

GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT
Course Curriculum
SEAMANSHIP AND LIFE SAVING
(Code: 3341803)

Diploma Programme in which this course is offered	Semes ter in which offered
Marine Engineering	4 th Semester

1. RATIONALE

Diploma holders in marine engineering should have enough knowledge about different types of ropes and their uses. Ropes are used to tie knots and to lift heavy materials. Different types of ropes have different properties and they are made up of different materials. Blocks and tackles are used to handle heavy materials. Ship maintenance is very important because the ship is sailing in rough weather and in salt water. Different life saving appliances are used in ship.

2. COMPETENCY

At the end of the study of IV Semester the student will be able to:

- Understand about different types of ropes and their properties.
- Know about the blocks, tackles and cargo work.
- Study about tank and bilge soundings in the ship.
- Acquire broader ideas about life saving appliances.
- Understand about abandon ship and boat sailing.

3. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	150
3	0	2	5	70	30*	20	30	

Legends: L -Lecture; T -Tutorial/Teacher Guided Student Activity; P -Practical; C - Credit; ESE-End Semester Examination; PA -Progressive Assessment.

* 30 marks of Theory PA include two assignments each of 5 marks. First assignment must have total 12 numerical from Unit number I,II and III. Second assignment must be of 10 numerical from Unit number IV and V and report on student activities performed. Each numerical of each assignment must have different parameters for each student, that is each student will get total 22 numerical with same problem but with varied parameters. (Values of temperature, pressure, volume, etc may be different for each student.).

4. COURSE DETAILS

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – I Ropes, types and construction	1.a Types of Ropes and construction	1.1 Ropes – Vegetable fibre ropes, construction, coiling, faking, cheeing down, whipping, opening a new coil. Characteristics, care and maintenance Steel wire ropes – Construction, special types, coiling, cutting, opening a new coil, care and maintenance. Synthetic fibre ropes – material used, construction, special characteristics and care of synthetic ropes.
Unit – II Blocks, tackles and cargo work	2.a Blocks 2.b Tackles 2.c Cargo Work	2.1 Blocks – Parts of block, types of blocks, overhauling blocks, marking. 2.2 Tackles, parts of tackles, types of tackles, power gained. 2.3 Cargo works – Accident prevention when working cargo, Draft marks, Load lines, Hatch covers, preparing ship for sailing, Ventilation of cargo during the voyage. Tank and Bilge soundings.
Unit – III Duties and Ship maintenance	3.a Ship's departments. 3.b Ship Maintenance.	3.1 Ship's departments – Time, Watches and Bells. Bridge duties – Lights and signals for power driven ships under way, Ships at anchor, Ships not under command, ship ran aground 3.2 Ship Maintenance – Chipping, scrapping, painting, paint brushes, paints, types of paints, painting defects, Maintenance of wooden decks, Caulking.
Unit – IV Life saving appliances	4.a Lifesaving appliances 4.b Pyrotechniques.	4.1 Life saving appliances - Life buoys, Life jackets, Life boat, Marking on a life boat, Parts of life boat, Davits, Types of davits, Life boat equipment and their uses – open type lifeboat - partially enclosed lifeboat – fully enclosed lifeboat - Inflatable life raft and its equipments, Rigid life raft. 4.2 Pyrotechniques – Hand flares, Rocket parachutes, Buoyant smoke signals.

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – V Abandon ship and Emergency equipments	5.a Abandon ship signals. 5.b Emergency equipment's.	5.1 Abandon ship – Emergency signal, Abandon ship signal, Life boat launching Survival at sea, Search and Rescue. 5.2 Breathing apparatus – Self-contained, bellow type, emergency escape. 5.3 Thermal protective aid. 5.4 Immersion suit.

5. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS(THEORY)

Unit	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	Ropes ,types and Construction.	06	04	03	03	10
II	Blocks ,Tackles and cargo Work.	06	03	03	04	10
III	Duties and ship maintenance.	10	04	06	06	16
IV	Life saving appliances.	10	04	07	05	16
V	Abandon ship and emergency equipment's.	10	04	06	08	18
Total		42	19	25	26	70

Legends: R = Remember; U = Understand; A = Apply and above levels (Bloom's revised taxonomy)

Notes:

1. This specification table shall be treated as a general guideline for students and Teachers. The actual distribution of marks in the question paper may slightly vary from above Table.
2. If midsem test is part of continuous evaluation, unit numbers I, II and unit III up to 3.4 are to be considered.
3. Ask the questions from each topic as per marks weightage. Numerical questions are to be asked only if it is specified. Optional questions must be asked from the same topic.

6. SUGGESTED LIST OF PRACTICAL/EXERCISES**LIST OF EXPERIMENTS :****A) Seamanship:**

1. Study about the construction of different types of ropes and its uses (Bends and Hitches).
2. Preparation of different types of knots and its uses.
3. Study of different types of blocks and purchases and its applications.
4. Study about the construction and working of EPIRB.

B) Life saving appliances:

5. Study about the construction and working of life boat.
6. Study about the construction and working of life raft (inflatable).
7. Study about the construction and working of life raft (rigid).
8. Study about the construction and working of life buoy.
9. Study about the construction and working of life jacket.

7. SUGGESTED LIST OF STUDENT ACTIVITIES

Carry out the practicals as mentioned in the above exercises.

8. SPECIAL INSTRUCTIONAL STRATEGIES (If Any)

Sr. No.	Unit	Unit Title	Strategies
1	I	Ropes ,types and construction	Real life examples. Demonstration of real systems. Movies/Animations. Numerical.
2	II	Blocks ,Tackles and cargo work	
3	III	Duties and ship maintenance	
4	IV	Life saving appliances	
5	V	Abandon ship and emergency equipments	

9. SUGGESTED LEARNING RESOURCES

List of Books:

(A) **Text Book** : Seamanship Primer By Capt J. Dinger

(B) **Reference Books** : 1. Survival in Life boat and life raft By Capt. S.K. Puri
2. Survival at sea
The life boat and life raft C.H. Wright Edition 1993
Brownson & Furguson Ltd.,
Ship board operation H.I. Lavery 1993 British library cataloguing
in publications

10. COURSE CURRICULUM DEVELOPMENT COMMITTEE

FACULTY MEMBERS FROM POLYTECHNIC

- **Prof Nair Gopikrishnan**
(Lecturer in Marine engineering Govt Polytechnic Diu)
