



# Chartwork and Position Fixing

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**AIM** To instruct members in the basic techniques of marine navigation to a level which will help them as active divers in planning and managing dives undertaken by a typical BSAC Branch.  
*(The course comprehensively covers the requirements of Dive Leader lesson LT7 and is a training option for BSAC Advanced Diver).*

**DURATION** Two Days.

**ENTRY GRADE** BSAC Sports Diver.

**INSTRUCTORS** Chief Instructor to be a BSAC Advanced Instructor, or person of proven instructing ability who holds a qualification in navigation such as RYA/DTP Yachtmaster. Other Instructors (BSAC NQIs) as required to the satisfaction of Chief Instructor.

Ratio – One instructor for every eight students for classroom studies (Day 1); one Instructor for every four students for practical work afloat (Day 2).

**FACILITIES** Adequate classroom facilities, with 'chart table' for every two students. Sufficient charts, reference books, instruments for the number taking part. Coastal site for practical activity. Boats (RIBs or charter vessels) with GPS or Decca navigators for practical work – one for each group of four students and their Instructor.

**APPROVAL** Skill Development Course Approval Procedure applies.

**QUALIFICATION** Course Certification will be issued. Qualified BSAC Instructors may also sign up Dive Leader lesson LT 7 in a member's qualification record book.

## SYLLABUS

### Day 1

Instructor briefing

Assemble, Introductions, Administration

1	Classroom Lesson	<b>Chart and their interpretation</b> <ul style="list-style-type: none"><li>• Admiralty Charts</li><li>• Chart symbols – Chartbook 5011</li><li>• Reading charts</li><li>• Chartwork instruments</li><li>• Latitude/Longitude and their derivation</li></ul>	90 minutes
2	Classroom Lesson	<b>The Compass Rose, Position, Direction and Distance</b> <ul style="list-style-type: none"><li>• Compass Rose</li><li>• Variation, deviation</li><li>• Directions, Bearings and Course expressed as True/Magnetic</li><li>• Distance: Nautical Miles, use of Latitude scale</li></ul>	90 minutes

- Speed: Knots, calculating speed

Lunch Break

3	Classroom Lesson	<b>Methods of Position Fixing</b> <ul style="list-style-type: none"> <li>• Position Lines</li> <li>• Compass Bearings</li> <li>• Transit Marks</li> <li>• Waypoint Navigation (GPS/Decca)</li> </ul>	120 minutes
4	Classroom Lesson	<b>Tides and Weather</b> <ul style="list-style-type: none"> <li>• Tides: Springs, Neaps</li> <li>• Tidal information and Charts</li> <li>• Tide Tables</li> <li>• Calculating Slack Water at a given site</li> <li>• Weather: causes and effects</li> <li>• Weather Forecasts</li> </ul>	90 minutes
5	Classroom Lesson	<b>High Speed Navigation</b> <ul style="list-style-type: none"> <li>• Calculating speed</li> <li>• Distance/Speed/Time</li> <li>• Typical Route Plan</li> <li>• Navigator's Route Plan slate</li> </ul>	60 minutes
6	Classroom	Debriefing for the day	

## Day 2

7	Classroom	<b>Route Planning</b> Use the knowledge presented on the course so far to plan the Practical Session afloat.	60 minutes
8	Practical Lesson	<b>Navigation at Sea</b> Carry out the practical navigation skills planned during the preceding <b>Route Planning</b> lesson.	5 hours
9	Classroom	<b>Open Forum</b> <ul style="list-style-type: none"> <li>• General discussion, course debriefing</li> <li>• Issue Student Notes and Course Certificates</li> <li>• Disperse</li> </ul> <p>Instructor debriefing</p>	30 minutes

## NOTES

1. The order in which the syllabus is listed represents the recommended sequence for the course. Classroom lessons may be spread over a series of (evening class) lessons if desired, followed by a day afloat for the practical experience.
2. Since chartwork skills are best developed through 'hands on' experience, provide it by worked examples, class and individual exercises with individual coaching where required. Aim to use about

half of each classroom lesson to present the information and the other half for students to practice it.

3. Instructors should ensure that the exercises planned during Classroom Lesson 7 for action in Practical Lesson 8 on Day 2 are both realistic and achievable in the boats available and in the weather conditions forecast. 'Back-up' plans for an alternative sheltered site would be a good idea. (It would probably be a good idea to have some route plans of your own, in case student plans don't work out').
4. While the BSAC 'Seamanship for Divers' Manual and Dive Leader and Advanced Diver Student Workbooks contain valuable introductions to the subject, and set the scope of the course, more detailed instructional references and dozens of exercise questions/answers can be found in publications such as 'Navigation Exercises for Yachtsmen' and 'Exercises in Coastal Navigation', both published by Stanford Maritime, and available from nautical bookshops. 'Electronic Navigation' by Mik Chinery, Fernhurst Books, is a useful guide to waypoint navigation using GPS and Decca Navigators.