

## Skill Development Course – Syllabus

### OUTBOARD ENGINE AND BOAT MAINTENANCE

#### AIM

To acquaint members with the design features and operation of modern outboard engines used on diving club boats, fault finding and rectification, owner servicing and maintenance: the routine care of the boat hull and fittings, and trailer care.

#### DURATION

One day

#### ENTRY GRADE

Open

#### INSTRUCTOR REQUIREMENTS

Chief Instructor should be a BSAC NQI. Other Instructors may be suitably experienced marine engineers: 'Manufacturer Approved' service engineers are preferred.

#### FACILITY REQUIREMENTS

Suitable Classroom for theory lessons. Workshop area, tools and engines to work on for 'hands on' practical activities (see Note 2).

#### COURSE APPROVAL

Course Approval procedure applies

#### QUALIFICATION

Course Certification will be issued

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#### SYLLABUS

The exact scope and contents of the syllabus may be varied to suit the Instructor specialities and student needs, and to some extent the course location. The syllabus given herewith is a suitable basis for development.

Instructor briefing

Assemble, Introductions, Administration

#### 1. Classroom Lesson - **The Outboard Engine** - (45 mins)

- General principles and layout
- Powerhead and cowling
- Mid-section: transom clamp

- Bottom end: gearbox, water pump, propeller
- Exhaust and cooling system
- Fuel and lubrication
- Controls: steering, gearshift, throttle

## 2. Classroom Lesson - **Looking after your Outboard** - (45 mins)

- The Servicing Kit
- Workshop safety
- 'Owner serviceables' - what you reasonably can / cannot do
- Fault finding: what goes wrong, where to look, what to do

## 3. Workshop - **Outboard Maintenance (1)** - (90 mins)

A 'hands on' session devoted to routine care and maintenance:

- Routine cleaning and greasing
- Electrics: battery and leads, ignition system, spark plugs
- Fuel system: tank and fuel line, fuel filter, carburettor
- Propeller changing and care, changing gearbox oil
- Water pump inspection
- Recoil starters

Lunch

## 4. Workshop - **Outboard Maintenance (2)** - (90 mins)

A 'hands on' session devoted to tracing and rectifying faults which have been 'set up' by the Instructors. Small groups of students move from one task to the next. Instructors supervise / control / advise

## 5. Classroom Lesson - **Looking after the Hull, Hull Fittings and Trailer** - (45 mins)

- Routine after-care: thorough fresh water wash
- GRP repairs, inflatable tube repairs, floors (fully inflatable boats)
- Metal parts, prevention of corrosion
- Instruments and electronics
- Trailer care: fresh water wash
- Wheel bearings
- Trailer electrics / lighting; trailer law
- The boat's working and emergency equipment

## 6. Workshop / Outdoors - Boat and Trailer Care - (45 mins)

A 'hands on' session devoted to routine care and maintenance:

- Washing down, looking for existing / potential faults
- GRP repairs, inflatable tube repairs
- Changing trailer wheel bearings

## 7. Classroom - **Open Forum** - (30 mins)

- Emergency repairs at sea
- Course debriefing
- Issue Course Certification, sign QRBs
- Disperse

Instructor debriefing

## NOTES

1. The order in which the syllabus is listed represents the recommended sequence for the course. It may alternatively be spread over a series of shorter (evening class) lessons if desired.
2. Students should be invited to bring engines and boats to work on, so they can gain experience on their own equipment.