



**AMET**  
ACADEMY OF MARITIME EDUCATION AND TRAINING  
DEEMED TO BE UNIVERSITY  
(Under Section 3 of UGC Act 1956)

**DEPARTMENT OF NAVAL ARCHITECTURE AND OFFSHORE ENGINEERING**

**M.E – NAVAL ARCHITECTURE AND OFFSHORE ENGINEERING**

**Curriculum & Syllabus**

**OUTCOME BASED  
EDUCATION SYSTEM**

**(For the Batches Admitted from 2021-2022)**

## **VISION AND MISSION OF THE INSTITUTION**

### **VISION**

To sustain identity as a World Class Leader in Maritime Education and empower learners with wholesome knowledge through progressive innovation in training, research and development which will render students a unique learning experience and a transformation impact on the Global Society.

### **MISSION**

AMET will strive continuously to

- ❖ Impart value-based higher education and technical knowledge with uncompromising strides of an outstanding quality.
- ❖ Emerge as a Centre of Excellence inculcating skill development in recent technologies in accordance with industrial trends.
- ❖ Create World class research capabilities on par with the finest in the world and broaden student's horizons beyond classroom education.
- ❖ Nurture talent and entrepreneurship to enable all round personality development among students.
- ❖ Empower students across socio economic strata
- ❖ Make a positive difference to society through technical education.

## **VISION AND MISSION OF THE DEPARTMENT**

### **VISION**

Our aim is to bring in education and research of highest international standards to bring the young minds academically intelligent, technically creative, ethically sound, emotionally strong and valuable to society.

### **MISSION**

- ❖ The Department is committed to impart high quality education and research in maritime sector.
- ❖ The Department is focused on adopting the method of “learn by practice” that help the students to apply the knowledge on innovations.
- ❖ The Department is committed to improve the analytical and numerical skill of the students to enrich them in innovation and research.
- ❖ To undertake various projects to support the design and research activities helping the graduates in career development and higher studies.
- ❖ To create the world class research capabilities in the fields of Naval architecture and offshore engineering.
- ❖ To make a positive difference to the discipline of Naval architecture through hands-on based education.

### **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

Master of Engineering in Naval Architecture and Offshore Engineering program is designed to prepare the graduates will,

**PEO1:** Build their career as a successful and distinguished Naval Architect or Offshore Engineer.

**PEO2** Pursue higher education and research in marine sector, other engineering streams and specializations.

**PEO3** Acquire innovative and creative thinking skills to augment their professional growth.

**PEO4** Develop high moral values, positive attitude and societal responsibilities.

### **PROGRAM OUTCOMES (POs)**

Master of Engineering in Naval Architecture and Offshore Engineering program is designed to prepare the graduates will have,

**PO1:** An ability to independently carry out research/investigation and development work to solve practical problems.

**PO2:** An ability to write and present a substantial technical report /document.

**PO3:** An ability to apply the advanced concepts of Naval Architecture and Offshore Engineering to analyse, design and develop innovative ideas and find the solutions appropriately.

**PO4:** Ability to use advanced techniques, skills and modern scientific and Engineering tools for professional practice in Naval Architecture and Offshore Engineering

**PO5:** Ability to communicate effectively at all levels of projects and its management and demonstrate leadership qualities in a multidisciplinary scientific research team.

**PO6:** An ability to engage in independent, reflective, and lifelong learning for the benefits of society.

# DEPARTMENT OF NAVAL ARCHITECTURE AND OFFSHORE ENGINEERING

## CURRICULUM FOR M.E (NAVAL ARCHITECTURE AND OFFSHORE ENGINEERING)

### SEMESTER I

S.No.	Course Code	Category	Course category	Credits
1	PENA101	Core - I	Elements of Marine Structures	3
2	PENA102	Core - II	Applied Hydrodynamics	3
3		Elective - I	Program Elective I	3
4		Elective - II	Program Elective II	3
5		Elective - III	Program Elective III	3
6	PENA103	MLC	Research Methodology and IPR	2
7		Audit – I	Audit Course I	0
8	PENAP1A	Core – Lab - I	Marine CAD & CAE	2
9	PENAP1B	Core – Lab – II	Computational Hydrodynamics Laboratory	2
<b>TOTAL</b>				21

### SEMESTER II

S.No.	Course Code	Category	Course category	Credits
1	PENA201	Core -III	Marine Design	3
2	PENA202	Core - IV	Strength of Ocean Structures	3
3		Elective – IV	Program Elective IV	3
4		Elective - V	Program Elective V	3
5		Open Elective - I	Open Elective I	3
6		Audit - II	Audit Course II	0
7	PENAP2A	Core – Lab - III	Ship Structural Analysis Laboratory	2
8	PENAP2B	Core – Lab - IV	Offshore Structure Design Laboratory	2
<b>TOTAL</b>				19

\*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

**SEMESTER III**

S.No.	Course Code	Category	Course category	Credits
1	PENA3PA	Core	Mini Project	2
2	PENA3PB	Core	Project Phase I	10
<b>TOTAL</b>				12

**SEMESTER IV**

S.No.	Course Code	Category	Course category	Credits
1	PENA4PA	Core	Project Phase II	16
<b>TOTAL</b>				16

**Total Credit = 21 + 19 + 12 + 16 = 68 credits**

**1. LIST OF PROGRAM ELECTIVES**

S.No	Course Code	Category	Subject	Semester
1	PENAE01	Elective - 1	Finite Element Analysis and Applications	I
2	PENAE02	Elective - 1	Elements of Coastal Engineering	I
3	PENAE03	Elective - 1	Inland Vessel Design & Transportation	I
4	PENAE04	Elective - 1	SWAYAM/MOOCs Course	I
5	PENAE05	Elective - 2	Computational Fluid Dynamics	I
6	PENAE06	Elective - 2	CAD/CAM in Ship Building	I
7	PENAE07	Elective - 2	Construction of Offshore Structures	I
8	PENAE08	Elective - 2	SWAYAM/MOOCs Course	I
9	PENAE09	Elective - 3	Water Wave Mechanics	I
10	PENAE10	Elective - 3	High-Speed Marine Vehicles	I
11	PENAE11	Elective - 3	Design of Offshore Structures	I
12	PENAE12	Elective - 3	SWAYAM/MOOCs Course	I

13	PENAE13	Elective - 4	Applied Numerical Programming	II
14	PENAE14	Elective - 4	Advanced Ship Hydrodynamics	II
15	PENAE15	Elective - 4	Dynamics of Offshore Structures	II
16	PENAE16	Elective - 4	SWAYAM/MOOCs Course	II
17	PENAE17	Elective - 5	Pipeline and Risers Engineering	II
18	PENAE18	Elective - 5	Practical Ship Design	II
19	PENAE19	Elective - 5	Advanced Offshore Engineering	II
20	PENAE20	Elective - 5	SWAYAM/MOOCs Course	II

## 2. LIST OF OPEN ELECTIVES BY THE DEPARTMENT

S.No	Course Code	Category	Subject	Semester
1	PENA001	Open Elective - 1	Computer Aided Structural Analysis	II
2	PENAO02	Open Elective - 1	Modelling and Simulations with practice	II

## 3. OPEN ELECTIVE COURSES THROUGH MOOCs

A list of open elective courses through MOOCs are listed below.

\*\*The list of subjects is only indicative. Students can take any other subjects as per their area of interest and also from various MOOC platforms as per university guidelines

Sl.N.	Course name	Discipline	Duration
1	Advanced Marine Structures	Ocean Engineering	12 weeks
2	Vibration of Structures	Mechanical Engineering	12 weeks
3	Advanced solid mechanics	Civil Engineering	12 weeks
4	Advanced structural analysis	Civil Engineering	12 weeks
5	Advanced Materials and Processes	Metallurgy and material science	12 weeks

## 4. AUDIT COURSES LISTED BY AICTE

1.	English for Research Paper Writing	PENAA01
2.	Disaster Management	PENAA02

3.	Sanskrit for Technical Knowledge	PENAA03
4.	Value Education	PENAA04
5.	Constitution of India	PENAA05
6.	Pedagogy Studies	PENAA06
7.	Stress Management by Yoga	PENAA07
8.	Personality Development through Life Enlightenment Skills.	PENAA08

### CREDIT SHARE

Semester	Contact Hours	Lecture	Tutorial	Practical	Credits
Semester I	25	16	01	04	21
Semester II	23	15	00	04	19
Semester III	24	00	00	24	12
Semester IV	32	00	00	32	16
	104	31	01	64	68

### CREDIT DISTRIBUTION

Professional core	Professional elective	Open elective	Project/internship	Total
22	15	03	28	68

