Detailed Syllabus for Oceangoing Skipper Course for award of Category A Skipper Licence
(navigation without restrictions on distance from any shore or port)

1. **General Sea Terms**
   - Describing the different parts of a vessel
   - Introducing nautical nomenclatures
   - Naming sides relative to vessel's head
   - Relative bearings

2. **Positions and Directions on Earth's surface**
   - Earth as a sphere
   - Poles, latitudes and longitudes
   - Dlong and dlat
   - The degree, minute of arc
   - The nautical mile and the knot
   - True bearings
   - Magnetic North and magnetic bearings

3. **Magnetic and Gyro Compass**
   - Boxing the compass and 3 figure graduation
   - Cardinal and inter-cardinal points
   - The CADET rule
   - Obtaining variation values from the chart
   - Drawing deviation cards by swinging the ship
   - Finding compass error by landmark observation
   - Applying compass errors

4. **Buoyage systems and other aids to navigation**
   - The IALA Buoyage systems A and B
   - The five types of buoys and implications
   - Tips for identifying buoys by day and by night
   - The lights and their importance in navigation
   - The characteristics of lights
   - The three ranges of lights
   - Raising and dipping ranges of lights
   - Sources of information in respect of buoys and lights
   - Using the Admiralty List of Lights
   - Rules for passing at buoys and light structures

5. **Tidal theory and ocean currents**
    - Understanding the tidal theory
    - The causes of spring and neap tides – conjuncture and quadrature
    - Characteristics of these tides
    - Introduction to the Admiralty Tide tables
    - Primary and secondary ports
    - Calculating times of HW and LW and associated heights of tides
    - Using the graphical and calculation methods to determine height of tide at a particular time
    - Determining the times to pass through shallow waters with a given underwater clearance
    - Tidal currents and sources to obtain their values and direction
    - Understanding ocean currents and their causes
    - Sources of information on ocean currents

6. **Coastal Navigation**
    - Rules of coasting
    - Identification of landmarks and charted transits
    - The three rules for identifying unknown landmarks (shooting up)
    - The RADIAN rule
    - Checking the compass errors by the transit method
    - Precautions and tips while laying off courses during coastal navigation
    - Navigation in coral waters
    - Passing positions at sea by the range and bearing method relative to a charted landmarks
    - Assessing drift directions by observing compass bearings
    - Fixing of ship by various methods

7. **Charts and chart work**
    - Understanding the basic survey principle involved in making of navigational charts
    - The mercator and the gnomonic charts
    - The mercator chart as a piece of the globe surface
    - Interpreting information found on a chart
    - Understanding symbols and abbreviations
    - Defining limits of charts – latitudes and longitudes
    - Measuring distances on chart and reading them off the latitude scale
    - Techniques for transferring one position from a chart to another

- Principle involved in laying off courses on charts
- Passing at a certain distance from charted dangers
- Marking distances to go, course and speed on a chosen track
- Dead Reckoning and Estimated positions
- Understanding set and drift
- Allowing for set and drift
- Course on Ground, course made good, course steered
- Plotting position lines and fixes on charts
- The cocked hat
- Using the Douglass protractor or tracing paper to reduce cocked hat
- Method for correcting charts
- Sources of information regarding new corrections
- Care and maintenance of charts

8. Pilotage

- Preparation for pilotage – the pilotage check list
- The pilotage plan and the briefing
- The chartwork for pilotage
- Leading lines, transits, head on bearing, head on marks
- Clearing ranges and bearings
- Fixing of the vessel by visual bearings and radar ranges
- The point of no return
- The plan B
- Use of radar to back up the plan
- Use of echo sounder as compared to charted soundings
- Pilotage in coral waters – extra precautionary measures
- Communication with port authorities

9. Anchoring and Mooring

- The factors to be taken into consideration when choosing an anchorage
- The anchor plan and the briefing
- The leading lines, transits, head on bearing, head on marks
- Limiting danger line, underwater clearance, height of tide
- Clearing ranges and bearings
- The fixing methods
- Use of radar in anchoring – the dead range ahead
- Use of echo sounder, boat lead and line, sounding by boats
- Anchoring into the wind and the current
- The anchor work – the behaviour of chain / anchor lines
- The Bridge Swinging Circle, the Ship Swinging Circle and the Safety Swinging Circle and their importance
- Methods to check whether vessel is dragging her anchor

- Actions if vessel is confirmed to be dragging her anchor
- The anchor watch
- The plan for heaving anchor and sailing out in emergencies

10. Passage Planning

- Reference to Admiralty catalogue of charts
- Selection of charts
- Keeping a Skipper's workbook for this purpose
- Entering details of charts to be used during the passage
- Calculating the distance between points of departure and arrival
- Computing for speed overall based on available factors
- Planning the courses on chart
- Changeover of chart
- Waypoint navigation on GPS to supplement chartwork
- Arranging for weather forecast during the passage
- Allowing for possible emergencies en route
- Contingency preparedness and action plans for each scenario
- Casualty evacuation plans
- Safe havens en route / Diversions
- Preparing to escape threats from pirates
- The Sailing Directions for the area
- Information on places to be visited
- Coast station radios and port authorities

11. Practical Seamanship

- Ability to make knots, bends and hitches which are most commonly used
- Knowledge of how to do eye splicing of synthetic stranded ropes
- Use and precautions to be taken with ropes, wires and chains
- Maintenance of metallic parts of deck fittings
- Safe handling of berthing lines
- Securing ship for sea – the check list
- Increasing ship's watertight integrity - hatches, doors, pipes and vents
- Towing Operations
- Anchoring

12. International Regulations for the Prevention of Collisions at Sea

- An in depth understanding of all the regulations and responsibility to comply with them
- Use of various software that help understand various scenarios as they would be seeing them at sea

- Simulating situations requiring avoiding actions which are not specifically described in the regulations
- Case studies into several collisions that took place in the past
- Group discussions and quizzing by use of flash cards

13. Bridge Watchkeeping

- The legal requirement to be maintaining a watch at sea
- Defining a navigational watch
- The principles of maintaining a navigational watch
- Familiarisation with each and every equipment on the bridge/wheel house
- Ability to maintain lookout by visual, audible and radar watch
- Appreciating situations that call for actions
- The collision regulations
- Checking effectiveness of actions until danger is past and clear
- Use of communication sets
- Rounds of the vessel
- Accountability of persons on board
- Safety instructions especially at night
- Actions in emergencies
- The bridge file – check list
- Responsibility to conduct drills

14. Marine Meteorology

- Meteorological terms used in bulletins, synoptic charts, warnings
- Cold fronts and warm fronts
- The air distribution over the globe
- The atmospheric pressure and isobars
- The wind
- Low and High atmospheric pressure
- The Coriolis Effect and wind direction
- The barometer and how to read and correct pressure values
- Sea and Land Breezes
- The Beaufort Scale
- The weather associated with frontal systems
- The Tropical Revolving Storms (TRS)
- Signs of an approaching TRS
- The Buy Ballot's Law
- Determining the direction of movement of a TRS using the law
- The dangerous and the navigable semi-circles
- Avoiding actions when in any one of the two semi- circles
- Interpreting synoptic charts, weather bulletins and faxes

15. Great Circle Sailing

- The Spherical Trigonometry
- The point of departure and the angle
- The composite track

16. Radio Navigation

- Propagation of radio waves
- The radio beacons and aero beacons
- The Direction Finder
- Using the Direction Finder to obtain a bearing of a radio beacon
- Applying the error of curvature

17. Radar Navigation

- The radar theory
- The echo ranging principle
- Factors affecting the performance of a radar
- Detecting real and false echoes
- Familiarisation with all function keys on the display unit
- The radar index error
- Methods for determining radar index error
- The parallel index theory
- Using radar for blind pilotage
- Using radar for collision avoidance
- The RELVEL triangle
- Determining course and speed of other vessels
- Determining CPA, TCPA and bearing of CPA
- The Automatic Radar Plotting Aid (ARPA)

18. Electronic Aids to Navigation and other navigation instruments

- The Global Positioning System (GPS)
- The working principle of GPS and the inherent errors
- Introduction to the DGPS
- The echo sounder and its working principle
- The working principle of the ECDIS
- The Douglas Protractor
- The Distance metres

19. Mechanical and Electrical Engineering

- Understanding the primary or auxiliary means of propulsion
- The marine diesel engines
- The fuel system
- The cooling systems
- The air systems
- Planned maintenance programme on engines and its importance
- Ability to conduct preliminary repairs at sea with spares available onboard
- The power distribution system onboard
- The batteries and their maintenance/care
- Ability to carry out minor repairs on electrical systems
- Recommended electrical spares onboard

20. International Maritime Laws and Conventions and Local legislation

- The United Nations Convention on the Laws of the Sea (UNCLOS)
- The Safety of Life at Sea Convention Chapter V- Safety of Navigation (SOLAS)
- The MARPOL Convention
- The Tourism Authority Act 2006
- The Occupational Safety and Health Act 2005
- The Environmental Protection Act 2002
- The Merchant Shipping Act 2007

21. Shiphandling in various weather conditions

- Berthing and un-berthing in differing wind conditions
- Manoeuvring in shallow waters
- Handling of vessel in heavy weather
- Precautions in respect of headseas and following seas
- Handling vessel in long swells
- Handling vessel in narrow channels

22. Vessel Stability

- Understanding the basics of vessel stability
- The centre of gravity, the metacentre, the righting moments
- Positive and negative stability
- Interpreting stability information available on vessel
- Safety considerations when adding and removing weights from a vessel
- Effect of adding topweight
- Methods to increase stability

- Effects of water on deck and slack tanks
- Free water effect

23. Basic Safety Training under STCW 95 Convention

A. Fire Prevention and Fire Fighting (Basic Fire fighting)

- understanding the risk of fire onboard and how to minimise those risks
- learning how to fight and extinguish fires as well as search for and recover casualties
- learning how to wear fire fighting equipment including personal breathing apparatus and safe use of fire extinguishers.

B. Personal Survival Techniques (PST)

- understanding the main types of maritime emergencies
- ensuring correct use of survival equipment particularly lifejackets and inflatable life rafts.
- the principles of survival
- proper use of survival craft.

C. Personal Safety and Social Responsibility (PSSR)

- safety duties & procedures
- pollution prevention
- accident prevention
- working conditions.

D. First aid

- providing an understanding of what do when discovering a casualty, examining them and administering immediate first aid
- how to give resuscitation and place someone in the recovery position
- how to deal with fractures, burns, bleeds, choking and other general medical conditions
- moving a casualty.

E. Crisis Management and Human Behaviour

- shipboard emergency procedures
- the optimum use of resources
- a controlled response to emergencies
- the control of passengers and other personnel during emergency situation and the establishment and maintenance of effective communications
- dealing with Crowds in emergencies and correct procedures.

F. Crowd Control

- assist passengers
- deal with crowds in emergencies and correct procedures
- human behaviour in emergencies
- specific vessel familiarisation.

G. Security Awareness

- the importance of ship security and the roles of those involved in its provision
- the requirements and measures to maintain ship security
- Ability to recognise and report a security threat.

24. Global Maritime Distress and Safety Systems (GMDSS) – STCW 95

- Familiarisation with radio communication system
- Regulations and procedures governing use of radio equipment
- Digital Selective Calling (DSC)
- Use of Inmarsat systems, radio frequencies and procedures.
- SARTs and EPIRBs

25. Search and Rescue / Safety at Sea

- The roles of Maritime Rescue Coordination Centres
- The National Coast Guard as the local RCC
- The National Search and Rescue Policy
- The legal obligation to provide assistance to vessels, aircrafts and persons in distress at sea
- The role of the On Scene Commander in SAR
- Search and Rescue planning and execution
- The Last Known Position and the datum
- Actions to assist SAR units in locating your vessel at sea

- The active search target
- Emergency communications
- Means of attracting attention of search units
- Skipper's pre-departure briefing and check list
- Safety equipment onboard - life jackets, life buoys, flares, fire extinguishers, distress signals, red flag, heliograph mirrors, liferafts, sea anchors, radar reflectors
- Preparation for heavy weather
- Preparing for rescue by helicopter
- Introduction to sea survival techniques/ liferaft launching
- The liferaft and its contents
- Managing resources in the liferaft to increase chances of being spotted

26. General Emergency Procedures

- Recovery of man overboard
- Total power failure
- Steering Gear Casualty
- Vessel adrift
- Vessel aground
- Major fire onboard
- Abandoning ship and sea survival
- Arrangement for being towed
- Casualty evacuation by helicopter