

BHARATHIARUNIVERSITY: COIMBATORE-641 046
CERTIFICATE IN GP RATING
(For the CCII students admitted from the academic year 2016-17 onwards)

COURSE OBJECTIVES

1. General Aspects of Shipping
2. Nautical Terms – Parts of the ship, General Ship Board safety and Health, Protection of Environment, National Shipping organizations, International Organizations and conventions
3. General Ship knowledge – Seamanship, Ship maintenance, Basic navigation, Look out duties, other bridge duties and reporting system, Duties of a gangway watch in port, steer the ship & comply with helm orders
4. Marine Engineering knowledge – Familiarization with duties and engine room environment, Instruments, safe working procedures, tools & instruments, Auxiliary equipment & maintenance work

Duration : 6 Months (Fully Residential Course)

Eligibility : A Pass in SSLC Examination

SCHEME OF EXAMINATION

S.No	Course Title	EXAMINATION	
		Duration Hours	Total Marks
1	Theory 1: General Aspects of Shipping	3	100
2	Theory 2: General Ship Knowledge	3	100
3	Theory 3 : Marine Engineering knowledge & Practice	3	100
4	Practical 1 : General Ship Workshop	3	100
5	Practical 2 : Marine Engineering Workshop	3	100
Total			500

THEORY PAPER 1 : GENERAL ASPECTS OF SHIPPING

UNIT – I :General Aspects

Introduction to the course, Personality and communication skills development (English speaking, reading, writing), Introduction to computers (familiarization), Discipline and etiquettes, Health and Hygiene.

General Aspects of Shipping :

General knowledge about shipping and ships, Importance of shipping in the National and International Trade, International Routes, Types of ships and cargoes, Shipboard organization

UNIT – II :Nautical Terms – Parts of the ship (Using Ship models and video):

Hull, Ships Decks, Fore castle, Poop deck, Accommodation, Bridge, Cargo spaces (Cargo holds, Tanks), Cargo handling gear (Derricks, cranes, grabs, pumps), Machinery space (Engine room/Pump room)

UNIT – III :General Shipboard safety and Health :

Personal protection and personal protection equipment, Safe working practices for merchant seaman (including permit to work system, and fire prevention aspects, safety precautions when working aloft, safety precautions when working over side), Risk Assessment (Basics), Emergencies, Safe Access to the ship, Safe working practices during Berthing / Unberthing and Anchoring

UNIT IV : Protection of Environment :

Sources of pollution at sea from ship, Damage to the environment, Importance of prevention of pollution of the sea, Ways and means of preventing pollution, Pollution prevention equipment on board

UNIT V : National Shipping Organisation :

Documents for seafarers, Log books, Disciplinary procedures, Rights of a seaman, Seaman's identity document, Recruitment and placement of seafarers rules, Contract of employment

UNIT – VI :International organizations and conventions

Adoption of the final act and any instruments, Resolution, recommendation, resulting from the work of the conference

REFERENCES

1. Notes on General Ship Knowledge – Capt. Dara.E.Driver
2. Seamanship - Capt. K.K. Bhandarkar
- 3.Theory and practical of seamanship – Graham danton

THEORY PAPER 2 : GENERAL SHIP KNOWLEDGE (Seamanship and Bridge duties at support level)

UNIT – I : Seamanship

Ropes & Rope work, Blocks and Tackles, Rigging of 'Pilot ladder', 'Bosun's chair', 'Stage', Climbing a mast, Cargo gear, Derricks, Cranes, Grabs, Pumps, Cargo spaces / opening & closing of hatches, Cargo lashing equipment, Preparing a ship for departure, Preparing a ship for rough weather, Preparing a ship for coming in port, Berthing & unberthing of a ship (mooring), Anchor operation, anchor work

UNIT – II : Ship Maintenance

Preparation of surface, Using Mechanical / pneumatic equipment, hydraulic jacks, Painting, Lubrication and Greasing of Deck equipment

UNIT – III : Basic Navigation

Navigation Terms, Rules of the Road (elementary) relating to navigational lights, Navigational aids on the Bridge of a Modern cargo ship, International code of signal & Flags (B,G,H, P & Q)

UNIT – IV : Look out Duties, other bridge duties and reporting system

A lookout man on duty, sighting to report, hearing to report, Relieving the lookout man

UNIT - V : Duties of a Gangway watch in Port

Introduction to ISPS Code, watch keeping and enhanced vigilance, control of access to critical area onboard, Physical barriers, alarm denies including ship whistle, protection of dangerous equipments & storage areas.

UNIT - VI : Steer the Ship & comply with Helm orders

Use of magnetic and gyro-compasses, Helm orders, Change –over from automatic pilot to hand steering and vice versa

REFERENCES :

1. Seamanship – Capt.V.K.Bhandarkar, 2006
2. Seamanship Techniques 2 – Ship Handling – D.J.House
3. Knight's Modern seamanship – John V.Noel, JR, Capt.U.S.Navy, 16th Edition
4. Knight's modern Seamanship - John V.Noel, JR, Capt.U.S.Navy, 17th Edition
5. The ship's Compass – G.A.A.Grant, J.Klinkert
6. The Theory and Practice of Seamanship – Graham Danton, 11th Edition
7. The Theory and Practice of Seamanship – Graham Danton, 10th Edition
8. Knight's Modern Seamanship – Austin M.Knight, 14th Edition
9. Knight's Modern Seamanship - JohnV.Noel, JR, Capt.U.S.Navy, 18th Edition
10. Dictionary of Nautical Words and Terms – Capt.A.G.W.Miller, Extra Master

THEORY PAPER 3 : MARINE ENGINEERING KNOWLEDGE & PRACTICE (AT SUPPORT LEVEL)

UNIT – I :Familiarisation with duties and Engine Room environment

Duties of a trainee rating in the Engine Room, Engine Room space, Engine Room Machinery, Auxiliary Machinery, Symbols used in the engine room

UNIT – II : Instruments

Thermometers, Pressure gauges, Level gauges

UNIT – III : Safe Working procedures, Tools & Instruments

Hand Tools, Measuring Instruments, Fasteners, Basic Fitting, Lifting devices and equipment

UNIT – IV : Auxiliary Equipment & Maintenance work

Valves, Pumps and pumping systems, Joints and gland packing, Filters, Centrifugal separators, Other Auxiliaries, Boiler and steam system, Preservation

UNIT – V :

Identify components of diesel engines (Generator engines & Main engine), Compressed air for auxiliary purposes, Machines (Grinder, Drill & Lathe), Basic welding and cutting (Arc welding, gas welding & gas cutting), Lubricants and lubrication, Level measuring devices and techniques, Lagging and insulation, Hand tools for electrical maintenance & Electrical components & Equipment, Chemicals on board, Steering gear, Storage tanks, Emergencies in the engine room, Fire extinguishing equipment in the engine room

Reference Books :

1. Pounder's Marine Diesel Engines – C.T.Wilbur – DA Wight – 6th Edition
2. Pounder's Marine Diesel Engines and Gas Turbines – Doug Woodyard – 8th Edition
3. Introduction to Marine Engineering – DA Taylor
4. Diesel Engines – AJ Wharton – 3rd Edition
5. Marine Engine Room Blue Book – William B. Parterson
6. Lamb's Questions and Answers on the Marine Diesel Engines – Stanely G. Christersen – 8th Edition
7. Marine Auxiliary Machinery – HD Mc George – 7th Edition
8. Marine Engineering Practice VikramGokhale / N.Nanda
9. The running and maintenance of Marine Machinery – J Cowley
10. Introduction to practical Marine Engineering (Volume 2 : Figures) – Alan L.Rowen, Raymond F. Gardner, Jose Femenia, David S.Chapman, Edwin G.Wiggins
11. Marine Engineering knowledge for junior engineers – VikramGohale, N,Nanda
12. Electricity Applied to Marine Engineering – W.Laws – 4th Edition
13. General Engineering knowledge for Marine Engineers (Volume – 8) – Reed's
14. Marine Steam Boilers – J.H.Milton and R.M.Leach

Reference Videos :

1. Personal Safety in Engine Room
2. Marine Diesel Engine Models
3. Engine Videos (2 and 4 stroke Engine)

PRACTICAL PAPER 1 : GENERAL SHIP WORKSHOP

UNIT – I :General Aspects of Shipping

Introduction to the course, Personality and communication skills development (English speaking, reading, writing), Introduction to computers (familiarization), Discipline and etiquettes, Health and Hygiene.

UNIT – II :General Shipboard safety and Health :

Personal protection and personal protection equipment, Safe working practices for merchant seaman (including permit to work system, and fire prevention aspects, safety precautions when working aloft, safety precautions when working over side), Risk Assessment (Basics), Emergencies, Safe Access to the ship, Safe working practices during Berthing / Unberthing and Anchoring, Pollution prevention equipment on board

UNIT – III : Seamanship

Ropes & Rope work, Blocks and Tackles, Rigging of 'Pilot ladder', 'Bosun's chair', 'Stage', Climbing a mast, Cargo gear, Derricks, Cranes, Grabs, Pumps, Cargo spaces / opening & closing of hatches, Cargo lashing equipment, Preparing a ship for departure, Preparing a ship for rough weather, Preparing a ship for coming in port, Berthing & unberthing of a ship (mooring), Anchor operation, anchor work

UNIT – IV : Ship Maintenance

Preparation of surface, Using Mechanical / pneumatic equipment, hydraulic jacks, Painting ,Lubrication and Greasing of Deck equipment

UNIT – V : Basic Navigation

Navigation Terms, Rules of the Road (elementary) relating to navigational lights, Navigational aids on the Bridge of a Modern cargo ship, International code of signal & Flags (B,G,H, P & Q)

UNIT – VI : Look out Duties, other bridge duties and reporting system

A lookout man on duty, The sighting to report, The hearing to report, Relieving the lookout man

UNIT - VII : Steer the Ship & comply with Helm orders

Use of magnetic and gyro-compasses, Helm orders, Change –over from automatic pilot to hand steering and vice versa

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2. The Theory and Practice of Seamanship – Graham Danton, 10th Edition
3. Notes on general ship knowledge – Capt. DARA. E. Driver

PRACTICAL PAPER 2 : MARINE ENGINEERING WORKSHOP

UNIT – I: MAINTENANCE / DIESEL SHOP

Hand Tools and measuring tools, Nut, bolts and studs, Diesel engines, Auxiliary machinery, Lubrication Valves

UNIT – II :MACHINE / FITTING SHOP

Hand tools and safe working practices, Machine shop (Lathe machine & Grinding machine), Fitting shop, Bench work, carryout the operations such as Chiseling, cutting, filing, marking, drilling tapping

UNIT – III :FABRICATION SHOP

Welding tools and safe working practices, Gas welding kit and welding methods / procedures, Arc welding kit and welding methods / procedures, Carryout welding, braxing, soldering

UNIT – IV : ELECTRICAL SHOP

Hand tools and safe working practices, Cable and wires, Safety devices, Simple circuits, Battery maintenance

UNIT – V : FFA & LSA PRACTICAL

Knowledge of fire fighting appliances, Approved course in Fire prevention and Fire Fighting and Safe working practices, Operate life saving appliances, Personal Survival Techniques

UNIT – VI : PLUMBING SHOP

Plumbing tools and safe working practices, Pipe and pipe material, Pipe jointing accessories, Leak stopping material, Taps and cocks, Use of die, Jointing of pipes

REFERENCES

1. Marine Engineering Practice - VikramGokhale / N.Nanda
2. Introduction to practical Marine Engineering (Volume 2 : Figures) – Alan L.Rowen, Raymond F. Gardner, Jose Femenia, David S.Chapman, Edwin G.Wiggins