NAV 3 CERTIFICATION STANDARDS

**Outcome:** To safely plan and navigate an offshore passage.

**Required Equipment:**

**Prerequisite:** The prerequisite for Nav 3 certification is Nav 2 certification.

**Certification Requirements:** Successfully complete the following knowledge and skill requirements, including an online examination.

**Knowledge**

1.0 **Chart Projections and Routes**

1.1 Understand and differentiate between Mercator and Gnomonic chart projections.

1.2 Understand and differentiate between great circle and rhumb line routes.

2.0 **Passage Route Selection and Planning**

2.1 Understand how to select passage routes based on seasonal weather patterns and ocean currents.

2.2 Understand the information depicted on pilot charts.

2.3 Identify reliable sources of information for passage planning.

3.0 **Routing Services and Navigation Technologies**

3.1 Understand the role and limitations of routing services, both pre-departure and on passage.

3.2 Describe GPS datums and GNSS (Global Navigation Satellite Systems) and their significance in navigation.

3.3 Understand chart datum accuracy, chart update timing, and survey accuracy.

3.4 Recognize and understand the significance of isogonals.

3.5 Understand time and time zone issues in navigation, including the concept of 15° per hour.

4.0 **Passage Navigation to Piloting Transition**

4.1 Describe the process of transitioning from passage navigation to piloting, including the use of port notes and pilot plans.

4.2 Understand the importance of timing landfalls and developing contingency plans, including alternative routes.

4.3 Identify and implement emergency navigation techniques, including the use of plotting sheets, compass, and a knotmeter.

5.0 **Navigation Safety and Log Keeping**

5.1 Understand the principles of height of eye in sighting objects and luminous range, including the concept of bobbing the light.

5.2 Describe methods to protect electronic navigation devices.

5.3 Understand cloud and aircraft contrail patterns for navigational purposes.

5.4 Understand the importance of maintaining a detailed and accurate log, including weather conditions and other relevant information for safe navigation.
Practical Skills  [NOTE: tbd. – RAD group suggested deletion]

1.0 Chart Projections and Routes
1.1 Apply Mercator and Gnomonic chart projections to plan offshore passages using electronic navigation tools.
1.2 Compare and select appropriate great circle and rhumb line routes for offshore passages using electronic navigation tools.

2.0 Passage Route Selection and Planning
2.1 Create passage plans using knowledge of seasonal weather patterns and ocean currents, and electronic navigation tools.
2.2 Utilize pilot charts to inform and refine passage planning using electronic navigation tools.
2.3 Demonstrate the ability to access and use Sailing Directions, World Cruising Routes, and Lists of Lights in passage planning through online resources.

3.0 Routing Services and Navigation Technologies
3.1 Apply routing services to plan and adjust passage routes using electronic navigation tools.
3.2 Demonstrate proficiency in using GPS datums/GNSS in navigation tasks with electronic tools.
3.3 Assess chart datum accuracy, chart update timing, and survey accuracy for navigation purposes using electronic resources.
3.4 Apply knowledge of isogonals to plan and adjust passage routes using electronic navigation tools.
3.5 Manage time and time zone issues in navigation tasks using electronic tools.

4.0 Passage Navigation to Piloting Transition
4.1 Apply port notes and pilot plans when transitioning from passage navigation to piloting using electronic navigation tools.
4.2 Develop contingency plans, including alternative routes, based on timing and conditions of landfalls using electronic navigation tools.
4.3 Determine and apply emergency headings using compass and celestial references, along with electronic navigation tools.
4.4 Demonstrate the use of emergency navigation techniques, such as plotting sheets and a knot meter, in a simulated environment.

5.0 Navigation Safety and Log Keeping
5.1 Apply height of eye principles and luminous range concepts in sighting objects during simulated offshore passages.
5.2 Demonstrate the proper use of navigation electronics protection methods in a classroom setting.
5.3 Utilize cloud and aircraft contrail patterns to inform navigation decisions using available electronic resources.
5.4 Maintain a detailed and accurate logbook throughout a simulated offshore passage, including weather conditions and other relevant information.