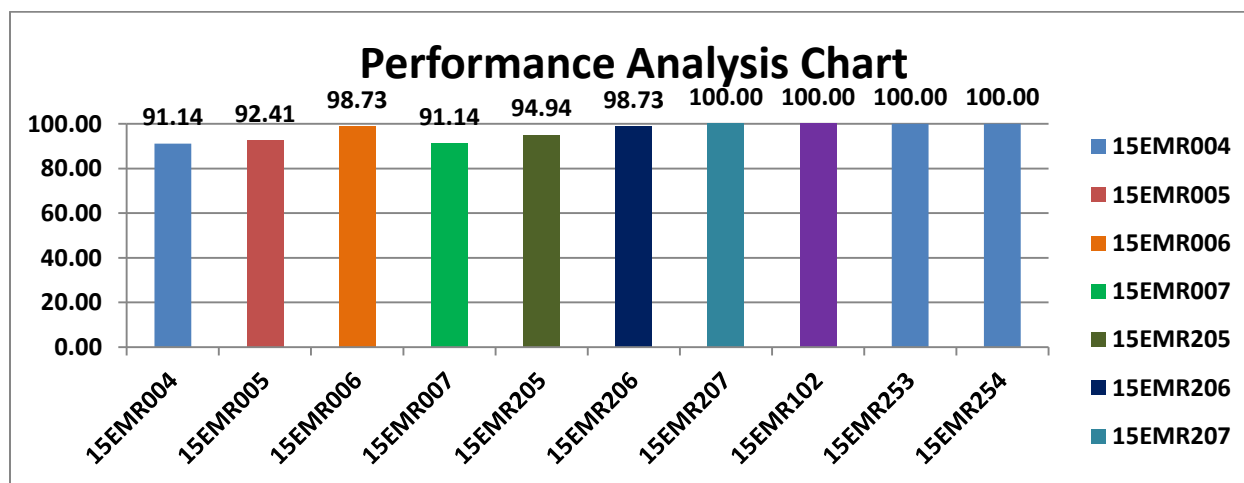
**B.E 12 - 2016 / Semester - I / Performance Analysis Report for the Semester Examinations Nov 2016**

S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR001	MATHEMATICS - I	80	80	72	8	0	0	90.00
2	15EMR002	ELECTRICAL ENGINEERING BASICS	80	80	80	0	0	0	100.00
3	15EMR003	ENGINEERING DRAWING	80	80	60	20	0	0	75.00
4	15EMR101	PRACTICAL - ELECTRICAL ENGINEERING LAB BASIC	80	80	80	0	0	0	100.00
5	15EMR201	TECHNICAL ENGLISH	80	80	74	6	0	0	92.50
6	15EMR202	WORKSHOP TECHNOLOGY	80	80	73	7	0	0	91.25
7	15EMR203	ENGINEERING MECHANICS	80	80	73	7	0	0	91.25
8	15EMR204	PRACTICAL - APPLIED MECHANICS	80	79	79	0	1	0	100.00
9	15EMR251	COMPUTER SCIENCE	80	80	77	3	0	0	96.25
10	15EMR252	PRACTICAL - BASIC WORKSHOP I	80	80	80	0	0	0	100.00



**B.E 12 - 2016 / Semester - II / Performance Analysis Report for the Semester Examinations May 2017**

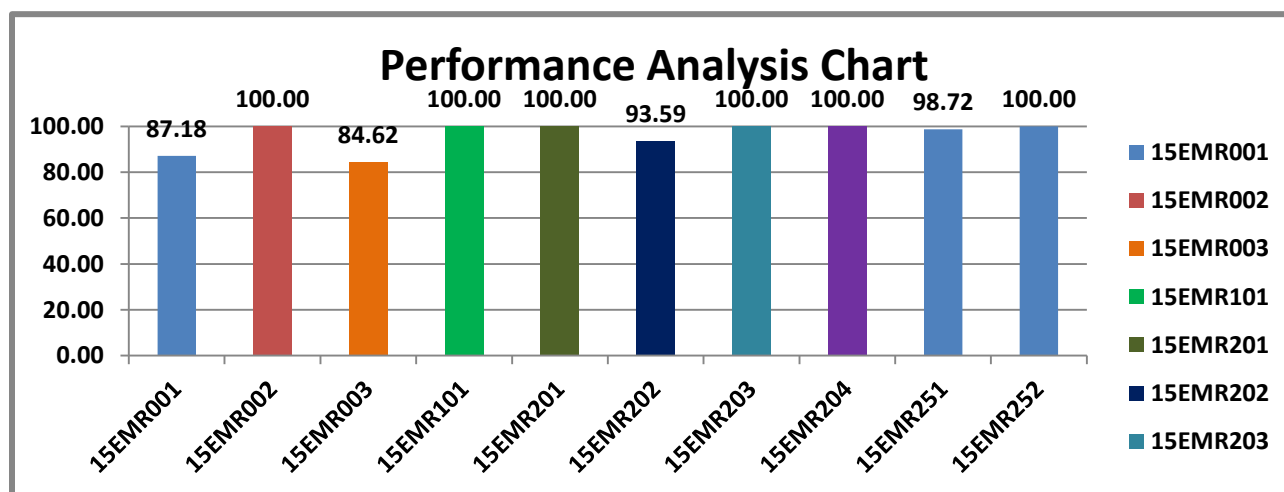
S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR004	MECHANICS OF MATERIALS	80	79	72	7	1	0	91.14
2	15EMR005	MATHEMATICS - II	80	79	73	6	1	0	92.41
3	15EMR006	MATERIAL SCIENCE - II	80	79	78	1	1	0	98.73
4	15EMR007	MARINE MACHINERY DRAWING - I	80	79	72	7	1	0	91.14
5	15EMR205	PUMPS AND PUMPING SYSTEMS - I	80	79	75	4	1	0	94.94
6	15EMR206	THERMODYNAMICS - I	80	79	78	1	1	0	98.73
7	15EMR207	PRACTICAL - HYDRAULICS	80	79	79	0	1	0	100.00
8	15EMR102	PRACTICAL - SAFE WORKING PRACTICES	80	78	78	0	2	0	100.00
9	15EMR253	PRACTICAL - STRENGTH OF MATERIALS	80	79	79	0	1	0	100.00
10	15EMR254	PRACTICAL - BASIC WORKSHOP II	80	79	79	0	1	0	100.00



**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)  
SCHOOL OF MARITIME STUDIES**

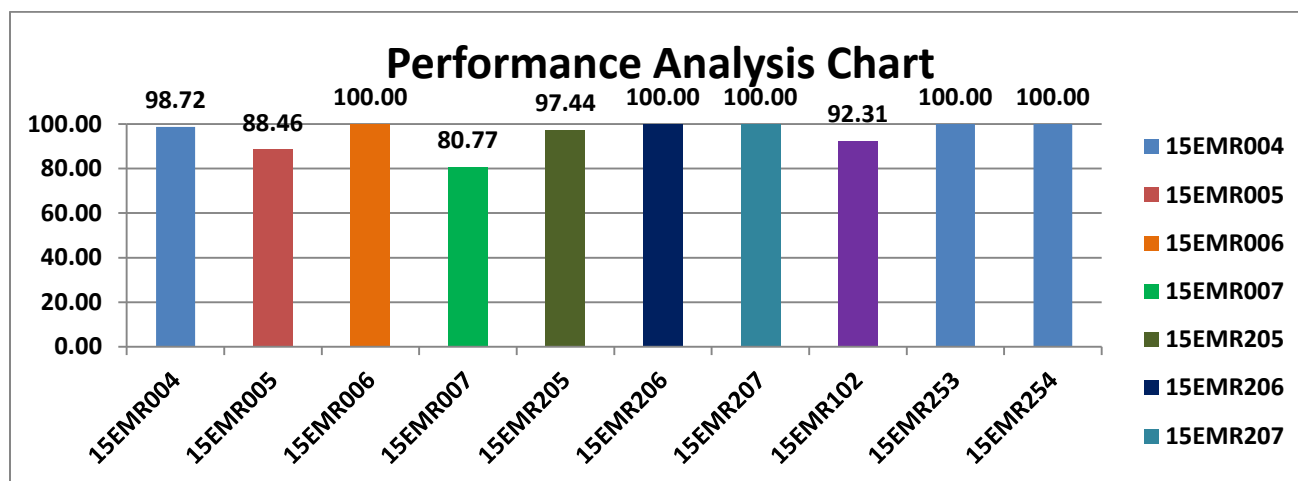
**B.E 13 - 2017 / Semester - I / Performance Analysis Report for the Semester Examinations Nov  
2017**

S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR001	MATHEMATICS - I	78	78	68	10	0	0	87.18
2	15EMR002	ELECTRICAL ENGINEERING BASICS	78	78	78	0	0	0	100.00
3	15EMR003	ENGINEERING DRAWING	78	78	66	12	0	0	84.62
4	15EMR101	PRACTICAL - ELECTRICAL ENGINEERING LAB BASIC	78	78	78	0	0	0	100.00
5	15EMR201	TECHNICAL ENGLISH	78	78	78	0	0	0	100.00
6	15EMR202	WORKSHOP TECHNOLOGY	78	78	73	5	0	0	93.59
7	15EMR203	ENGINEERING MECHANICS	78	78	78	0	0	0	100.00
8	15EMR204	PRACTICAL - APPLIED MECHANICS	78	78	78	0	0	0	100.00
9	15EMR251	COMPUTER SCIENCE	78	78	77	1	0	0	98.72
10	15EMR252	PRACTICAL - BASIC WORKSHOP I	78	78	78	0	0	0	100.00



**B.E 13 - 2017 / Semester - II / Performance Analysis Report for the Semester Examinations May 2018**

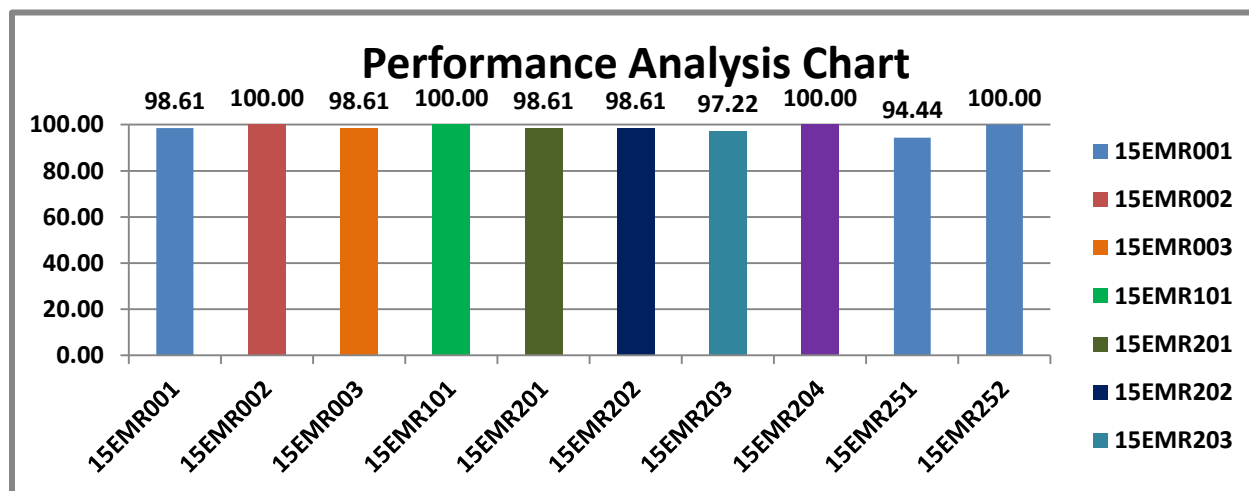
S. No	Subject Code	Subject Name	Strength	Appeared	Passed	Failed	Absent	Malpractice	Percentage
1	15EMR004	MECHANICS OF MATERIALS	78	78	77	1	0	0	98.72
2	15EMR005	MATHEMATICS - II	78	78	69	9	0	0	88.46
3	15EMR006	MATERIAL SCIENCE - II	78	78	78	0	0	0	100.00
4	15EMR007	MARINE MACHINERY DRAWING - I	78	78	63	15	0	0	80.77
5	15EMR205	PUMPS AND PUMPING SYSTEMS - I	78	78	76	2	0	0	97.44
6	15EMR206	THERMODYNAMICS - I	78	78	78	0	0	0	100.00
7	15EMR207	PRACTICAL - HYDRAULICS	78	78	78	0	0	0	100.00
8	15EMR102	PRACTICAL - SAFE WORKING PRACTICES	78	78	72	5	1	0	92.31
9	15EMR253	PRACTICAL - STRENGTH OF MATERIALS	78	78	78	0	0	0	100.00
10	15EMR254	PRACTICAL - BASIC WORKSHOP II	78	78	78	0	0	0	100.00



**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)  
SCHOOL OF MARITIME STUDIES**

**B.E 14 - 2018 / Semester - I / Performance Analysis Report for the Semester Examinations Nov  
2018**

S. No	Subject Code	Subject Name	Stre ngth	Appe ared	Pas sed	Fai led	Abs ent	Malpr actice	Perce ntage
1	15EMR001	MATHEMATICS - I	80	72	71	1	0	0	98.61
2	15EMR002	ELECTRICAL ENGINEERING BASICS	80	72	72	0	0	0	100.00
3	15EMR003	ENGINEERING DRAWING	80	72	71	1	0	0	98.61
4	15EMR101	PRACTICAL - ELECTRICAL ENGINEERING LAB BASIC	80	72	72	0	0	0	100.00
5	15EMR201	TECHNICAL ENGLISH	80	72	71	1	0	0	98.61
6	15EMR202	WORKSHOP TECHNOLOGY	80	72	71	1	0	0	98.61
7	15EMR203	ENGINEERING MECHANICS	80	72	70	2	0	0	97.22
8	15EMR204	PRACTICAL - APPLIED MECHANICS	80	72	72	0	0	0	100.00
9	15EMR251	COMPUTER SCIENCE	80	72	68	4	0	0	94.44
10	15EMR252	PRACTCAL - BASIC WORKSHOP I	80	72	72	0	0	0	100.00



<b>CRITERION 9</b>	<b>Student Support Systems</b>	<b>50</b>
--------------------	--------------------------------	-----------

### 9.1 Mentoring System to help an Individual Level (5)

- An effective student mentoring system has been implemented in our college
- Mentor – Mentee System (Counselors) has been appointed for the students to focus any academic issues and personal issues.
- Mentors will have a meeting with the students periodically who lack in their Academic Performance and Attendance Shortage
- A track of the student activities like Academic includes internal Marks and attendance maintained in the college software.
- A track of the student activities like Curricular, Co Curricular activities, Social activities.

### 9.2 Feedback Analysis and reward / corrective measures taken, if any (10)

- **Direct Feedback from the Students**
  - Feedback collected from the Students at the end of each semester based on the faculty performance and infrastructure facilities.
  - The same must be entering into college software to obtain the grading point for the faculties who are handling the subjects and also for infrastructure.
- **Rewards**
  - Over all Proficiency
  - Best Officer – Like Qualities
  - Best All Round Cadets

### 9.3 Feedback on facilities (5)

- Feedback collected from the Students based on the facilities provided in the college campus including hostel area
- Assessment is based on student feedback based on the feedback collection, and corrective action taken



**9.4 Self Learning (5)**

- Internet access to all the computers for the benefits of the students
- Newspaper of major languages
- Digital Library
- Accessions of Journals

**9.5 Carrier guidance, training and placement (10)**

- Carrier guidance provided to all final year students to get placement in many shipping companies.
- Ship visits for every students to gather the hand on experience in the Ship (Chennai Port)
- Objective type Questions, Oral Questions, Personal Mock Interview are conducted to students to train them in well do in their Interviews
- Placement arranged for our Students from various well established shipping companies like K-Line, Synergy, MOL, MOLTA etc

**9.6 Entrepreneurship Cell (5)**

- Financial Assistance was organized to know the importance of being an entrepreneurship and ways to get financial assistance to become on entrepreneurship.

**9.7 Co-curricular activities and Extra-curricular Activities (10)**

- The college supports the Co-curricular activities and Extra-curricular activities for the students.

CRITERION 10	Governance, Institutional Support and Financial Resources	120
--------------	---	-----

### 10.1. Organization, Governance and Transparency (55)

#### 10.1.1. State the Vision and Mission of the Institute (5)

##### Vision of the Institution:

To make the Institute an epitome of Excellence in higher education by effectively providing high quality education and rigorous training to students in multiple streams of choice with ample scope for all round development to make them excel in their profession for betterment of the society.

##### Mission of the Institution:

- M1. Effectively **imparting knowledge and inculcating innovative thinking.**
- M2. Facilitating **skill enhancement** through add-on courses and **hands-on training.**
- M3. Doing original, socially relevant, **high quality research.**
- M4. Facilitating appropriate co-curricular, extracurricular and extension activities.
- M5. Instilling the spirit of **integrity, equity, professional ethics** and social **harmony.**

#### 10.1.2. Availability of the Institutional Strategic Plan and its Effective Implementation and Monitoring (25)

- SWOT Analysis was carried out by involving all stakeholders such as management, faculty, supporting staff, students, parents, alumni and representatives of employees
- Additional academic support for weaker students to improve their performance in their examination by conducting remedial classes.
- Motivating Faculty Members to publish research papers in reputed journals
- Staff Meetings conducted by Director to discuss the SWOT Analysis
- Well established Library with adequate books and journals.
- Counseling sessions carried out for the students once the semester results published

### 10.1.3. Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies (10)

Governance is the key activity that develops the relationship among the management, staff, students and the community. We believe it should be effective, efficient and economical in execution of its duties. We support modern governance and proper administration and believe these should be carried out in a way that actively acknowledges diversity. The Institute has a governing body in place wherein the members are drawn from distinguished cross-sections of the society, as shown in Table below.



Figure 10.1.3 (a) Flow Chart - Administrative Set up for Institution

Table 10.1.3.(b) - Members of Governing Body (Board of Management (BOM))

**MEMBERS OF THE BOARD OF MANAGEMENT**  
(as per UGC Regulations 2016)

Section 5.7 (i) <b>CHAIRPERSON</b>	1.	<b>Dr.P.Swaminathan</b> Vice-Chancellor, VISTAS Pallavaram, Chennai-600 117.
Section 5.7 (ii) <b>PRO-VICE CHANCELLOR</b>		Nil
Section 5.7 (iii) <b>DEAN OF FACULTIES NOT EXCEEDING TWO ( BY ROTATION BASED ON SENIORITY)</b>	2.	<b>Dr. E.N. Ganesh</b> Dean, School of Engineering VISTAS, Pallavaram,Chennai-600 117
	3.	<b>Dr.M.Chandrasekaran</b> Dean, Academic Courses & Director, Dept. of Mechanical Engineering School of Engineering VISTAS, Pallavaram,Chennai-600 117
Section 5.7 (iv) <b>THREE EMINENT ACADEMICIANS NOMINATED BY THE CHANCELLOR</b>	4.	<b>Dr.S.P.Thiyagarajan</b> Former, Vice Chancellor, University of Madras Professor of Eminence - Research Sri Ramachandra University No.1 Ramachandra Nagar, Porur, Chennai-116.
	5.	<b>Dr.K.Muthuchelian,</b> Former, Vice Chancellor, Periyar University Chairperson School of Energy Sciences, Madurai Kamaraj University, Madurai.21
	6.	<b>Prof.C.Thangamuthu</b> Former Vice- Chancellor, Bharathidasan University, No.74, Agni Charity, Chettiyar Agaram Road (Behind Porur Ramachandra Hospital), Porur, Chennai – 600116

Section 5.7 (v) UGC NOMINEE	7.	Nomination yet to be received from UGC
Section 5.7 (vi) TWO TEACHERS (FROM PROFESSORS, ASSOCIATE PROFESSORS) BY ROTATION BASED ON SENIORITY	8	<b>Dr.V.Rajendran,</b> HOD, Dept. of ECE, School of Engineering VISTAS, Pallavaram, Chennai-600 117
Section 5.7 (viii) MAXIMUM OF FOUR NOMINEES OF THE SPONSORING SOCIETY	9	<b>Dr.V.Vijaya Kumar</b> (Former Vice Chancellor, Tamil Nadu Dr.Ambedkar Law University) Director, National Law School of India University, Bhopal
	10	<b>Dr. R. Srinivasan</b> Member Secretary Tamil Nadu State Council for Science and Technology, DOTE Campus, Sardar Patel Road, Guindy, Chennai-600025.
	11	<b>Dr. W. Selvamurthy</b> Chancellor - Amity University Chhattisgarh <b>J-3, Block, First Floor, Room #114,</b> <b>Amity Univerisyt, Secctor-125,</b> <b>Noida – 201313 (UP)</b>
	12	<b>Dr. M. Rajaram, IAS (Retd.)</b> 4/59, Luz Avenue, Mylapore, Chennai-600 004
Section 5.7 (ix) MEMBER SECRETARY	13	<b>Dr.A.R.Veeramani</b> Registrar, VISTAS, Pallavaram, Chennai-600 117

**Rules and Responsibility of Governing Body (Board of Management (BOM)):**

1. Framing the various policies and regulations of the institution like student admission, fees structure, faculty recruitment, salary, leave rules for the staff, promotion and budget allotment.
2. Providing the facilities or equipments for the development of the institution.
3. Faculty Development Programme is conducted for all faculty members including newly recruited staffs during each academic year.
4. Orientation Programme is conducted for newly admitted students to aware the rules and regulations of institution.
5. Regular appointment of faculty recruitment is done by staff selection committee headed by the Vice chancellor and comprising the subject experts, the management representative and the Principal. In case of immediate requirement, recruitment is done by the college staff selection committee consisting of the management members, Principal, the Head of the concerned department and the subject experts.
6. Approve the request for developing infra structure and implementing the new program of study leading to award of degree

**Meetings conducted by governing body (Board of Management (BOM)) (Past 3 years):**

Meetings will be conducted twice per semester

**Table 9.1(b) Details of Governing Body meetings held**

Sl.No	Circular Number	Date of Meeting
1.	Vels Univ./V.C Off./107/2017	14.07.2017
2.	Vels Univ./V.C Off./107/2017	29.06.2017
3.	Vels Univ./V.C Off./063/2017	01.04.2017
4.	Vels Univ./V.C Off./019/2017	03.02.2017
5.	Vels Univ./V.C Off./001/2016	29.12.2016
6.	Vels Univ./V.C Off./301/2016	05.10.2016
7.	Vels Univ./V.C Off./296/2016	15.09.2016

**SERVICE RULES, PROCEDURES, RECRUITMENT, AND PROMOTIONAL POLICIES****Staff Selection Committee:****Responsibilities:**

1. Advertising about Vacancy position in Newspaper
2. Following PCI/AICTE regulations for selection of the staff and deciding the designation and salary for staffs
3. Monitoring the performance of the staff and encouraging them to perform well.
4. Framing the salary increment forms and staff relieving policy

**Recruitment Policy:**

1. Institution follows PCI/AICTE regulations.
2. All Pharmacy staffs must possess master degree recognized by Pharmacy Council of India of reputed University approved by PCI under 12 of the Pharmacy ACT, 1948

**Promotional and Service Policies****Promotion**

Based on UGC norms, higher designation like Professor and Associate professors are offered.

**Relieving**

1. Notice period for three months
2. At the time of relieving, experience and conduct certificate are issued.

**10.1.4. Decentralization in working and grievance redressal mechanism (5)**

List the names of the faculty members who have been delegated powers for taking administrative decisions. Mention details in respect of decentralization in working. Specify the mechanism and composition of grievance redressal cell including Anti Ragging Committee & Sexual Harassment Committee.

**ANTI RAGGING COMMITTEE (VISTAS)****Details of Members in Anti-Ragging Committee (VISTAS)**

S.No.	Name	Designation
<b>CHAIRMAN &amp; NODAL OFFICER</b>		
1	<b>Mr. C. Dhanasekaran</b> (Ph: 9962506202) E.Mail: dhans.se@velsuniv.ac.in	HOD Dept of Mech.Engg, School of Engineering,
<b>CO-CONVENOR</b>		
2	Dr. S.N. Sugumar (Ph:9884448037) Email: hodeco@velsuniv.ac.in	Associate Professor and Head Economics, School of Management Studies and Commerce.
<b>CIVIL &amp; POLICE ADMINISTRATION</b>		
3	Mr. A. Johnson Ph:7010343501	Intelligent Section, Pallavaram Police Station, Pallavaram, Chennai – 600 043.
<b>LOCAL MEDIA</b>		
4	Mr. Sheldon Mark Jarrett Mobile : 9962236774 Email: Jarrett.sylvester@gmail.com	Media Artist Sterio Scopic Division L.V.Prasad Studio Saligramam , Chennai – 91
<b>NGO'S</b>		
5	Mr.Rangarajan.AL Ph : 044 - 22235133 Mobile: 9444971268 E.Mail : alrangarajan@rejuvenateindiamovement.org Website url: www.rejuvenateindiamovement.org	Chief Functionary & National coordinator, Rejuvenate India Movement(RIM), No.6,Nelson Mandela Street, Chittlapakkam, Chennai,Tamil Nadu
6	Mr.Panchaksharam.K Ph:044-2248 6791/92/93 E.Mail: sipapanchu@gmail.com sipa@vsnl.com	Secretary & CEO, Federation of South India Producer Associations (SIPA) No.21,Anna Street Sathya Nagar Extension Anakaputhur, Chennai- 600 070.



<b>FACULTY MEMBERS</b>		
7	Dr. A. Subramaniam Ph:9962506421 E.Mail:dean.studentaffairs@velsuniv.ac.in	Dean, Student affairs
8	Dr.P.Shanmugasundaram Ph: 9840126575 Email : director.sps@velsuniv.ac.in	Director School of Pharmaceutical Sciences
9	Dr.P.Mayilvahanan (Ph:9962506229) Email : mayil.scs@velsuniv.ac.in	Professor, School of Computing Sciences, Department of MCA
10	Capt.N.Kumar (Ph. : 9361852531) director.smts@velsuniv.ac.in	Director School of Maritime Studies
<b>PARENTS</b>		
11	Mr. R. Shanmugam Ph:9566104821	F/o S. Ajith Kumar(IV B.E (Mech)) No.3/77, Gengeaiyamman kovil street, Mylapore, Chennai-600004
12	Mr. R.K. Murthy Ph:8637413414	F/o. M. Divya (III Year B.Sc. Biotechnology) 37/74, 1 <sup>st</sup> Street Karimedu, Perambur, Chennai-600039
13	Mr. T. Paramasivam Ph:8939211920	F/o. Ragul Arasan P(III Year B.E(CSE)), 39/139, East Mada Street, Thiruvanmiyur, Chennai-600041
<b>JUNIOR &amp; SENIOR STUDENTS</b>		
14	Mrs. Jothi Meena A Ph:7395955095	II Year - B.Com (General) No:1/12A, 3 <sup>rd</sup> cross street, Ramakrishna Nagar, Eranavoor, Chennai-600057.
15	Mr. B. Thamodharan Ph:8608622506	II Year – Bsc., (Viscomm) 52/24, Vada iyankulam street, Tiruvanamalai, Pin-606601.
16	Mrs. S. Swathi Ph:9841640465	II Year – B.Sc.Mathematics No.11, 10 <sup>th</sup> street, Eswarn nagar, pammal, Chennai-600075.
17	Mrs. Mridhula Y Ph:9884815953	III year – B.Sc. Bio-computing, No:3, Ganesh Nagar, Nemilicherry, Chrompet, Chennai-600044.
18	Mrs. Divya Darshini V Ph:9790773449	IV Year B.E.(Civil), NO.12, Vembullai amman Kovil street, Gowriwakkam, Chennai-600007.
<b>NON –TEACHING STAFF</b>		
19	Mr. B. Arun Prasad Ph:9962506207	Administrative Manager VISTAS
20	Mr.K.S.Paramasivam Ph :9962506220	Administrative Officer – Vels University

<b>ANTI-RAGGING SQUAD</b>		
21	Dr.R.A.Kalaivani Ph: 9962506223 Email: director.sbs@velsuniv.ac.in	Director School of Basic Sciences
22	Dr. P. Jagadeesan Ph:9962506219 Email: jaga.sms@velsuniv.ac.in	Assistant Professor & Head/ NSS Co-ordinator School of Management Studies & Commerce
23	Mr. S. Perumal Ph:9941155023 Email: perumal.scs@velsuniv.ac.in	Asst.Professor School of Computing Sciences
24	Mr.M. Ashok Kumar Ph: 9894606049 Email : hodpractice@velsuniv.ac.in	Asst. Professor, School of Pharmaceutical Sciences.
26	Dr. Mohammed Faisal Ph: 9952956833 Email : faisal.sms@velsuniv.ac.in	Asst.Professor, School of Management Studies
27	Mr.A.Gnanasihamani Ph:9962506242 Email: sihamani1946@gmail.com	Liaison Officer Vels University
<b>CONVENOR</b>		
28	Dr. A. R. Veeramani Ph :9962506245 Email: registrar@velsuniv.ac.in	Registrar

### **DUTIES OF ANTI-RAGGING COMMITTEE**

It shall be the duty of the anti-ragging committee to take all necessary steps require to enforce provision of UGC regulations 2009 in this regard as well as the provision of any law for the time being in force concerning ragging, and also to monitor and oversee the performance of the anti-ragging squad in the prevention of ragging in the institution.

### **DUTIES OF ANTI-RAGGING SQUAD**

1. To carryout surprise raids in the hostels and any other places vulnerable to incidents of ragging.
2. To conduct an on the spot enquiry into any incident of ragging referred to it by Head of the Institution, members of faculty, members of staff, any student, any parent or guardian, any employee of service provider or any other person. The enquiry report along with recommendations shall be submitted to anti-ragging committee. The anti-ragging squad shall conduct such an enquiry observing a fair and transparent procedure based on the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witnesses to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required.

**MENTORING CELL**

As per UGC Regulations 2009 the Composition of the Mentoring Cell is as follows.

1. Students volunteer as mentors for the fresher's
2. Many levels or tiers of mentors
3. One mentor for six fresher's
4. One mentor of higher level for six mentors of lower level
5. One faculty member for a group of higher level mentors

**ROLES AND RESPONSIBILITIES**

1. Junior Level: To mentor fresher's, to interact with fresher's and to provide congenial and cordial environment in the campus. There will be a mentor for 6 students at Junior Level.

Senior Level: To guide and support as well as to interact with fresher's through junior level mentors. Depending on the number of Junior Level mentors, the number senior level mentors will be nominated.

**GRIEVANCE REDRESSAL COMMITTEE (VISTAS)**

**Table 9.1(k) Details of Members in Grievance Redressal Committee (VISTAS)**

S.No.	Name	Designation
<b>CHAIRMAN</b>		
1	Dr. P.R. Ramakrishnan	Dean, School of Management Studies.
<b>CO-CONVENOR</b>		
2	Dr. S. Ambika Kumari	Director, School of Law.
<b>MEMBERS</b>		
3	Dr.M.Chandran	Professor and Head, School of Management Studies and Commerce.
4	Ms.K.Kalaivani	Asst. Professor and Head of CSE, School of Engineering.
5	Dr.P.Mayilvahanan	Professor, school of Computing Science.
6	Dr. V. Muthuraman	Asso.Professor Mechanical Engg., School of Engineering.

STUDENT'S NOMINEE		
7	Mr. S. Sundharsan	MBA - II Year(General) NO.6, Thiruvalluvar cross st, Pallikaranai, Chennai – 600 100.
8	Mr. Aadit Narendar	B.E – IV Year CSE 12, Kailasapuram, 4 <sup>th</sup> street, Dr.Radhakrishnan Road, Mylapore, Chennai- 600004.
CONVENOR		
9	Dr. A.R. Veeramani	Registrar

#### POWER AND FUNCTIONS OF GRIEVANCE REDRESSAL COMMITTEE:

- i. To entertain written and signed complaints and petitions of students in respect of matters directly affecting them individually or as a group;
- ii. To enquire into the grievances, and make recommendations and report to the concerned authorities Academic Council and BoM for Redressal or suitable action; and
- iii. To recommend appropriate action against complainant, if allegations made in the documents are found to be baseless.
- iv. An appeal may be made to Ombudsman if not satisfied with the decision of Grievance Redressal Committee.

#### Conducting Enquiry by the Grievance Redressal Committee

Any person aggrieved by any contravention of this code, shall prefer a complaint before the Grievance Redressal Committee at the earliest point of time in any case within 15 days from the occurrence of the alleged contravention.

Complaint shall contain all the materials and relevant details concerning the alleged contravention including the names of the contravener and the complainant shall be addressed to the Chairperson of the Grievance Committee.

However, if the complaint does not reveal the identity, this may be addressed to the Head of the Institution for disposal on merit.

After the receipt of such complaint, the Head of the Institution shall retain original complaint and forward the gist of the complaint with other details to the Grievance Committee.

The Grievance Redressal Committee upon receipt of any complain or gist of the complain cause an enquiry to be made directly.

Where the Grievance Redressal Committee is satisfied that the complaint is justified

(i) In the case of person complained against is member of the body of management, Grievance Redressal Committee shall report to the management.

If the person is an employee of the university it shall be reported to the Vice-Chancellor.

In case of the person complained against happens to be a student it shall submit the report to the Head of the Institution.

Head of the Institution may suspend a person against whom complaint is made.

The Head of the Institution, upon receipt, of report from the Grievance Redressal Committee, shall give an opportunity (show cause notice) to the student / employee against whom the complaint is made for his reasonable defence. After, seeking the explanation, the Head of the Institution shall submit the report with his / her recommendation to the Management for punishment or otherwise. Nothing in this code shall prevents the Head of the Institution from lodging a complaint straight away with the police in respect of any act amounting to any criminal or cognizable offense under the existing laws.

## OMBUDSMAN

### Details of Ombudsman

Name of the Committee Member	Profession	Address, Mobile No. and E.mail. ID	Associated with	Designation not below the rank of District Retired judge or a retd. Professor	Department
Dr.R.Sivakumar	Professor (Retd.)	No.62, Ritherdan Road, Vepery, Chennai-600 007	Vels University	Professor(Retd)	Dept. of English, Presidency College, Chennai

Any person aggrieved by the decision of the Grievance Redressal Committee may prefer an appeal to the Ombudsman within a period of 60 days.

### Powers and Functions of Ombudsman:

- 1) The Ombudsman shall exercise his powers to hear any grievance:-
  - a) Of any student against the university or institution, as the case may be, after the student has availed of remedies available in such institution for redressal of grievances and
  - b) Any applicant for admission as student to such institution.
  
- 2) No application for revaluation or remarking of answer sheets shall be entertained by the Ombudsman unless specific irregularity materially affecting the outcome or specific instance of discrimination is indicated.
  
- 3) The Ombudsman shall have powers to seek the assistance of any person belonging to the SC / ST, Socially and Economically Backward Classes, Minority or Differently-able category, as Amicus Curiae, for hearing complaints of alleged discrimination.

**SEXUAL HARASSMENT COMMITTEE (VISTAS)****Table 9.1(m) Details of Members in Sexual Harassment Committee (VISTAS)**

S.No.	Name	Designation
<b>CHAIRMAN</b>		
1	Dr.R.A.Kalaivani	Professor & Head, School of Basic Sciences,
<b>CO-CONVENOR</b>		
2	Dr.M.Thiyalnayaki	HOD, Department of BBA
<b>NGO</b>		
3	REJUVENATE INDIA MOVEMENT(RIM) MR.RANGARAJAN.AL PH : 044 - 22235133 MOBILE: 9444971268 E.Mail : alrangarajan@rejuvenateindiamovement.org Website url: www.rejuvenateindiamovement.org	Chief Functionary & National Coordinator NO.6,Nelson Mandela Street, Chittlapakkam, Chennai,Tamil Nadu
<b>MEMBERS</b>		
4	Ms.S.Preetha	HOD, Department of MBA
5	Dr.S.Jeyakumari	Professor & Head Dept. of Pharmacognosy School of Pharmaceutical Sciences
6	Mr.T.Kamalakannan	HOD – Dept. of BCA & IT, School of Computing Sciences
7	Dr.K.Amutha	Associate Professor, Department of Biotechnology
8	Mr.S.Perumal	Asst.Prof., Dept. of Comp. Science School of Computing Sciences
<b>STUDENTS</b>		
9	Mr. Mohan.V	B.Com., – III Year
10	Ms.Asha.M	BBA - III Year
<b>CONVENOR</b>		
11	Dr. A.R. Veeramani	Registrar

**Powers & Functions of Sexual Harassment Prevention Committee:****Objectives**

The objectives of the Committee are:

- Prevent discrimination and sexual harassment against women, by promoting gender respect and harmony among students and employees;
- Make recommendations to the amendments or addition to the rules for students in the Prospectus and the Bye-Laws, to make them gender just and to lay down procedures for the prohibition, resolution, settlement and prosecution of acts of discrimination and sexual harassment against women, by the students and the employees;
- Deal with cases of discrimination and sexual harassment against women, in a time bound manner, aiming at ensuring support services to the victims and cessation of the harassment;
- Recommend appropriate punitive action against the delinquent to the management.

**Procedure for Approaching the Committee**

The Committee deals with issues relating to sexual harassment at the university. It is applicable to all students, staff and faculty. A complaint of discrimination or sexual harassment may be lodged by the victim or a third party. A written complaint may be addressed to the Convener of the Committee. If the complaint is made to the Dean, Director or any of the Committee members, they same may be forwarded to the Convener of the Committee against sexual harassment.

The Supreme Court has issued guidelines on prevention of sexual harassment and has defined it as "unwelcome" sexually determined behavior (whether directly or by implication) as follows:

- Physical contact and advances;
- Demand or request for sexual favors;
- Sexually colored remarks;
- Showing pornography; and
- Other unwelcome physical, verbal or non-verbal conduct of a sexual nature. (Vishaka judgment by Supreme Court)

**The following is also sexual harassment and is covered by the committee:**

- Eve-teasing,
- Unsavory remarks,
- Jokes causing or likely to cause awkwardness or embarrassment, Innuendos and taunts,
- Gender based insults or sexist remarks,
- Unwelcome sexual overtone in any manner such as over telephone (obnoxious telephone calls) and the like,
- Touching or brushing against any part of the body and the like,
- Displaying pornographic or other offensive or derogatory pictures, cartoons, pamphlets or sayings,
- Forcible physical touch or molestation and Physical confinement against one's will and any other act likely to violate one's privacy.

**10.1.5. Delegation of financial powers (5)**

The Board of Management is empowered to delegate any of its powers to the Vice-chancellor, Registrars, and Finance Officer or any other Officer, employee or Authority of the University.

The Finance Committee of the University had approved the delegation of financial powers and the same was ratified by the Board of Management.

Accordingly, the following Financial Powers for the Authorities / Officials have been delegated.

Financial Power	Sanctioning authority
Upto Rs.2,00,000	Registrar
Rs.2,00,001 – Rs.5,00,000/-	Vice-Chancellor
Above Rs.5,00,000/-	Board of Management

**10.1.6. Transparency and availability of correct/unambiguous information in public domain (5)**

VISTAS maintain transparency in all its operation and working. At the beginning of every academic year, University brings out calendar of events that contains information of semester activities and the information is sent to all departments and student. Information on policies, rules, general code of conduct processes and its dissemination of this information is made available in University website and academic year calendar. Dissemination and Availability of Institute / program specific information through the web. A website by the URL [www.velsuniv.ac.in](http://www.velsuniv.ac.in) is available from which the latest information & happenings of the Institution can be accessed.

The Vels group has implemented an enterprise ERP solution and e-varsity software for its entire group of Institutions. The ERP facilitates a paperless environment and encompasses all aspects governing the University right from admissions, academics, examinations, hostel management, fee managements and accounts, stores and purchase, library, HR & workforce activities.

The student information right from his pre-admission stage to his performance, curricular and co-curricular activities can be viewed by any authorized person instantly, which aids in the process of conveying important information to both students and parents through email / SMS, whereby information is disseminated instantly to the respective stakeholders. The ERP use has effectively raised the administrative status in terms of efficiency, speed and accuracy in all aspects of governance of the University.



Also, the dissemination of information takes place through,  
 Department website : <http://www.velsuniv.ac.in/marine-science-engineering.asp>  
 urriculum / syllabus books

### Display boards

Apart from this, mission and vision is disseminated to all the stakeholders of the programs through faculty meetings, workshops, seminars, student induction programs, students participation in other programs and parent meetings.

## 10.2. Budget Allocation, Utilization, and Public Accounting at Institute level (15)

Summary of current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years.

### Total Income at Institute level: For CFY, CFYm1, CFYm2 & CFYm3

**CFY: Current Financial Year – CFYm1 (Current Financial Year minus 1), CFYm2 (Current Financial Year minus 2), CFYm3 (Current Financial Year minus 3)**

#### 2018-2019 (CFY)

Total Income: 2018-2019 Rs. 122,89,35,912				Actual expenditure (till ...): Rs.78,86,10,869			Total No. of students 2018-2019 : 11665
Fee	Govt.	Grant(s)	Other Sources (specify)	Recurring including Salaries	Non-recurring	Special Projects/Any other, specify	Expenditure per student
1189476787	-	-	39459125	731376083	57234786	-	67604

#### 2017-2018 (CFYm1)

Total Income: 2017-2018 Rs.105,90,97,017				Actual expenditure (till ...): Rs.99,33,55,299			Total No. of students 2017-2018: 10259
Fee	Govt.	Grant(s)	Other Sources (specify)	Recurring including Salaries	Non-recurring	Special Projects/Any other, specify	Expenditure per student
849318469	-	-	209778548	758068728	235286571	-	96827

**2016-2017 (CFYm2)**

<b>Total Income: 2016-2017 Rs.88,83,15,456</b>				<b>Actual expenditure (till ...): Rs.68,82,28,028</b>			<b>Total No. of students 2016-2017 : 9008</b>
Fee	Govt.	Grant(s)	Other Sources (specify)	Recurring including Salaries	Non-recurring	Special Projects/Any other, specify	Expenditure per student
719638747	-	-	168676709	622411435	65816593	-	76401

**2015-2016 (CFYm3)**

<b>Total Income: 2015-2016 Rs.70,60,84,413</b>				<b>Actual expenditure (till ...): Rs.67,59,76,610</b>			<b>Total No. of students 2015-2016 : 7817</b>
Fee	Govt.	Grant(s)	Other Sources (specify)	Recurring including Salaries	Non-recurring	Special Projects/Any other, specify	Expenditure per student
644762499	-	-	61321914	610029426	65947186	-	86475

**Table B.10.2a**

	2018-2019		2017-2018		2016-2017		2015-2016	
Items	Budgeted in CFY	Actual expenses in CFY (till ...)	Budgeted in CFY <sub>m1</sub>	Actual Expenses in CFY <sub>m1</sub>	Budgeted in CFY <sub>m2</sub>	Actual Expenses in CFY <sub>m2</sub>	Budgeted in CFY <sub>m3</sub>	Actual Expenses in CFY <sub>m3</sub>
Infrastructure Built-Up	1000000	872070	180000000	156242781	75000000	73305000	40,000,000	42600849
Library	13,000,000	1257046	1,000,000	921203	1000000	1066685	3400000	3380348
Laboratory equipment	25000000	24834569	35000000	32359069	4000000	3959729	1,500,000	1,769,245
Laboratory consumables	3000000	2,875,926	2,500,000	2,392,601	1,250,000	1324440	1,000,000	1104525
Teaching and non-teaching staff salary	90000000	83597982	300000000	272269658	225000000	225017334	200000000	176395354
Maintenance and spares	50000000	47,872,841	40,000,000	38,374,491	30000000	29527899	25000000	25988140
R&D	3000000	2829630	5,200,000	5,218,394	400000	339627	100,000	100990
Training and Travel	9,000,000	8,698,224	10,000,000	9,893,677	9,500,000	9,738,562	7,000,000	7,149,129
Miscellaneous expenses *	5000000	5747257	4200000	4,137,743	2000000	1942007	1000000	871381
Others, specify	580,000,000	579,754,223	430000000	425782165	350000000	354,521,566	400000000	396640662
<b>Total</b>	<b>779000000</b>	<b>758339768</b>	<b>1007900000</b>	<b>947591782</b>	<b>701150000</b>	<b>700742849</b>	<b>679,000,000</b>	<b>656000623</b>

Table B.10.2b

**10.2.1. Adequacy of budget allocation (5)**

(The institution needs to justify that the budget allocated over the years was adequate)

Sl. No.	Assessment Year	Budget Allocated in (Rs.)	Actual Expenditure in (Rs.)	Adequate/ In-Adequate
1	CFY	77,90,00,000	75,83,39,768	ADEQUATE
2	CFYm1	100,79,00,000	94,75,91,782	ADEQUATE
3	CFYm2	70,11,50,000	70,07,42,849	ADEQUATE
4	CFYm2	67,90,00,000	65,60,00,623	ADEQUATE

**10.2.2. Utilization of allocated funds (5)**

(The institution needs to state how the budget was utilized during the last three years)

Sl. No.	Assessment Year	Budget Allocated in Lakhs (Rs.)	Actual Expenditure in Lakhs (Rs.)	Percentage of Utilization
1	CFY	77,90,00,000	75,83,39,768	97.34%
2	CFYm1	100,79,00,000	94,75,91,782	94.01%
3	CFYm2	70,11,50,000	70,07,42,849	99.94%
4	CFYm2	67,90,00,000	65,60,00,623	96.61%

**10.2.3. Availability of the audited statements on the institute's website (5)**

(The institution needs to make audited statements available on its website)

The audited statements is available on the institution website [www.velsuniv.ac.in](http://www.velsuniv.ac.in)

**10.3. Program Specific Budget Allocation, Utilization (30)**

**Total Budget at program level: For CFY, CFYm1, CFYm2 & CFYm3**

**CFY: Current Financial Year – CFYm1 (Current Financial Year minus 1) CFYm2 (Current Financial Year minus 2) CFYm3 (Current Financial Year minus 3)**

**2018-2019 (CFY)**

Total Budget in CFY : 2018-2019 Rs. : 9,75,00,000		Actual expenditure (till ...): 2018-2019 Rs. : 9,48,60,046		Total No. of students 2018-2019 : 707
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
-	9,75,00,000	-	9,48,60,046	134172

**2017-2018 (CFYm1)**

Total Budget in CFY : 2017-2018 Rs. : 12,68,00,000		Actual expenditure (till ...): 2017-2018 Rs. : 10,85,50,033		Total No. of students 2017-2018 : 684
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
-	12,68,00,000	-	10,85,50,033	158698

**2016-2017 (CFYm2)**

Total Budget in CFY : 2016-2017 Rs. : 10,52,00,000		Actual expenditure (till ...): 2016-2017 Rs. : 9,61,28,955		Total No. of students 2016-2017 : 557
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
-	10,52,00,000	-	9,61,28,955	172583

**2015-2016 (CFYm3)**

Total Budget in CFY : 2015-2016 Rs. : 9,72,00,000		Actual expenditure (till ...): 2015-2016 Rs. : 9,63,81,587		Total No. of students 2015-2016 : 420
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
-	9,72,00,000	-	9,63,81,587	229480

*Table B.10.3a*

Items	2018-2019		2017-2018		2016-2017		2015-2016	
	Budgeted in CFY	Actual expenses in CFY (till ...)	Budgeted in CFYm1	Actual Expenses in CFYm1	Budgeted in CFYm2	Actual Expenses in CFYm2	Budgeted in CFYm3	Actual Expenses in CFYm3
Laboratory equipment	-	-	-	-	-	-	-	-
Softwares	-	-	-	-	-	-	-	-
Laboratory consumables	-	-	-	-	-	-	-	-
Maintenance and spares	5500000	5414392	4800000	4724518	3500000	3515162	4300000	4280939
R&D	-	-	-	-	-	-	-	-
Training and Travel	2000000	2037597	2000000	1885979	1700000	1681125	900000	985665
Miscellaneous expenses *	90000000	87408057	120000000	101939536	1000000000	90932668	92000000	91114983
Total	97500000	94860046	126800000	108550033	105200000	96128955	97200000	96381587

*Table B.10.3b*

**10.3.1. Adequacy of budget allocation (10)**

(Institution needs to justify that the budget allocated over the assessment years was adequate for the program)

Sl. No.	Assessment Year	Budget Allocated in (Rs.)	Actual Expenditure in (Rs.)	Adequate/ In-Adequate
1	CFY	9,75,00,000	9,48,60,046	ADEQUATE
2	CFYm1	12,68,00,000	10,85,50,033	ADEQUATE
3	CFYm2	10,52,00,000	9,61,28,955	ADEQUATE
4	CFYm2	9,72,00,000	9,63,81,587	ADEQUATE

**10.3.2. Utilization of allocated funds (20)**

(Institution needs to state how the budget was utilized during the last three assessment years)

Sl. No.	Assessment Year	Budget Allocated in Lakhs (Rs.)	Actual Expenditure in Lakhs (Rs.)	Percentage of Utilization
1	CFY	9,75,00,000	9,48,60,046	97.29%
2	CFYm1	12,68,00,000	10,85,50,033	85.60%
3	CFYm2	10,52,00,000	9,61,28,955	93.37%
4	CFYm2	9,72,00,000	9,63,81,587	99.15%

#### 10.4. Library and Internet (20)

VISTAS Library building spans over an area of 20,000 sq. ft. It has a seating capacity of 400 persons and follows Open Access System blended with State-of-the art facilities. The library houses a collection of 1,00,549 books and 8,645 back volumes. It subscribes to more than 328 Periodicals (National & International), 11,717+ E-journals, 1,08,438 E-Books, 3,590 Dissertations, 4,766 Audio – Visual resources. Our vision is to provide world-class knowledge resources that not only cater to the curricular requirements but also provide intellectual enquiry and research. We have a separate library for Maritime Studies at Thalambur having built up area of 3,000 sq. ft and more than 5,000 books.

The transactions of the library are fully automated and automation covers the entire gamut of library activities such as acquisition, circulation with provision for renewal, reservation, serial control, OPAC (Online Public Access Catalogue), and generating various types of reports and statistics.

##### 10.4.1. Quality of learning resources (hard/soft) (10)

Besides the Central Library, each School has its own Library with technical books and journals.

<b>Stack Area I</b>	It contains more than 87,053 books on Arts, Science & Technology, Paramedical, Encyclopedias, Dictionaries, Directories, Thesaurus, Year Books, Glossaries, Maps and Atlases.
<b>Stack Area II</b>	It contains more than 1,500 books for students to prepare for the various Competitive Examinations and Student Project Reports.
<b>Reference Section</b>	This section has over 11,659 books in various disciplines.
<b>Periodical Section</b>	This section over 8,645 Back Volumes of Scientific and Technical periodicals. It also contains 328 Periodicals from various Professional Societies.
<b>Digital Library</b>	It facilitates access to Electronic Information Services to ensure that the information needs of our Students, Faculty and Staff are met. Staff and Students can access E-journals from <b>IEEE/IEL, ASME, ASCE, EBSCO (Academic Search complete &amp; Business Source Elite), ProQuest, BENTHAM Science Pharmacy, MICROMEDEX'S DRUGDEX SYSTEM, INVENTI Online, NATURE Online, Law finder, NPTEL Course Material and Ebrary E-Books complete collection.</b>
<b>Audio - Video Conference Hall</b>	It houses LCD and Pentium Systems with Internet. It will be used for the presentation of audio visuals available in the library or in selective cases brought from the other libraries also.



*Library – Online Resources*

## EBSCO - Academic Search Complete

Academic Search Complete is the worlds most valuable and most comprehensive scholarly, multi-disciplinary full-text database, with more than **8,500 full-text periodicals**, including more than **7,300 peer-reviewed journals**. In addition to full text, this database offers indexing and abstracts for more than **12,500 journals and a total of more than 13,200 publications** including monographs, reports, conference proceedings, etc. The database features PDF content going back as far as **1887**, with the majority of full text titles in native (searchable) PDF format. Searchable cited references are provided for more than **1,400 journals..**

**It covers all disciplines (Engineering, Management & Commerce, Computing Sciences, Life Sciences, Basic Sciences, Pharmaceutical Sciences, Physiotherapy, Marine, Visual Communication, Science & Humanities, Languages, etc.)”**

URL	<a href="http://www.search.ebscohost.com">www.search.ebscohost.com</a>
Login	Direct Access within the campus (User Name & Password not required)

**Business Source Elite**

This business database provides full text for over **1,000 business publications**. The rich collection of titles in Business Source Elite provides information dating back to **1985**. **More than 10,100 substantial company profiles** from Data monitor are also included. This database is updated on a daily basis via EBSCOhost.

URL	<a href="http://www.search.ebscohost.com">www.search.ebscohost.com</a>
Login	Direct Access within the campus (User Name & Password not required)

## ProQuest ABI/INFORM Global

This database is one of the most comprehensive business databases on the market. It includes in-depth Coverage for thousands of publications, most of which are available in full text and the latest business and financial information for researchers at all levels. It includes in-depth coverage from thousands of publications, most of them in full-text. With ABI/INFORM Global, users can find out about business conditions, management techniques, business trends, management practice and theory, corporate strategy and tactics, and competitive landscape. ABI/INFORM Global includes ABI/INFORM Archive, which offers a deep back file of many of the most important business journals of the last century.

URL	<a href="http://www.search.proquest.com">www.search.proquest.com</a>
Login	Direct Access within the campus (User Name & Password not required)

## IEEE

The IEEE Xplore digital library is a powerful resource for discovery and access to scientific and technical content published by the IEEE (Institute of Electrical and Electronics Engineers) and its publishing partners. IEEE Xplore provides Web access to more than 3-million full-text documents from some of the world's most highly cited publications in electrical engineering, computer science and electronics. The content in IEEE Xplore comprises over 160 journals, over 1,200 conference proceedings, more than 3,800 technical standards, over 1,000 eBooks and over 300 educational courses. Approximately 25,000 new documents are added to IEEE Xplore each month.

URL	<a href="http://www.ieee.org">www.ieee.org</a>
Login	Direct Access within the campus (User Name & Password not required)

## ASME

The American Society of Mechanical Engineers is a nonprofit educational and technical organization serving a **worldwide community of mechanical engineers**. The ASME conducts one of the world's largest technical publishing operations. The society holds more than **28 technical conferences** and **200 professional development courses each year**. The ASME promote and enhance the technical competency and professional well-being through quality programs and activities in mechanical engineering, better enable its practitioners to contribute to the well-being of humankind through its publications that include **19 journals**

**Resource 21 Journals, Transactions, Magazines Back-Files 2000 onwards.**

URL	<a href="http://www.asmedigitalcollection.asme.org">www.asmedigitalcollection.asme.org</a>
Login	Direct Access within the campus (User Name & Password not required)

## ASCE

The American Society of Civil Engineers (ASCE) is recognized globally for their significant contribution and dedication to the advancement of science and education in the civil engineering profession. The ASCE **publishes 35 journals, periodicals and transactions that cover a comprehensive range of the civil engineering profession**. ASCE journals are highly cited and are most relevant to the civil engineers for exchanging technical and professional knowledge. Information published in the journals of ASCE forms archival records not only of the technical advances of the ASCE but of the civil engineering profession as a whole.

**Resource 30 Journals, Transactions, Magazines Back-Files 1995 onward**

URL	<a href="http://www.ascelibrary.org">www.ascelibrary.org</a>
Login	Direct Access within the campus (User Name & Password not required)

## Nature

Nature is the world's most highly cited interdisciplinary science journal, according to the 2013 Journal Citation Reports Science Edition (Thomson Reuters, 2014). Its Impact Factor is **42.351**. The impact factor of a journal is calculated by dividing the number of citations in a calendar year to the source items published in that journal during the previous two years. It is an independent measure calculated by Thomson Reuters, Philadelphia, USA.

URL	<a href="http://www.nature.com">www.nature.com</a>
Login	Direct Access within the campus (User Name & Password not required)

## Micromedex's

This includes all the unbiased, referenced information about **Drugs, Poison, Martindale, PDR, Toxicology, Diseases, Acute Care and Alternative Medicine** you need to make informed clinical diagnosis and treatment decisions.

URL	<a href="http://www.micromedexsolutions.com">www.micromedexsolutions.com</a>
Login	(Contact the Librarian for Username & Password)

## Bentham Science Pharmacy

A major STM journal **publisher of 23 online and print journals**, and 4 print/online books (series), Bentham Science answers the informational needs of the pharmaceutical, biomedical and medical research community. Bentham Science Publishers is an international STM publisher answering the information needs of the **pharmaceutical and biomedical research journal**. We are publishers of many high impact factor journals and books; leading titles include Current Pharmaceutical Design (Impact Factor 4.774), Current Medicinal Chemistry (Impact Factor 4.63) and Current Molecular Medicine (Impact Factor 5.212).

URL	<a href="http://www.ingentaconnect.com">www.ingentaconnect.com</a>
Login	(Contact the Librarian for Username & Password)

## Inventi Journals

Inventi is born out of a revolutionary 2-Stage Publishing Process (Patent Filed) involving Duo Journals: Inventi Rapid & Inventi Impact. This process surprisingly eliminates Time & Rejection, the two dreadful things authors always disliked; yet ensuring quality & impact. It covers 10 Pharmaceutical Journals, 25 Journals for Engineering Technology & Management.

For Pharmacy and For Engineering & Management	
URL	<a href="http://www.inventi.in">www.inventi.in</a>
(Contact the Librarian for Username & Password)	

**Law Finder (Offline Database)**

Law Finder is based on full text retrieval system and has all the frills of a modern day search engine. The Law Finder search engine is tailor made for legal text with all features required for legal text search being preconfigured into it. Law Finder is the biggest law database in India with head notes and is also the most contemporary with majority of cases decided post year 2000. The Acts and rules section contains over 1700 Bare Acts and rules. These are updated almost every month.

**Note: Visit Digital Library to get the USB key to access the database**

E-Books

E-Library: Over one lakh books accessible

URL	<a href="http://www.site.ebrary.com">www.site.ebrary.com</a>
-----	--

**Knowledge Resource Centre @ VISTAS**

URL	<a href="http://192.168.10.10">http://192.168.10.10</a>
-----	---

**List of Open Access E-Resources:**

Doaj

Open Access Journal Search Engine (OAJSE)

OMICS International

Springer Open

Wiley Open Access

ICAST

Jurn Directory

Indian Academy of Sciences
Royal Society of Chemistry
Molecules
Nature Communications
Organic Syntheses
Chemistry Central
Chocrane Library
Check List
Genome Biology
International Journal of Biological Sciences
Oncotarget
Open Biology
Peer J
Zookeys
International Journal of Molecular Sciences
Cell Reports

**10.4.2. Internet (10)**

Name of the Internet provider: **Airtel**

Available bandwidth: 2 Mbps & 10 Mbps

Wi Fi availability: **Yes**

Internet access in labs, classrooms, library and offices of all Departments: **Yes**

- Internet can be accessed in labs through Wi-Fi. Few systems provided with internet connection.
- Departments have designated systems with internet connection. Wi-Fi accessibility as well as Ethernet available.

Security arrangements: **Yes**

- Well trained electricians are available on campus for wiring and installation and constant monitoring. Safety measures like earthing are done to avoid electrical shocks.
- Around 20 security guards are working in the college campus in shifts. Chief Security Officer (CSO) monitors the guards. Security guards are deployed at all blocks, hostels and at open spaces in the campus.



# VELS

INSTITUTE OF SCIENCE TECHNOLOGY  
& ADVANCED STUDIES (VISTAS)



வேல்ஸ் அறிவியல் தொழில்நுட்ப உயர் ஆராய்ச்சி நிறுவனம்

(DEEMED TO BE UNIVERSITY Estd.u/s 3 OF THE UGC ACT,1956)

**NAAC ACCREDITED A GRADE**  
PALLAVARAM - CHENNAI - INDIA

## Declaration

The Head of the Institution needs to make a declaration as per the format given below:

I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them.

It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post-visit and subsequent to grant of accreditation.



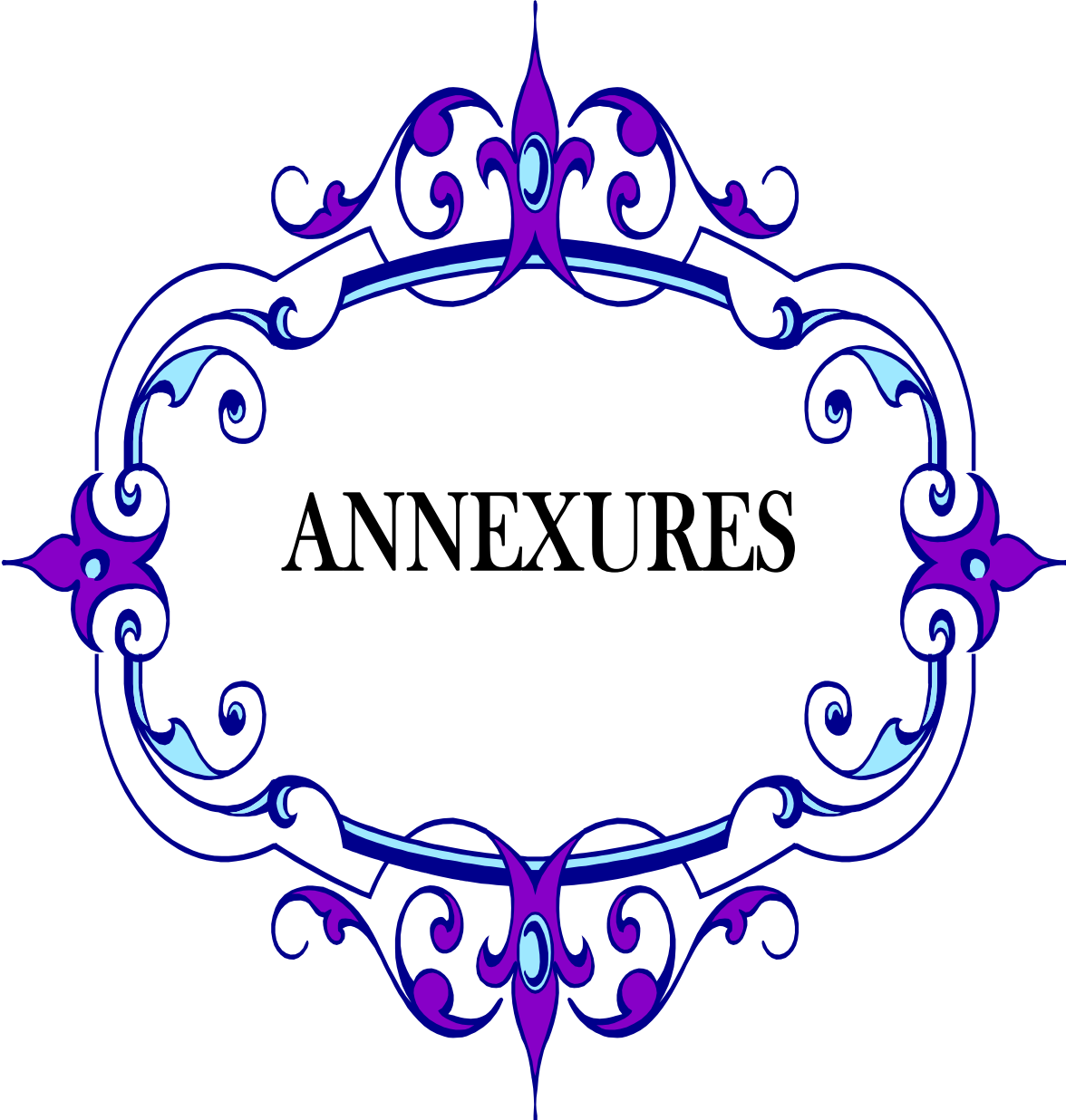
*Dr. A.R. Veeramani* 10/4/2019  
Signature, Name and Designation  
of the Head of the Institution with seal

Dr.A.R. Veeramani  
Registrar

Vels Institute of Science, Technology  
& Advanced Studies (VISTAS)  
Pallavaram, Chennai - 600 117.

Date : 10.04.2019

Place : Chennai – 600 117



**ANNEXURES**



**VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES (VISTAS)**

**Programmes offered: 2018-19**

**I. SCHOOL OF BASIC SCIENCES:**

1. B.Sc., Chemistry	...	3 years (6 semesters)
2. B.Sc., Physics	...	3 years (6 semesters)
3. B.Sc., Mathematics	...	3 years (6 semesters)
4. M.Sc., Chemistry	...	2 years (4 semesters)
5. M.Sc., Pharmaceutical Analytical Chemistry	...	2 years (4 semesters)
6. M.Sc., Industrial Chemistry & Management	...	2 years (4 semesters)
7. Diploma in Green Chemistry	...	1 year (2 semesters)
8. Certificate Course in Water Analysis	...	6 months (1 semester)

**II. SCHOOL OF LIFE SCIENCES:**

9. B.Sc., Biotechnology	...	3 years (6 semesters)
10. B.Sc., Biochemistry	...	3 years (6 semesters)
11. B.Sc., Microbiology	...	3 years (6 semesters)
12. B.Sc., Bio-computing	...	3 years (6 semesters)
13. M.Sc., Biochemistry	...	2 years (4 semesters)
14. M.Sc., Immunology & Microbiology	...	2 years (4 semesters)
15. M.Sc., Applied Medical Biotechnology & Clinical Research	...	2 years (4 semesters)
16. M.Sc., Biotechnology	...	2 years (4 semesters)
17. M.Sc., Bioinformatics	...	2 years (4 semesters)

**III SCHOOL OF COMPUTING SCIENCES:**

18. B.Sc., Computer Science	...	3 years (6 semesters)
19. B.C.A	...	3 years (6 semesters)
20. B.C.A. (Hons.)	...	4 years (8 semesters)

21.	B.Sc., Information Technology	...	3 years (6 semesters)
22.	M.Sc., Information Technology	...	2 years (4 semesters)
23.	M.Sc., Computer Science	...	2 years (4 semesters)
24.	M.C.A.	...	3 years (6 semesters)

#### **IV. SCHOOL OF PHARMACEUTICAL SCIENCES:**

25.	B.Pharmacy	...	4 years (8 semesters)
26.	B.Pharmacy (Practice)	...	2 years (4 semesters)
27.	M.Pharmacy (Pharmaceutics)	...	2 years (4 semesters)
28.	M.Pharmacy (Pharmaceutical Analysis)	...	2 years (4 semesters)
29.	M.Pharmacy (Pharmacy Practice)	...	2 years (4 semesters)
30.	Pharm.D (Doctor of Pharmacy)	...	6 years(Non-Semester)
31.	Pharm.D (Post Bacalaureate)	...	3 years(Non-Semester)

#### **V. SCHOOL OF PHYSIOTHERAPY:**

32.	B.P.T	...	4½ Yrs. (9 semesters)
33.	M.P.T - (Hand Conditions, Sports Physiotherapy, Pediatric Neurology, Adv. PT in Orthopedics, Adv. PT in Cardio. Res.Dis)	...	2 years (4 semesters)

#### **VI. SCHOOL OF MARITIME STUDIES:**

34.	B.Sc., Nautical Science	...	3 years (6 semesters)
35.	B.E., Marine Engineering	...	4 years (8 semesters)
36.	B.Sc., Maritime Operations	...	3 years (6 semesters)

#### **VII.SCHOOL OF HOTEL & CATERING MANAGEMENT:**

37.	B.Sc., Hotel & Catering Mgmt.	...	3 years (6 semesters)
38.	M.Sc., Hotel & Catering Mgmt.	...	2 years (4 semesters)
39.	M.Sc., Culinary Arts	...	2 years (4 semesters)

- |  |     |                   |
|--|-----|-------------------|
| 40. Diploma in Hotel Management &<br>Catering Technology | ... | 3 years (Non-sem) |
| 41. Certificate Course in Bakery and Confectionery       | ... | 1 year            |
| 42. Certificate Course in Food Production                | ... | 1 year            |
| 43. Certificate Course in Front Office Operation         | ... | 1 year            |

#### **VIII. SCHOOL OF ENGINEERING:**

- |   |     |                       |
|---|-----|-----------------------|
| 44. B.E., Electrical & Electronics Engineering  | ... | 4 years (8 semesters) |
| 45. B.E., Computer Science Engineering  | ... | 4 years (8 semesters) |
| 46. B.E., Electronics & Communication Engineering   | ... | 4 years (8 semesters) |
| 47. B.E., Mechanical Engineering  | ... | 4 years (8 semesters) |
| 48. B.E., Civil Engineering   | ... | 4 years (8 semesters) |
| 49. B.E., Automobile Engineering  | ... | 4 years (8 semesters) |
| 50. B.Tech. I.T<br>(Cloud & Mobile based Application Development...<br>In Association with IBM) |     | 4 years (8 semesters) |
| 51. B.Tech., Biotechnology  | ... | 4 years (8 semesters) |
| 52. B.E., Biomedical Engineering  | ... | 4 years (8 semesters) |
| 53. M.E. Construction Engineering and Management...   |     | 2 years (4 semesters) |
| 54. M.E., Computer Integrated Manufacturing   | ... | 2 years (4 semesters) |
| 55. M.E., Computer Science Engineering  | ... | 2 years (4 semesters) |
| 56. M.E., Automobile Engineering  | ... | 2 years (4 semesters) |

#### **IX. SCHOOL OF OCEAN ENGINEERING**

- |   |     |                       |
|---|-----|-----------------------|
| 57. B.Tech. Naval Architecture & Offshore Engg.       | ... | 4 years (8 semesters) |
| 58. B.Tech. Petroleum Engineering                     | ... | 4 years (8 semesters) |
| 59. Diploma in Naval Architecture & Offshore Engg.... |     | 3 years (6 semesters) |
| 60. Diploma in Petroleum Engineering                  | ... | 3 years (6 semesters) |

#### **X. SCHOOL OF MASS COMMUNICATION:**

61.	B.Sc., Visual Communication	...	3 years (6 semesters)
62.	B.Sc., Animation	...	3 years (6 semesters)
63.	Diploma in Visual Communication	...	3 years (6 semesters)
64.	Diploma in Animation	...	3 years (6 semesters)
65.	M.Sc., Visual Communication	...	2 years (4 semesters)

#### **XI. SCHOOL OF MANAGEMENT STUDIES & COMMERCE:**

66.	B.B.A	...	3 years (6 semesters)
67.	B.Com., (General)	...	3 years (6 semesters)
68.	B.Com., (Accounting & Finance)	...	3 years (6 semesters)
69.	B.Com., (Computer Applications)	...	3 years (6 semesters)
70.	B.A., Economics	...	3 years (6 semesters)
71.	M.B.A (Finance, HR, Marketing, Systems, Production)	...	2 years (4 semesters)
72.	M.B.A. (Logistics & Shipping Management)	...	2 years (4 semesters)
73.	M.B.A. (Logistics & Supply Chain Management (CII)	...	2 years (4 semesters)
74.	M.B.A. (Business Analytics) – in Association with IBM	...	2 years (4 semesters)
75.	MBA integrated	...	5 years (10 semesters)

#### **XII. SCHOOL OF LANGUAGES:**

76.	B.A., English	...	3 years (6 semesters)
77.	M.A., English	...	2 years (4 semesters)

#### **XIII. SCHOOL OF LAW**

78.	B.A., LL.B (Hons.)	...	5 years (10 semesters)
79.	LL.B.	...	3 years (6 semesters)

#### **XIV. SCHOOL OF EDUCATION**

- |                   |     |                       |
|-------------------|-----|-----------------------|
| 80. B.Sc., B.Ed., | ... | 4 years (6 semesters) |
| 81. B.Ed.,        | ... | 2 years (4 semesters) |

#### **XV. SCHOOL OF MUSIC & FINE ARTS – (IN ASSOCIATION WITH LAKSHMAN SHRUTI)**

- |  |     |                       |
|--|-----|-----------------------|
| 82. B.A., Music (Instrumental – Veena, Violin, Guitar, Miruthangam & Thavil) | ... | 3 years (6 semesters) |
| 83. B.A., Dance (Bharatha Natyam)  | ... | 3 years (6 semesters) |
| 84. B.A., Western Classical Music  | ... | 3 years (6 semesters) |
| 85. M.A., (Bharatha Natyam)  | ... | 2 years (4 semesters) |
| 86. Diploma in Western Music   | ... | 2 years (4 semesters) |
| 87. Diploma in Bharatha Natyam   | ... | 2 years (4 semesters) |
| 88. Certificate program in Karnatic Music                                    | ... | 1 year (2 Semesters)  |
| 89. Certificate program in Western Music                                     | ... | 1 year (2 Semesters)  |

#### **DEPARTMENT OF AVIATION – KNOWLEDGE PARTNER MADRAS FLYING CLUB LTD.,**

- |                     |     |                       |
|---------------------|-----|-----------------------|
| 90. B.Sc., Aviation | ... | 3 years (6 semesters) |
|---------------------|-----|-----------------------|

#### **RESEARCH**

**M.Phil.:** All post graduate departments offer Full-time / Part-time M.Phil. Programmes.

**Ph.D. :** All the Schools have experienced guides and hence both Full time and Part Time Ph.D., programme are offered by every school.



**NOTICE**

No. : VELS/SMS/NOTICE/063/2018  
Date : 11/10/2018  
Subject : Drug & Substance Abuse Awareness Program

**NOTICE**

"DRUG & SUBSTANCE ABUSE AWARENESS PROGRAM" will be held on 13.10.2018 (Saturday) by Mr. Samuel Arputharaj - Co-Ordinator from 9.00 AM to 12.00 PM.

The following batch shall attend the awareness program as per time schedule below,

S.NO	BATCH	TIME SLOT
1	BSC19A	0900AM - 1030AM
2	BSC19B	1100AM - 1230PM
3	BSC19C	0100PM - 0230PM

Capt. N. Kumar  
Director

**CAPT. N. KUMAR**  
DIRECTOR  
SCHOOL OF MARITIME STUDIES  
VELS INSTITUTE OF SCIENCE  
TECHNOLOGY & ADVANCED STUDIES



**TURN** 

**AROUND**

A Social Awareness Project of  
**ICPF**

**Welcome you**

To the

**World of**

**TO(O)BA(D)CCO**

## **Drug and Alcohol Awareness**

### **Substance Abuse Issues**

- Drug and alcohol abuse
- Misuse of prescription and over-the-counter medication
- Drug trafficking and dealing
- Emotional distress and illness
- Physical illness and chronic health problems
- Lifestyle issues



## Signs and Symptoms of Abuse

- Absenteeism
- Staff Turnover
- Lower productivity
- Poor work quality
- Poor moral
- Increased accidents and near misses
- Theft of equipment and materials
- Equipment breakdowns

## Drug Effects

- Slow reactions
- Poor coordination
- Fatigue
- Delayed decision making
- Confusion
- Learning difficulty
- Poor memory
- Loss of concentration
- Depression or anxiety
- Erratic judgment quality

## Drug Effects

- Difficulty sorting out priority tasks from non-essential activity
- Neurotic or psychotic behavior
- Refusal to accept authority

## Behavioral Signs

- Change in attitude, work performance or behavior
- "I don't care" attitude
- **Erratic** performance
- Hangover symptoms
- Drug culture jargon
- Secretive behavior

## Behavioral Signs

- Wanting to be alone
- Forgetfulness, indecision, erratic judgment
- Impulsive and temperamental behavior
- Changes in personal appearance and hygiene
- Jitters, hand tremors, hyperexcitability
- Carelessness

## Behavioral Signs

- Sleeping on the job
- Trouble with police
- Can not keep a job
- Aggressive towards others
- Constant illnesses

## Physical Symptoms

- Blood spots on shirt sleeves
- Bloodshot or watery eyes
- Changes in speech
- Hand tremors
- Intoxicated behavior
- Odor of alcohol on breath or marijuana smoke

## Physical Symptoms

- On-the-job, out-in-the-open drug use
- Poor coordination
- Racing heart, irregular rhythms
- Runny nose or sores around nostrils
- Sleeping on job
- Slow reactions
- Slurred speech

## Physical Symptoms

- Unsteady gait
- Very large of very small pupils
- Wearing sunglasses indoors

## Common Sites for Use

- Lunchroom or lounge areas
- Parking lots and cars
- Remote areas of the worksite
- Equipment or storage rooms
- Restrooms

# MARIJUANA



Cannabis spp. Leaves  
Anonymous Photographer, © 2000 Crowd.com



## From Hemp plant – Cannabis Sativa



1974 – 1% THC level  
Today – more than 17%



When dried and manicured  
looks like oregano



1 Joint is equivalent to  
25 cigarettes



10% of workers claim use





## Smoked



## Bongs



## Shot Gunning



## Mental Function

- Sense of Well Being
- Irritability, insomnia, anxiety, depression
- "I don't care" attitude
- Diminished concentration
- Delayed decision making



## Mental Function

- Impaired short-term memory
- Erratic cognitive functions
- Distortions in time estimation

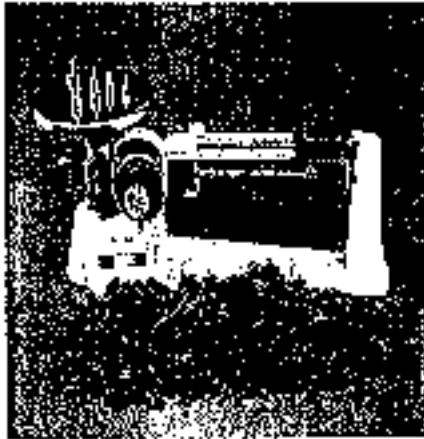


## Health Effects

- Pulmonary problems
- Risk of cancer
- Heart disease
- Lowers immune system
- Irritating cough, chronic sore throat



## Health Effects



- Withdrawal
- Loss of appetite
- Restlessness
- Chronic fatigue and lack of motivation

## Pregnancy Problems and Birth Defects

- Active chemicals concentrate in ovaries and testes.
- Decrease in testosterone in males.
- Decrease in fertility, increase in testosterone in females
- Females have higher incidences of stillborn births or miscarriages.

## Pregnancy Problems and Birth Defects

- THC can cause birth defects.
- Offspring have fewer chromosomes than normal.
- Common effect is underweight newborn babies.
- Decrease in visual functioning and other ophthalmic problems.

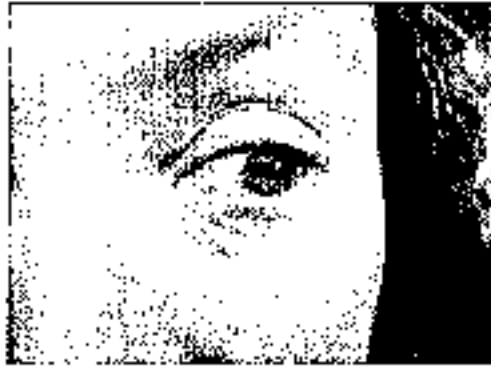
## Signs and Symptoms

- Affects normal body functions
- Impaired tracking
- Distinctive odor on clothing



## Signs and Symptoms

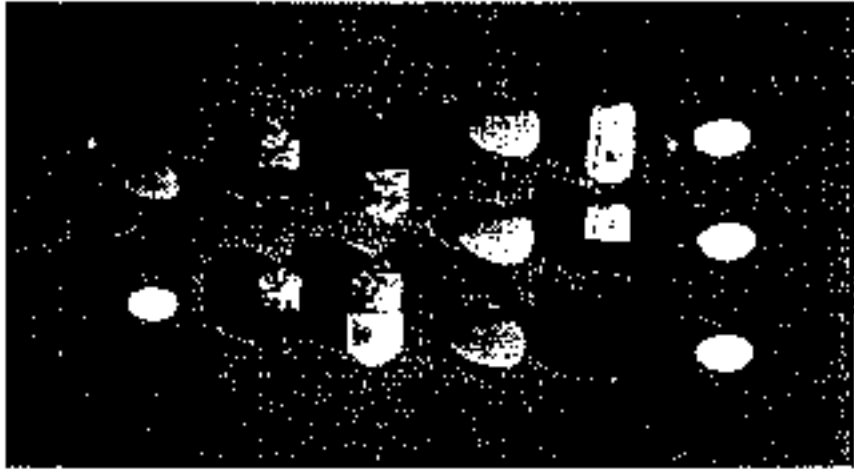
- Reddened eyes
- Slowed speech
- Chronic fatigue and lack of motivation



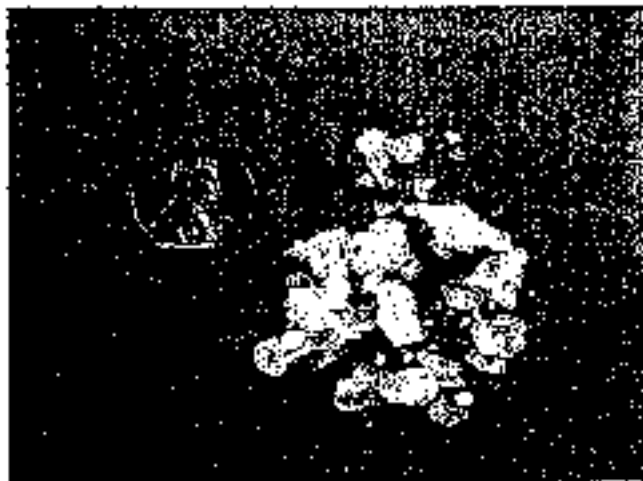
## Marijuana Fact Sheet Acute/Overdose Effects

- Aggressive urges
- Anxiety
- Confusion
- Fearfulness
- Hallucinations
- Heavy sedation
- Immobility
- Mental dependency
- Panic
- Paranoid reaction
- Unpleasant distortions in body image.

## Amphetamine



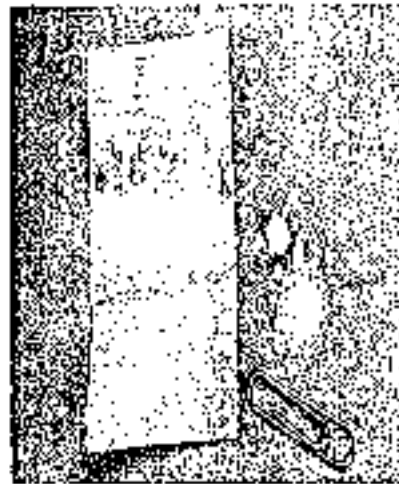
## Methamphetamine



## Both Similar in Makeup & Effect

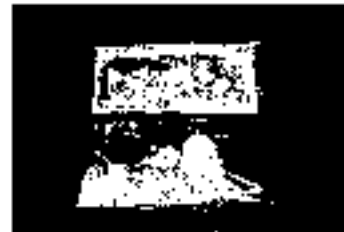
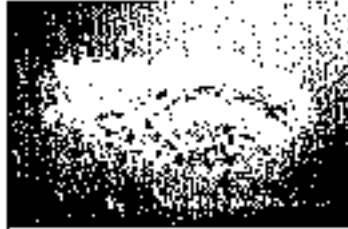


## #2 Drug We See – Catching Marijuana





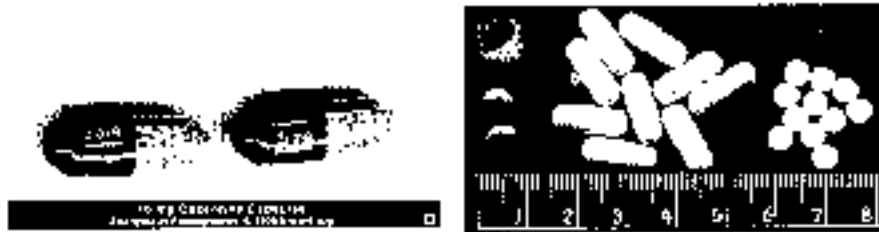
## White, Brown, Pink



## Tablets, Capsules, Liquid, Powder



## Taken Orally



## Smoked – Effects in minutes



Snorted – effects in minutes



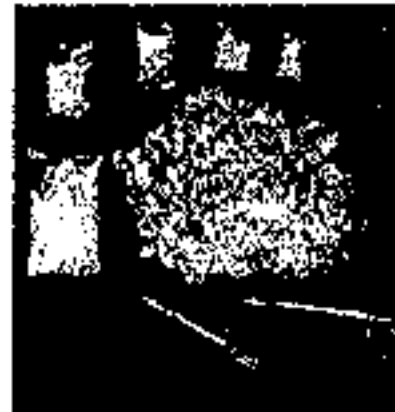
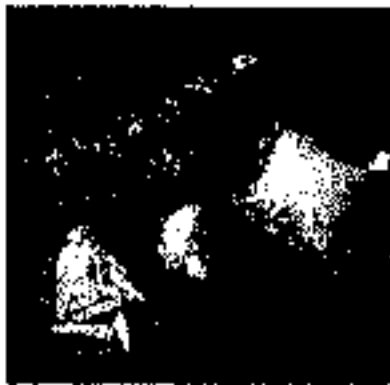
Injected – effects in seconds



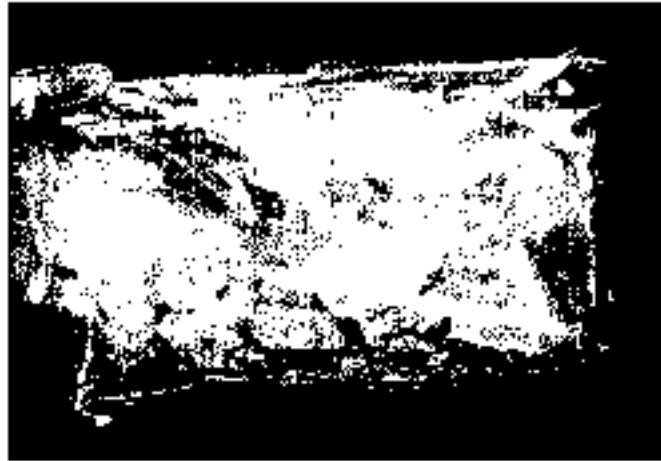
## All for the "Rush"

Immediately After Smoking Or Injection, The User Experiences An Intense Sensation, Called A "Rush" Or "Flash," That Lasts Only A Few Minutes And Is Described As Extremely Pleasurable.

## Effects Last Up To 12 Hours



Stay up for days



Tolerance – Need More

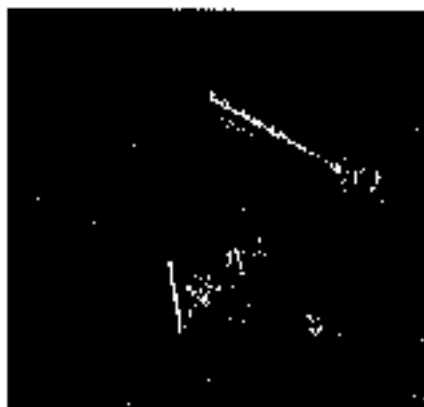


## Signs and Symptoms

- Hyperexcitability
- Dilated pupils
- Increased heart rate
- Increased blood pressure
- Heart palpitations
- Profuse sweating



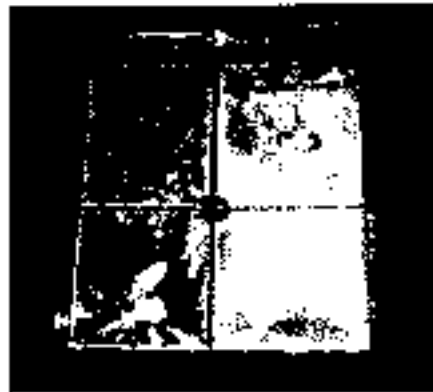
## Signs and Symptoms



- Rapid respiration
- Confusion
- Panic
- Talkativeness
- Inability to concentrate

## Health Effects

- Regular use produces strong psychological dependence and increased drug tolerance
- High doses may cause toxic psychosis resembling schizophrenia
- Intoxication may induce heart attack or stroke



## Health Effects

- Increases impulsive or risk taking behaviors
- Withdrawal causes severe depression
- 95% relapse rate
- Effects are not just internal
- Literally eats the body



## Possible Effects

Other Possible Immediate Effects Include Increased Wakefulness And Insomnia, Decreased Appetite, Irritability/Aggression, Anxiety, Nervousness, Convulsions And Heart Attack.



## Scary Statistic

**"More Than 12 Million Americans Have Tried Methamphetamine, And 1.5 Million Are Regular Users."**

*- David J. Jefferson, "America's Most Dangerous Drug" Newsweek August 8, 2005*



## The Makings



They make it anywhere they can.



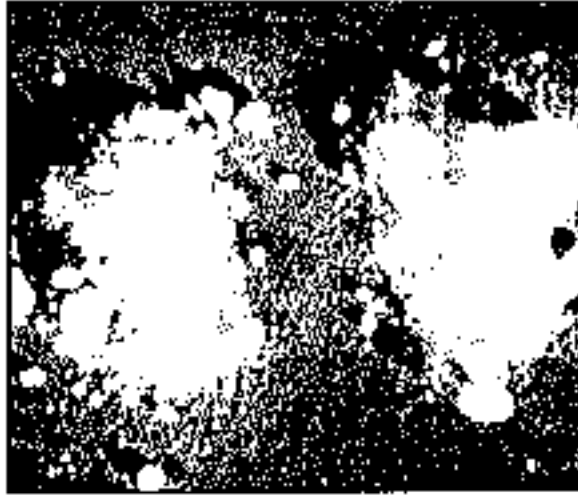
## Hazardous Cleanup



## Bugs



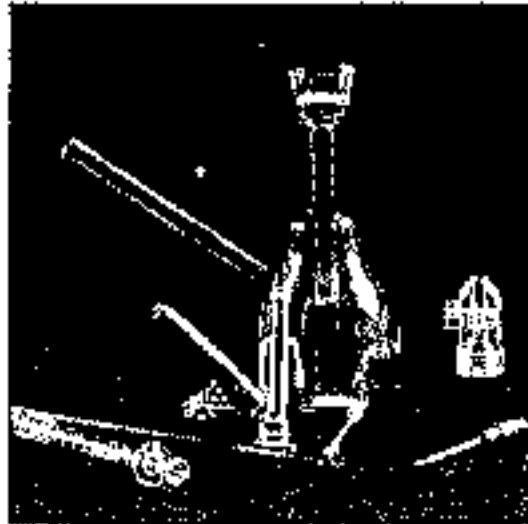
## Cocaine



## Rich Man's Drug



## Effects Short Lived



## Signs and Symptoms of Use

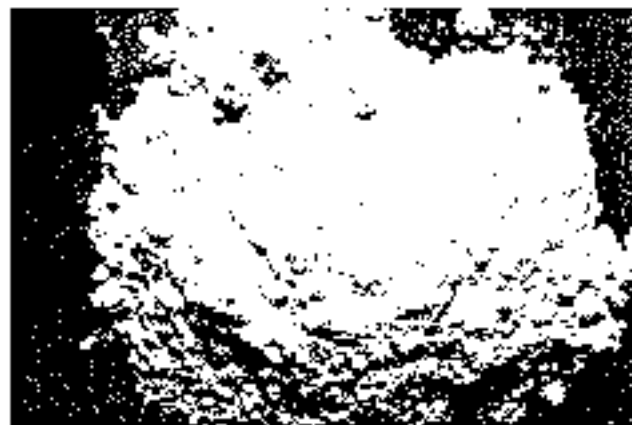
- Financial problems
- Frequent absences
- Increased physical activity and fatigue
- Isolation and withdrawal
- Secretive behaviors
- Unusual defensiveness
- Wide mood swings
- Nose problems
- Difficulty in concentration
- Dilated pupils

## Cocaine Fact Sheet

### Health Effects

- Regular use can upset chemical balance in brain
- Causes heart to beat faster and harder
- Strongest mental dependency of all drugs
- Treatment success rates are lower
- Deaths due to overdose when taken with depressants

## Opiates – Heroin - Codeine



Derived From Resin of Poppy Plant



Depresses  
Central Nervous System



## Signs and Symptoms

- Mood changes
- Physical fatigue and drowsiness
- Constricted pupils
- Nausea, vomiting, constipation
- Financial difficulties



## Signs and Symptoms

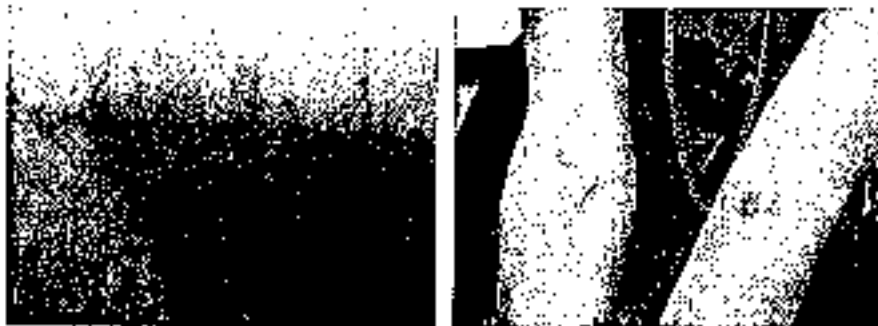


- Depression and apathy
- Impaired coordination
- Impaired mental functioning and alertness

## Health Effects

- High risk of contacting hepatitis or AIDS
- Narcotics increase pain tolerance
- Effects are multiplied when combined with other depressant drugs
- Tolerance levels increase
- Strong mental and physical dependency

## Needle Marks





## Convulsions - Coma



## Hallucinations - Tripping



## PCP – Angel Dust



## Signs and Symptoms

- Impaired coordination
- Severe confusion and agitation
- Extreme mood shifts
- Muscle rigidity



## Signs and Symptoms



- Nystagmus (jerky eye movements)
- Dilated pupils
- Profuse sweating
- Rapid heartbeat
- Dizziness

## Health Effects

- Potential for accidents and overdose extremely high
- Overdoses are often misdiagnosed as LSD induced and treatment can cause a fatal reaction
- Use can cause irreversible memory loss, personality changes and thought disorders

## Ecstasy – The Love Drug



## Mushrooms

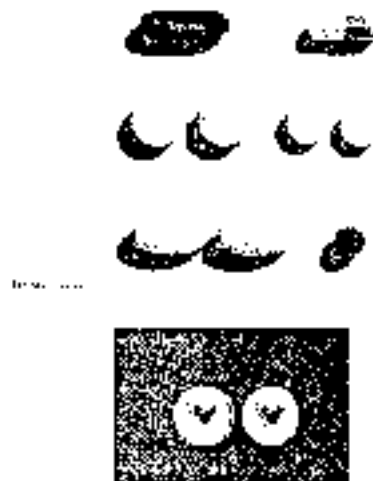




## Popular Advertising



## Depressant Drugs



## Signs and Symptoms

- Sedation, drowsiness, sleep
- Mental confusion
- Inattention
- Slurred speech



## Signs and Symptoms



- Staggering, loss of balance
- Lowered blood pressure
- Depressed respiration

## Health Effects

- Strong mental and physical dependency
- User develops tolerance so increased dosages are required
- Withdrawal may cause extreme excitation and panic
- Usually requires medical supervision for withdrawal

## Scary Questions

- Have you ever gone out to "get drunk"?
- Have you ever driven home after having more than two cocktails?
- Have you ever not remembered something while drinking?
- Have you ever gotten in the vehicle with someone who has been drinking?
- Have you ever become physically ill?



## Terrifying Answers

- **Statistics show that most of us will respond yes to three or more of these questions.**
- **If you answered yes to three or more you may have a problem with alcohol!**

## Alcohol Abuse

Alcohol is a socially acceptable drug that has been consumed as a recreational beverage for thousands of years. When consumed for its physical and mood-altering effects, however, it becomes a dangerous substance of abuse.

## Alcohol Fact Sheet

# 1 problem in the work place

What is alcohol?

## Alcohol

- Number one abused substance
- Easy to become dependent
- Alcoholics seldom realize they have a problem
- Many of us have an alcoholic in our immediate family and know several

## Alcohol abuse should concern all of us!

Those who abuse alcohol on the job are

- Are far less productive
- Use three times as many sick days
- Are more likely to injure themselves or someone else
- Are five times more likely to file workers comp claims

## Alcohol is a Depressant

- Slows down and impairs all sensory and motor functions
- Poor decisions
- Increased friction among workers
- Damage to company equipment
- Damage to company's public image
- High turnover in personnel

## Signs and Symptoms of Use

- Dull mental processes
- Sleepy or stuporous condition
- Lack of coordination
- Slowed reaction rate
- Possible constricted pupils
- Slurred speech
- Odor of alcohol on breath

## Health Effects

- Decreased sexual functioning
- Dependency
- Fatal liver diseases
- Increased risk of cancer in mouth, throat, rectum, breasts and skin
- Kidney disease

## Health Effects

- Pancreatitis
- Spontaneous abortion and neonatal mortality
- Ulcers
- Birth defects

## Social Issues

- 2/3 of all homicides are committed by people who drink prior to the crime
- 2% to 3% of the driving population is legally drunk at any one time.
- 2/3 of all Americans will be involved in an alcohol related vehicle accident in their life
- The rate of separation and divorce is 7 times greater

## Social Issues

- 40% of family court cases are alcohol problem related
- Alcoholics are 15 times more likely to commit suicide
- Accident rates are higher with people who abuse alcohol

## Workplace Issues

- It takes 1 hour for an average person to process 1 serving of alcohol
- Impairment in coordination and judgment can be measured with a BAC of .03
- A person who is legally intoxicated BAC .08 is 6 times more likely to have an accident than a sober person

## Blood Alcohol Concentration

- 0.03 – There is a reduction in one's capacity to correctly choose among several alternatives presented
- 0.04 – Response to visual and aural stimuli diminishes
- 0.05 – Reduction in ability to perceive and interpret surroundings.
  - Detail in moving objects begins to diminish
  - Increased difficulty in coordination
  - Completing multiple task assignments becomes increasingly difficult

## BAC Reduction

- Reduced through three bodily functions
  - Metabolism. The liver is the body's filtration system. Alcohol is reduced each time the blood passes through it.
  - Excretion. Alcohol is broken down into carbon dioxide and water – eliminated through urine.
  - Evaporation. One's breath and sweat are the two processes of evaporation.
    - Note – breath and body odor

## Think about this!

If you go out and come home with a blood alcohol level of 0.25, when you go to work at 8 you still have a blood alcohol level of 0.14. When you finally get to go to lunch at noon your level will be down to 0.05.





**I hope that you take at least one thing  
away from today.**

Substance abuse is a subject that most  
people would rather not discuss. The more  
knowledge you have the safer your life will  
be.

## **REMEMBER**

**Living for today and making the  
best out of every moment of life  
can not be accomplished while  
under the influence of any  
substance of abuse!**

## VELS INSTITUTE OF SCIENCE, TECHNOLOGY &amp; ADVANCED STUDIES (VISTAS)

## SCHOOL OF MARITIME STUDIES

## B.SC NAUTICAL SCIENCE - BATCH 19

## DRUG AND SUBSTANCE ABUSE AWARENESS PROGRAM

DATE: 13-10-2018 &amp; TIME: 9.00 AM - 10.30AM

SL	ROLL NO	CADET NAME	SECTION	SIGNATURE
1	1155 A	ABHISHEK TIWARI	A	
2	1156 A	ABHISHIKTH V	A	
3	1157 A	ABIDAS P	A	
4	1158 A	ADHIL MUHAMMAD R	A	
5	1159 A	AKASH R.K.	A	
6	1160 A	AKASH SHARMA	A	
7	1161 A	ALLAN STEVE IMMANUEL S	A	
8	1162 A	ANANTH PRAKASH SHARMA J	A	
9	1163 A	ANANTHU S NAIR	A	
10	1164 A	ANTONY RIJOE S R	A	
11	1165 A	ANUREN J E S	A	
12	1166 A	ARAVIND D	A	
13	1167 A	ARNOLD M.R	A	
14	1168 A	ARON S	A	
15	1169 A	ARUL PRAKASAM K	A	
16	1170 A	ASCOR VIBI A R	A	
17	1171 A	ASHIK AHAMED .M	A	
18	1172 A	ASHLEY KANNAN	A	
19	1173 A	ASHWIN SURESH	A	
20	1174 A	ATHOKPAM JACKSON LUWANG	A	
21	1175 A	ATUL	A	
22	1176 A	BEJOY LUCAS MATHEW	A	
23	1177 A	BERVIN B	A	
24	1178 A	BRIGESH K	A	
25	1179 A	DANIEL GIO PREET J	A	
26	1180 A	DILAKAR N	A	
27	1181 A	EDWIN SASIN J	A	
28	1182 A	ELAVARASAN G	A	
29	1183 A	FAYIS P	A	
30	1184 A	GOKUL S	A	

## VELS INSTITUTE OF SCIENCE, TECHNOLOGY &amp; ADVANCED STUDIES (VISTAS)

## SCHOOL OF MARITIME STUDIES

## B.SC NAUTICAL SCIENCE - BATCH 19

## DRUG AND SUBSTANCE ABUSE AWARENESS PROGRAM

DATE: 13-10-2018 &amp; TIME: 11.00 AM - 12.30 AM

SL	ROLL NO	CADET NAME	SECTION	SIGNATURE
1	1185 A	GURUPRASANTH D	B	
2	1186 A	HARIKRISHNAN A.R.	B	
3	1187 A	HARISH PANDIAN M	B	
4	1188 A	HENRY CHARLES I	B	
5	1189 A	HIMANSHU RANA	B	
6	1190 A	JAGAN SREEKUMAR	B	
7	1191 A	JAGDISH KUMAR S	B	
8	1192 A	JASWANTH H	B	
9	1193 A	JEEN GLAD VENTAMIN A.M	B	
10	1194 A	JOSHUA ROSHAN A	B	
11	1195 A	KAMALESH RAJ S V	B	
12	1196 A	KRISHNAPRASAD K H	B	
13	1197 A	KUMARESAN S	B	
14	1198 A	LOGESH R	B	
15	1199 A	LOGESHWARAN T (26-10-1999)	B	
16	1200 A	LOGESHWARAN T (22-11-1999)	B	
17	1201 A	MANISH KUMAR	B	
18	1202 A	MATHISON K	B	
19	1203 A	MOHAMED ARSHADH M	B	
20	1204 A	MOHAMMED GULAM GAJINI A	B	
21	1205 A	MURALI S	B	
22	1206 A	NAGESWARA RAO T	B	
23	1207 A	NIVIN CANNEUT A	B	
24	1208 A	PADMANABAN N M	B	
25	1209 A	POOVARASAN E	B	
26	1210 A	PRABAKARAN T	B	
27	1211 A	RAJAT AGARWAL	B	
28	1212 A	RAJESH N	B	
29	1213 A	RANJITH K	B	
30	1214 A	RATHISH S	B	

## VELS INSTITUTE OF SCIENCE, TECHNOLOGY &amp; ADVANCED STUDIES (VISTAS)

## SCHOOL OF MARITIME STUDIES

## B.SC NAUTICAL SCIENCE - BATCH 19

DRUG AND SUBSTANCE ABUSE AWARENESS PROGRAM

DATE: 13-10-2018 &amp; TIME: 13.00 - 14.30

SL	ROLL NO	CADET NAME	SECTION	SIGNATURE
1	1215 A	RAVINDHAR V	C	V Ravind
2	1216 A	ROHITH R	C	Rohith
3	1217 A	ROHIT RAJ	C	Rohit
4	1218 A	ROOBESHVAR V	C	Roobesh
5	1219 A	SABARISH SHREERAM M	C	Sabarish
6	1220 A	SAHAYA ANTO HUBERT	C	Sahaya
7	1221 A	SAKET KUMAR SHARMA	C	Saket
8	1222 A	SANJAY KUMAR T	C	Sanjay
9	1223 A	SANJEEV S	C	Sanjeev
10	1224 A	SARATH KUMAR S	C	Sarath
11	1225 A	SIVA R	C	Siva
12	1226 A	SIVASANKARAMOORTHY A	C	Siva
13	1227 A	SUBASH V	C	Subash
14	1228 A	SUBHASH P	C	Subhash
15	1229 A	SUGATHEESH P	C	Sugatheesh
16	1230 A	SUMIT KUMAR DAS MALLICK	C	Sumit
17	1231 A	SUNDARESAN A	C	Sundaresan
18	1232 A	SUTHAN K	C	Suthan
19	1233 A	THANGADURAI G	C	Thangadurai
20	1234 A	THOMAS M.V	C	Thomas
21	1235 A	THOMAS P	C	Thomas
22	1236 A	UDHAYA KUMAR G	C	Udhaya
23	1237 A	VENKADESAN K	C	Venkadesan
24	1238 A	VIGNESH K	C	Vignesh
25	1239 A	VIGNESH T	C	Vignesh
26	1240 A	VIJAYKRISHNAN V	C	Vijaykrishnan
27	1241 A	VILOK D	C	Vilok
28	1242 A	VIPUL CHAUHAN	C	Vipul
29	1243 A	YOGESH D	C	Yogesh
30	1244 A	YOGESHRAJ M	C	Yogeshraj

**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
**SCHOOL OF MARITIME STUDIES**  
**TEACHING FACULTY PAPER PUBLICATION DETAILS FOR THE LAST 5 YEARS**  
**UPDATED AS ON 01- 03 - 2019**

S.NO	Title Of Paper	Name of the Author/s	Department of Teacher	Name of Journal	Year Of Publication	ISBN/ISSN Number	Link
1	A Study On Employee Attrition Rate In Pizzerias At Chennai.	Mrs. M. Rajapriya	Nautical Science	International Journal Of Multidisciplinary Research	2013	2277-9302	Paper accepted & Weblink not available
2	Disability Management At Workplace	Mrs. M. Rajapriya	Nautical Science	International Organization Of Scientific Research	2013	2278-8719	<a href="http://www.iosrjournals.org/iosr-ijbm/papers/ncibppte-volume-1/1114.pdf">http://www.iosrjournals.org/iosr-ijbm/papers/ncibppte-volume-1/1114.pdf</a>
3	The Risk Analysis of Failure Modes of Marine Machinery Systems	Mr. V. Thanikachalam	Marine Engineering	International Journal of Applied Engineering Research (IJAER)	2014	0973-4562	<a href="https://www.ripublication.com/VoLume/ijaerv9n18spl.htm">https://www.ripublication.com/VoLume/ijaerv9n18spl.htm</a>
4	The Safe and Environmentally Sound Recycling of Ships	Mr. V. Thanikachalam	Marine Engineering	International Journal of Applied Engineering Research (IJAER)	2014	0973-4562	<a href="https://www.ripublication.com/ijaer_snl/ijaerv9n17_28.ndf">https://www.ripublication.com/ijaer_snl/ijaerv9n17_28.ndf</a>
5	Energy Demand and Exhaust Gas Emissions of Marine Engines: Mitigating Technologies and Predictions	Mr. V. Thanikachalam	Marine Engineering	International Journal of Applied Engineering Research (IJAER)	2015	0973-4562	<a href="http://www.ijaer.com/images/short_pdf/1424783623_V_THANIKACHALAM.pdf">http://www.ijaer.com/images/short_pdf/1424783623_V_THANIKACHALAM.pdf</a>
6	Image Compression using HEVC Technique	Mrs. P. Narmadha Devi Mrs. K. Bhuvaneshwari	Marine Engineering Marine Engineering	International Research Journal of Engineering & Technology	2015	2395-0056	<a href="https://irjet.net/archives/V2/i6/IRJET-V2I6122.pdf">https://irjet.net/archives/V2/i6/IRJET-V2I6122.pdf</a>
7	Image Compression using HEVC Technique	Mrs. A. Anitha	Marine Engineering	International Research Journal of Engineering & Technology	2015	2395-0056	<a href="https://irjet.net/archives/V2/i6/IRJET-V2I6122.ndf">https://irjet.net/archives/V2/i6/IRJET-V2I6122.ndf</a>
8	Review of the Risks Posted to Drinking Water by Distillation Process on Shipping	Mr. V. Thanikachalam	Marine Engineering	International Journal of Applied Engineering Research (IJAER)	2015	0973-4562	<a href="http://www.ijaer.com/images/short_pdf/1429348870_V_Thanikachalam_5.pdf">http://www.ijaer.com/images/short_pdf/1429348870_V_Thanikachalam_5.pdf</a>
9	Space Vector Modulation for PWM Rectifiers	Mrs. P. Narmadha Devi Mrs. A. Anitha Mrs. K. Bhuvaneshwari	Marine Engineering Marine Engineering Marine Engineering	International Research Journal of Engineering & Technology	2015	2395-0056	<a href="https://irjet.net/archives/V2/i6/IRJET-V2I6123.pdf">https://irjet.net/archives/V2/i6/IRJET-V2I6123.pdf</a>
10	A Study of the disability Management in Garment Industry at Chennai	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	Impact Journals	2016	-	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_02_095-2-3/IJCIET_09_02_095-2-3.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_02_095-2-3/IJCIET_09_02_095-2-3.pdf</a>
11	Analysis of Cardanol as a substitute for Diesel	Mr. S. Chandrasekaran	Marine Engineering	International Journal of Managing Value and Supply Chains (IJMVSC)	2016	0976-979X	<a href="https://www.researchgate.net/publication/305042174_Analysis_of_Cardanol_as_a_Substitute_for_Diesel">https://www.researchgate.net/publication/305042174_Analysis_of_Cardanol_as_a_Substitute_for_Diesel</a>
12	Dwindling Disability of Women Employees Working in Garment Industry by Empowering Women	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	Indian Journal of Management(IJM)	2016	0975-2854	Paper accepted & Weblink not available
13	An Empirical Study on Work Related Stress Faced by the Employees Across the Business Processing Outsourcing (BPO'S) in Chennai	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	International Journal of Economic Research	2017	0972-9380	<a href="http://www.serialsjournals.com/serialjournalmanager/pdf/1488524594.pdf">http://www.serialsjournals.com/serialjournalmanager/pdf/1488524594.pdf</a>
14	An Isolated DC/DC Inverter Using High – Frequency unregulated LLC Resonant Converter for Fuel Cell Applications	Mrs. P. Narmadha Devi Mr. S. Aravind	Marine Engineering Marine Engineering	Journal of Advanced Research in Dynamical and Control Systems	2017	1943-023X	<a href="http://jardcs.org/papers/v9/3051.pdf">http://jardcs.org/papers/v9/3051.pdf</a>

**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
**SCHOOL OF MARITIME STUDIES**  
**TEACHING FACULTY PAPER PUBLICATION DETAILS FOR THE LAST 5 YEARS**  
**UPDATED AS ON 01- 03 - 2019**

S.NO	Title Of Paper	Name of the Author/s	Department of Teacher	Name of Journal	Year Of Publication	ISBN/ISSN Number	Link
15	Design and Implementation of Quasi Z-Source Network with Step-Up DC-DC Converter	Mrs. A. Anitha	Marine Engineering	Journal of Advanced Research in Dynamical and Control Systems	2017	1943-023X	<a href="http://jardcs.org/papers/v9/3050.pdf">http://jardcs.org/papers/v9/3050.pdf</a>
16	Education Promotes Physical, Mental And Social Well Being By Providing Better Life	Capt. N. Kumar Ms. T. Subashini	Nautical Science Marine Engineering	International Journal of Economics & Social Science	2017	2455-8834	<a href="http://euroasiapub.org/education-promotes-physical-mental-and-social-well-being-by-providing-better-life/">http://euroasiapub.org/education-promotes-physical-mental-and-social-well-being-by-providing-better-life/</a>
17	Effective EEDI Performance Achievement by MAN B7W G-Type Ultra Long Stroke Marine Diesel Engine	Mr. V.L. Mangesh Mr. A. Mohan	Marine Engineering Marine Engineering	International Journal of Shipping System	2017	-	<a href="https://web.a.ebscohost.com/abstract?direct=true&amp;profile=ehost&amp;scope=site&amp;authtype=crawler&amp;jrnl=09753060&amp;AN=126446822&amp;h=0Ah5W1kOgndIws2QBUMPncUORRlpzwiT%2fUTMa9G%2bvgd4%2fW0lVNwww9E7vYIB4XdbODS4weE2S4ePFNGr2N4Ag%3d%3d&amp;crI=f&amp;resultNs=AdminWebAuth&amp;resultLocal=ErrCrINotAuth&amp;crIhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d09753060%26AN%3d126446822">https://web.a.ebscohost.com/abstract?direct=true&amp;profile=ehost&amp;scope=site&amp;authtype=crawler&amp;jrnl=09753060&amp;AN=126446822&amp;h=0Ah5W1kOgndIws2QBUMPncUORRlpzwiT%2fUTMa9G%2bvgd4%2fW0lVNwww9E7vYIB4XdbODS4weE2S4ePFNGr2N4Ag%3d%3d&amp;crI=f&amp;resultNs=AdminWebAuth&amp;resultLocal=ErrCrINotAuth&amp;crIhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d09753060%26AN%3d126446822</a>
18	Effective Methodologies to Teach Phonetics and Phonology to Improve Pronunciation in Second Language Learners and Professional Communication in Business	Mr. T.B. Gopinath Mr. I. John Christlin Mathews	Nautical Science Marine Engineering	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_08_04_028/IJCIET_08_04_028.pdf">https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_08_04_028/IJCIET_08_04_028.pdf</a>
19	Effectiveness of E-Learning in Adult Education	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_08_03_101/IJCIET_08_03_101.pdf">https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_08_03_101/IJCIET_08_03_101.pdf</a>
20	Effectiveness of Mind Mapping in Higher Education	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_08_04_111/IJCIET_08_04_111.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_08_04_111/IJCIET_08_04_111.pdf</a>
21	Greener, Safer – Sustainable Energy Effective Shipping Using Solar Power Optimizer By MPPT	Ms. T. Subhashini Ms. P. Maheswari Mr. V. Thanikachalam Mr. T. B. Gopinath	Marine Engineering Nautical Science Marine Engineering Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="http://iaeme.com/MasterAdmin/uploadfolder/IJMET_08_04_018/IJMET_08_04_018.pdf">http://iaeme.com/MasterAdmin/uploadfolder/IJMET_08_04_018/IJMET_08_04_018.pdf</a>
22	Load Balanced Migration of Social Media to Content Clouds	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_08_03_072/IJCIET_08_03_072.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_08_03_072/IJCIET_08_03_072.pdf</a>
23	MATLAB Simulation of Hybrid Motion Estimation Algorithm for H.264/AVC	Capt. N. Kumar Mrs. G. Sharmila Ms. P. Maheswari	Nautical Science Marine Engineering Nautical Science	International Journal of Mechanical Engineering & Technology (IJMET)	2017	0976-6340	<a href="https://www.iaeme.com/MasterAdmin/uploadfolder/IJMET_08_07_001/IJMET_08_07_001.pdf">https://www.iaeme.com/MasterAdmin/uploadfolder/IJMET_08_07_001/IJMET_08_07_001.pdf</a>

**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
**SCHOOL OF MARITIME STUDIES**  
**TEACHING FACULTY PAPER PUBLICATION DETAILS FOR THE LAST 5 YEARS**  
**UPDATED AS ON 01- 03 - 2019**

S.NO	Title Of Paper	Name of the Author/s	Department of Teacher	Name of Journal	Year Of Publication	ISBN/ISSN Number	Link
24	Mosfet with Super Cyclic Commutation for Voltage Regulators	Mrs. P. Narmadha Devi Mr. S. Aravind Mr. M.Rajesh	Marine Engineering Marine Engineering Marine Engineering	Journal of Advanced Research in Dynamical and Control Systems	2017	1943-023X	<a href="http://jardcs.org/papers/v9/3052.pdf">http://jardcs.org/papers/v9/3052.pdf</a>
25	Programmable Logic Controller Based Control of Tidal Power Plant	Mrs. A. Anitha Mr. M. Rajesh	Marine Engineering Marine Engineering	Journal of Advanced Research in Dynamical and Control Systems	2017	1943-023X	<a href="http://www.jardcs.org/abstract.php?archiveid=327">http://www.jardcs.org/abstract.php?archiveid=327</a>
26	Prospects of Pyrolysis Oil from Plastic Waste as Fuels For Diesel Engines	Mr. V.L. Mangesh	Marine Engineering	IOP Publishing: Materials Science of Amphy 197	2017	-	<a href="http://iopscience.iop.org/article/10.1088/1757-899X/197/1/012027">http://iopscience.iop.org/article/10.1088/1757-899X/197/1/012027</a>
27	SVPMM using SIC, GAN Power Driven Motors for Sea Water Cooling System & Ballast Water Management	Ms. T. Subhashini Ms. P. Maheswari Mr. T.B. Gopinath Mrs. G. Sharmila	Marine Engineering Nautical Science Nautical Science Marine Engineering	International Journal of Civil Engineering & Technology(IJCIET)	2017	0976-6308	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJMET_08_04_001-2/IJMET_08_04_001-2.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJMET_08_04_001-2/IJMET_08_04_001-2.pdf</a>
28	The Corrosion and Erosion of Centrifugal Pumps in a Marine Environment : Causes, Effects and Mitigation	Mr. V. Thanikachalam	Marine Engineering	International Journal of Applied Engineering Research (IJAER)	2017	0973-4562	<a href="http://www.ijaer.com/images/showrt_pdf/1509040335_V_Thanikachalam_5.pdf">http://www.ijaer.com/images/showrt_pdf/1509040335_V_Thanikachalam_5.pdf</a>
29	A Review on Blending on Board and Oil Analyzer System with Innovative Engine Lubrication Management	Mr. C. Manasseh Karnan, Mr. V. Thanikachalam	Marine Engineering Marine Engineering	International Journal of Interdisciplinary Research and Innovations (IJIRI)	2018	2391-9637	<a href="http://www.researchpublish.com/download.php?file=A%20REVIEW%20ON%20BLENDING-6015.pdf&amp;act=book">http://www.researchpublish.com/download.php?file=A%20REVIEW%20ON%20BLENDING-6015.pdf&amp;act=book</a>
30	Environment Impacts on Marine Pollution	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Interdisciplinary Research and Innovations (IJIRI)	2018	2321-9637	<a href="http://www.researchpublish.com/download.php?file=ENVIRONMENTAL%20IMPACTS-6008.pdf&amp;act=book">http://www.researchpublish.com/download.php?file=ENVIRONMENTAL%20IMPACTS-6008.pdf&amp;act=book</a>
31	A Review of Flettner Rotor Sails	Mr. C. Manasseh Karnan, Mr. V. Thanikachalam, Mr. M. Rajesh, Mr.K. Anbazhahan	Marine Engineering Marine Engineering Marine Engineering Marine Engineering	International Journal of Interdisciplinary Research and Innovations (IJIRI)	2018	2346-1226	<a href="http://www.researchpublish.com/journal/IJIRI/Issue-4-October-2018-December-2018/0">http://www.researchpublish.com/journal/IJIRI/Issue-4-October-2018-December-2018/0</a>
32	A Disability of Women Employees in associated with Role Overload Job Involvement Job Satisfaction and Depression	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2018	0976-6308	<a href="https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_09_07_070/IJCIET_09_07_070.pdf">https://www.iaeme.com/MasterAdmin/uploadfolder/IJCIET_09_07_070/IJCIET_09_07_070.pdf</a>
33	A Study On Disability Management Among Women In Construction Industry	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology(IJCIET)	2018	0976-6308	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_02_095-2-3/IJCIET_09_02_095-2-3.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_02_095-2-3/IJCIET_09_02_095-2-3.pdf</a>

**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
**SCHOOL OF MARITIME STUDIES**  
**TEACHING FACULTY PAPER PUBLICATION DETAILS FOR THE LAST 5 YEARS**  
**UPDATED AS ON 01-03-2019**

S.NO	Title Of Paper	Name of the Author/s	Department of Teacher	Name of Journal	Year Of Publication	ISBN/ISSN Number	Link
34	Advanced design of transmission lines to reduce voltage sag using STATCOM	Mrs. A. Anitha Mrs. P. Narmadha Devi	Marine Engineering Marine Engineering	International Journal of Pure and Applied Mathematics	2018	1314-3395	<a href="https://acadpubl.eu/hub/2018-119-16/1/112.pdf">https://acadpubl.eu/hub/2018-119-16/1/112.pdf</a>
35	An Empirical Study on Impact of Employee Engagement in Ashok Levland Comnanv Limited, Chennai	Capt. N. Kumar Mrs. M. Rajapriya	Nautical Science Nautical Science	Elsevier	2018		Paper accepted and awaiting publication
36	An overview on sagarmala	Capt. N. Kumar Ms. T. Subashini	Nautical Science Marine Engineering	Journal of Emerging Technologies and Innovative Research	2018	2349-5162	<a href="http://www.jetir.org/view.php?paper=JETIR1811085">http://www.jetir.org/view.php?paper=JETIR1811085</a>
37	Automated Process of Surveillance on Board marine vessels – A Review	Mr. Christoper Mannasseh Karnan Ms. T. Subhashini	Marine Engineering Marine Engineering	Journal of Emerging Technologies and Innovative Research	2018	2349 - 5162	Paper accepted & Weblink not available
38	Environmental Impacts on Noise Pollution in Human and Marine Lives	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Economics & Social Science	2018	2455-8834	<a href="http://euroasiapub.org/environmental-impacts-on-noise-pollution-in-human-and-marine-lives/">http://euroasiapub.org/environmental-impacts-on-noise-pollution-in-human-and-marine-lives/</a>
39	FROM DETERIORATION TO RESTORATION - THE BUCKINGHAM CANAL	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Interdisciplinary Research And Innovations (IJIRI)	2018	2349-1218	<a href="http://www.researchpublish.com/download.php?file=FROM%20DETERIORATION-6447.pdf">http://www.researchpublish.com/download.php?file=FROM%20DETERIORATION-6447.pdf</a>
40	HC based buck boost fed PV Inverter System	Mrs. A. Anitha Mrs. P. Narmadha Devi	Marine Engineering Marine Engineering	International Journal of Pure and Applied Mathematics	2018	1314-3395	<a href="https://acadpubl.eu/hub/2018-119-16/1/115.pdf">https://acadpubl.eu/hub/2018-119-16/1/115.pdf</a>
41	Interpersonal Skills for Engineers - An Introduction on Soft Skills for Engineers to Build a Smooth Career	Mr. I. John Christlin Mathews	Marine Engineering	International Journal of Economics & Social Science	2018	2455-8834	<a href="http://euroasiapub.org/wp-content/uploads/2018/06/61ESSA-nril-7340.pdf">http://euroasiapub.org/wp-content/uploads/2018/06/61ESSA-nril-7340.pdf</a>
42	Roombots – Modular Robots for Adaptive Furniture	Mrs. G. Sharmila Ms. T. Subashini Mr. K. Anbazhahan Mr. M. Rajesh	Marine Engineering Marine Engineering Marine Engineering Marine Engineering	International Journal of Mechanical Production Engineering Research and Development (IJMPERD)	2018	2249-6890	<a href="https://www.scribd.com/document/388574618/ROOMBOTS-MODULAR-ROBOTS-FOR-ADAPTIVE-FURNITURE">https://www.scribd.com/document/388574618/ROOMBOTS-MODULAR-ROBOTS-FOR-ADAPTIVE-FURNITURE</a>
43	Traffic Interference and Analysis on Anonymity Systems	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Nautical Science	International Journal of Civil Engineering & Technology (IJCIET)	2018	0976-6308	<a href="http://www.iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME 9 ISSUE 2/IJCIET 09 02 081.pdf">http://www.iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME 9 ISSUE 2/IJCIET 09 02 081.pdf</a>
44	COMPENSATING VOLTAGE SAG IN HV LINES USING STATCOM	Mrs. P. Narmadha Devi Mrs. A. Anitha	Marine Engineering Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR), Volume.6, Issue 1, Page No pp.212-215, January 2019	2019	2348-1269/ 2349-5138	<a href="http://ijrar.org/papers/IJRAR19J1327.pdf">http://ijrar.org/papers/IJRAR19J1327.pdf</a>
45	HYSTERETIC CONTROLLED BASED BUCK BOOST PHOTO VOLTAIC INVERTER SYSTEM	Mrs. A. Anitha Mrs. P. Narmadha Devi	Marine Engineering Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR), Volume.6, Issue 1, Page No pp.216-221, January 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/papers/IJRAR19J1328.pdf">http://www.ijrar.org/papers/IJRAR19J1328.pdf</a>



**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
**SCHOOL OF MARITIME STUDIES**  
**TEACHING FACULTY PAPER PUBLICATION DETAILS FOR THE LAST 5 YEARS**  
**UPDATED AS ON 01- 03 - 2019**

S.NO	Title Of Paper	Name of the Author/s	Department of Teacher	Name of Journal	Year Of Publication	ISBN/ISSN Number	Link
46	Design and Fabrication of Horizontal Axis Wind Turbine	Mr. L. Ranjith Kumar Mr. M. Venkata Ramana	Marine Engineering Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR), Volume.6, Issue 1, Page No pp.545-549, January 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/papers/IJRAR19J1380.pdf">http://www.ijrar.org/papers/IJRAR19J1380.pdf</a>
47	Impact of Climate Change in Marine Species	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR) Volume.5, Issue 4, Page No pp.381-383, December 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/IJRAR19J1274.pdf">http://www.ijrar.org/IJRAR19J1274.pdf</a>
48	A Doorway to Greener Shipping System means utilising Advanced Hybrid Power System	Mr. M. Rajesh Mr. K. Anbazhahan	Marine Engineering Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR) Volume.65, Issue 4, Page No pp.744-749, December 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/IJRAR1944765.pdf">http://www.ijrar.org/IJRAR1944765.pdf</a>
49	E-LEARNING AND HYBRID TEACHING	Mr. A. Britto Mr. K. Anbazhahan	Marine Engineering Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR) Volume.5, Issue 4, Page No pp.384-387, December 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/IJRAR1944717.pdf">http://www.ijrar.org/IJRAR1944717.pdf</a>
50	INNOVATIVE IDEAS FOR COASTLINE MANAGEMENT	Capt. N. Kumar Mr. R. Rajapriyan	Nautical Science Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR) Volume.5, Issue 4, Page No pp.381-383, December 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/IJRAR1944716.pdf">http://www.ijrar.org/IJRAR1944716.pdf</a>
51	Factor Graph of Non-Commutative Ring	Mr. A. Britto Mr. T.B. Gopinath	Marine Engineering Nautical Science	International Journal of Advanced Research in Engineering and Technology (IJARET) Volume.9, Issue 6, Nov-Dec 2019	2019	0976-6480/ 0976-6499	<a href="http://www.iaeme.com/MasterAdmin/UploadFolder/IJARET_09_06_019/IJARET_09_06_019.pdf">http://www.iaeme.com/MasterAdmin/UploadFolder/IJARET_09_06_019/IJARET_09_06_019.pdf</a>
52	Ship Scrapping and its Lethal Impacts on the Environment	Ms. P. Maheswari Mr. R. Rajapriyan	Nautical Science Marine Engineering	International Journal of Research and Analytical Reviews (IJRAR), Volume.6, Issue 1, Page No pp.541-543, January 2019	2019	2348-1269/ 2349-5138	<a href="http://www.ijrar.org/papers/IJRAR19J1894.pdf">http://www.ijrar.org/papers/IJRAR19J1894.pdf</a>



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

79113

# SAIL SYNERGY

## CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. ABHINAV S. MENON of VELS SCHOOL OF

MARITIME STUDIES has secured III in PAPER PRESENTATION

event in the National level Technical Symposium - SAIL SYNERGY-2K18 held at

Sri Venkateswara College of Engineering on 29th of September 2018.

*G. Rambo*

Convener

*S.K.*  
Head of department

2K18



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

§19-3

# SAIL SYNERGY

## CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. HITESH B.K. of VELS. SCHOOL  
OF MARITIME STUDIES in III PAPER PRESENTATION  
has secured SAIL SYNERGY-2K18 held at  
event in the National level Technical Symposium -  
Sri Venkateswara College of Engineering on 29th of September 2018.

*S. Ramshankar*  
Convener

*S.K.*  
Head of department

2K18



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

200-3

**SAI SYNERGY**

**CERTIFICATE OF EXCELLENCE**

This is to certify that Mr./Mrs. ARUN

VASTA has secured

of SCHOOL OF

T in PAPER PRESENTATION

event in the National level Technical Symposium -

SAI SYNERGY-2K18 held at

Sri Venkateswara College of Engineering on 20th of September 2018.

*[Signature]*  
Convener

*[Signature]*  
Head of department

**2K18**



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

842-13

# SAIL SYNERGY CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. PRANAVS of SCHOOL OF  
MARITIME STUDIES, VISTA has secured 1 in PAPER PRESENTATION.  
event in the National level Technical Symposium - SAIL SYNERGY-2K18 held at  
Sri Venkateswara College of Engineering on 20th of September 2018.

*G. Ramshankar*  
Convener

*S.K.*  
Head of department

**2K18**



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

**SAIL SYNERGY**

**CERTIFICATE OF EXCELLENCE**

This is to certify that Mr./Mrs. AAYUSH AGARWAL of SCHOOL OF MARITIME

STUDIES, VISTAS has secured 1<sup>st</sup> in MARINE QUIZ

event in the National level Technical Symposium - SAIL SYNERGY-2K18 held at

Sri Venkateswara College of Engineering on 20<sup>th</sup> of September 2018.

*S. Ravish*  
Convener

*S. V. M.*  
Head of department

**2K18**



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

**SAIL SYNERGY**

**CERTIFICATE OF EXCELLENCE**

This is to certify that **Mr./Mrs. ANUP KUMAR** of **SCHOOL OF**

**MARITIME STUDIES, VISTAS**

has secured

**1<sup>st</sup>** in **MARINE QUIZ.**

event in the National level Technical Symposium - **SAIL SYNERGY-2K18** held at

Sri Venkateswara College of Engineering on **20<sup>th</sup>** of September 2018.

*S. Ranjan*  
Convener

*S.K.*  
Head of department

2018



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

# SAIL Synergy

## CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. YOKESH PRATAP SINGH of SCHOOL OF

MARITIME STUDIES, VISTAS

has secured

1<sup>st</sup> RANK in MARINE QUIZ

event in the National level Technical Symposium - SAIL SYNERGY-2K18 held at

Sri Venkateswara College of Engineering on 20<sup>th</sup> of September 2018.

*S. Ramprasad*  
Convener

*S. Anand*  
Head of department

2K18





**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]


Pennalur, Sriperumbudur Tk.


**Department of Marine Engineering**

# SAI SYNERGY

## CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. AJAY D. SHRIBAME of SCHOOL OF MARINE STUDIES, VISTAS has secured I in MARINE QUIZ event in the National level Technical Symposium - SAI SYNERGY-2K18 held at Sri Venkateswara College of Engineering on 29th of September 2018.

  
Convener

  
Head of department

2K18



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**



**SAIL SYNERGY**

**CERTIFICATE OF EXCELLENCE**

This is to certify that Mr./Mrs. RECSHABH of SCHOOL OF MARITIME

STUDIES VISTAS has secured 1st in AM I JOB READY?

event in the National level Technical Symposium - **SAIL SYNERGY-2K18** held at

Sri Venkateswara College of Engineering on 29th of September 2018.

*G. Ramakrishna*  
Convener

*S. K. M.*  
Head of department

**2K18**

**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
(DEEMED TO BE UNIVERSITY) estd. u/s. 3 of the U.C.C. Act, 1956)



**SCHOOL OF MARITIME STUDIES**

Off-Rajiv Gandhi Salai (OMR),

Near Navalur, Thalambur, Chennai - 600 130, INDIA

Telephone: 91-44-3200 0500 / 3200 0501 Fax: +91-44-2743 5770

E-mail: director.smtis@velsuniv.ac.in / Web: www.velsuniv.ac.in



# **CERTIFICATE OF APPRECIATION**

*This certificate is awarded to*

*Cadet **RAJKAMAL V** Roll No. 312G*

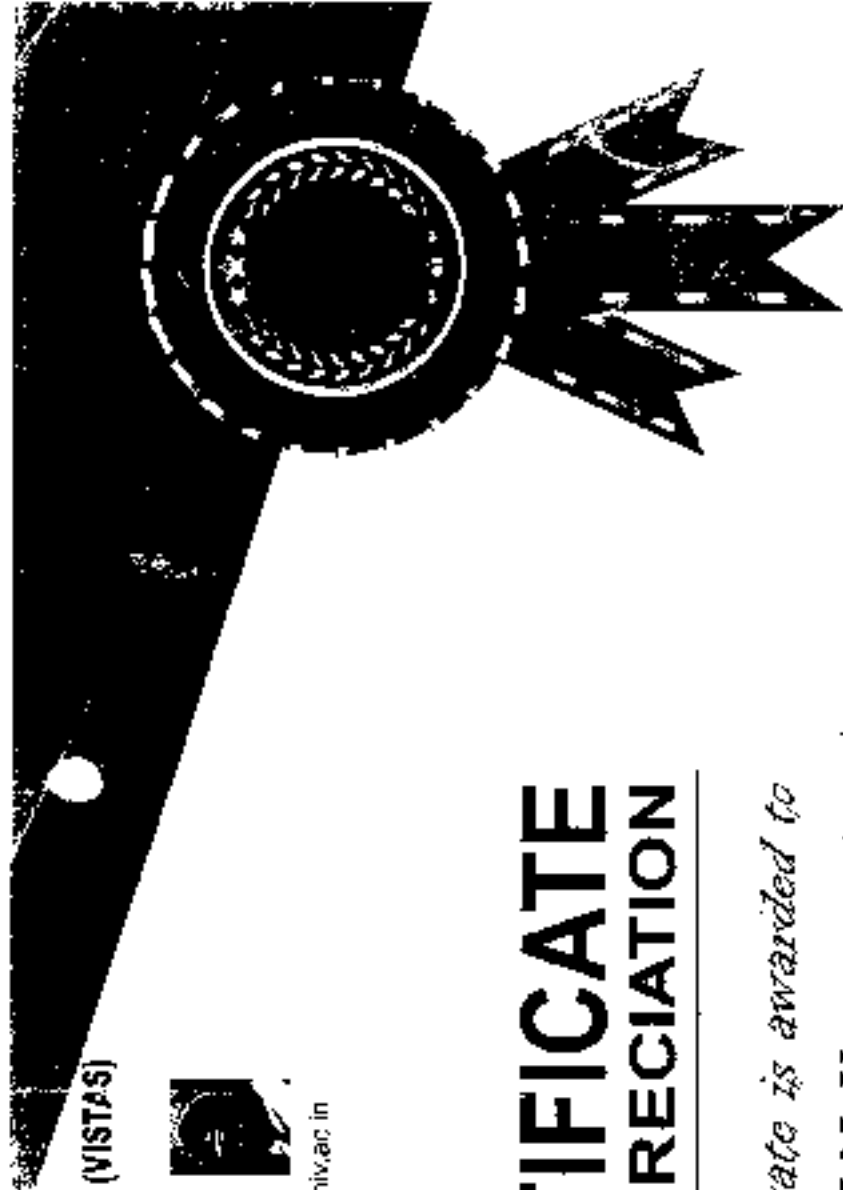
*of One Year Pre-Sea Training for Graduates (GME),  
Batch-20 for "GOLD MEDAL IN BEST OVERALL PROFICIENCY"  
during the period from 01-APR-2017 to 31-MAR-2018*

*Issued on 31-MAR-2018.*

**THANIKACHALAM V**  
*Course Co-Ordinator*



**CAPT. N. KUMAR**  
*Director*



**VELS INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)**  
(DEEMED TO BE UNIVERSITY estd. u/s. 3 of the UGC Act, 1956)



**SCHOOL OF MARITIME STUDIES**

Off-Rajiv Gandhi Salai (OMR),

Near Navalur, Thalambur, Chennai - 600 130, INDIA.

Telephone : +91-44-3200 0500 / 3200 0501 Fax: +91-44-2743 5770

E mail : [directo@sms@velsuniv.ac.in](mailto:directo@sms@velsuniv.ac.in) / Web: [www.velsmanitime.com](http://www.velsmanitime.com) : [www.velsuniv.ac.in](http://www.velsuniv.ac.in)



# **CERTIFICATE OF APPRECIATION**

*This certificate is awarded to*

**Cadet GARA BHARATH KUMAR Roll No.303G**

*of One Year Pre-Sea Training for Graduates (GME),*

**Batch-20 for "GOLD MEDAL IN BEST OFFICER LIKE QUALITIES"**

*during the period from 01-APR-2017 to 31-MAR-2018*

*Issued on 31-MAR-2018.*

*THANIKACHALAM.V*

**THANIKACHALAM.V**  
*Course Co-ordinator*



*CAPT. N. KUMAR*

**CAPT. N. KUMAR**  
*Director*



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

# SAIT SYNERGY

## CERTIFICATE OF EXCELLENCE

This is to certify that Mr./Mrs. RECSEBAPH of SCHOOL OF MARITIME STUDIES VISTAS has secured 100% in AM.L. JOB READY?

event in the National level Technical Symposium - **SAIT-SYNERGY-2K18** held at

Sri Venkateswara College of Engineering on 20th of September 2018.

*G. Ramkumar*  
Convener

*S. J. K.*  
Head of department

2K18



**SRI VENKATESWARA COLLEGE OF ENGINEERING**

[Autonomous - Affiliated to Anna University]

Pennalur, Sriperumbudur Tk.

**Department of Marine Engineering**

**SAI SYNERGY**

**CERTIFICATE OF EXCELLENCE**

This is to certify that Mr./Mrs. AAYUSH AGARWAL of SCHOOL OF MARITIME

STUDIES VISTAS has secured 1st in SAI SYNERGY-2K18 MARINE QUIZ

event in the National level Technical Symposium - held at

Sri Venkateswara College of Engineering on 29th of September 2018.

*S. Ramphani*  
Convener

*S. V. M.*  
Head of department

2K18



AMET  
UNIVERSITY

Department of Marine Engineering

**Marine Traffic 2015**

*Certificate Of Excellence*

*This is to certify that ..... GUNA SEKARAN .....  
of VELS..UNIVERSITY... has won... 1<sup>st</sup> ..... price in... DEBUGGING.....  
during the National Level Symposium Marine Traffic 2015  
held at Amel University on 13<sup>th</sup> March 2015.*

*D. J. P. M.*  
Prof. D. P. Thirumogan  
Convener  
Marine Traffic

*Prof. A. Venugopal*  
Principal  
D/G Studies

*S. D. G. Thirumogan*  
Vice-Chancellor



**AMET**  
UNIVERSITY

Department of Marine Engineering

**Marine Traffic 2015**

*Certificate Of Excellence*

This is to certify that ..... SAGAR..B.....  
of ..... VELS..... has won ..... 2<sup>nd</sup> ..... place in ..... PAPER..PRESENTATION.....  
during the National Level Symposium Marine Traffic 2015  
held at Amet University on 13<sup>th</sup> March 2015.

*D.P.P.*

Prof. D. P. Thiagarajan  
Convener  
Marine Traffic

*[Signature]*

Prof. A. Venugopal  
Principal  
Df Studies

*[Signature]*  
Col. Dr. G. Thirumangaiam  
Vice-Chancellor





**AMET**  
UNIVERSITY

Department of Marine Engineering

**Marine Traffic 2015**

*Certificate Of Excellence*

This is to certify that *ASHOK RAI..A*  
of *VEES UNIVERSITY*.... has won *2<sup>nd</sup>*.....prize in *MARINE...QUIZ*  
during the *National Level Symposium Marine Traffic 2015*  
held at *Amet University* on *13<sup>th</sup> March 2015*.

*D. J. P. M.*  
Prof. D. P. Thingarajan  
Convener  
Marine Traffic

*M. S. S.*  
Prof. A. Vengopal  
Principal  
D.G. Studies

*S. G. S.*  
Asst. Dir. G. Thiruvanganam  
Vice-Chancellor



**AMET**  
UNIVERSITY  
WASIM, DISTRICT NAGUR, TELANGANA

Department of Marine Engineering

**Marine Traffic 2015**

*Certificate Of Excellence*

This is to certify that *VISHAL R.*  
of *VELS UNIVERSITY*... has won *2<sup>nd</sup>*... *prize in MARINE QUIZ*...  
during the *National Level Symposium Marine Traffic 2015*  
held at *Amet University* on *13<sup>th</sup> March 2015*.

*D. J. P. S.*

*Prof. D. P. Thiruganjan*  
Convener  
Marine Traffic

*S. S.*

*Prof. A. Venugopal*  
Principal  
D.G. Studies

*S. S.*

*Col. Dr. G. Thiruvengadam*  
Vice-Chancellor



**AMET**  
UNIVERSITY

Department of Marine Engineering

**Marine Traffic 2015**

*Certificate Of Excellence*

*This is to certify that ..... GUNASEKARAN: P  
of ..VELS...UNIVERSITY... has won... 2<sup>nd</sup> .....prize in... MARINE... MECHANICS...  
during the National Level Symposium Marine Traffic 2015  
held at Amet University on 13<sup>th</sup> March 2015.*

*D. J. M  
Prof. D. P. Thiraganesan  
Convener  
Marine Traffic*

*Prof. A. Venugopal  
Principal  
Dy Studies*

*L. R  
Col. Dr. G. Thiruvangan  
Vice-Chancellor*