



IBSC 2013-2014 Report

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IBSC Chair



The Board

- 10 members (4 FIG, 4 IHO and 2 ICA), from governmental, educational and civil sector;
- 2 members resigned (1 FIG, 1 IHO).
- IHB issued a CL to seek new IHO member
- FIG member to be designated by FIG commission 4
- ICA : may not support any more its 2 IBSC members (ICA conf. Oct2013). Pending decision (next ICA conf.)



Summary of IBSC activities

REVIEWS		Submitted		Recognized / conditionnaly recognized	
Cat B	Hydro	5	8	4	6
	Carto	3		2	
Cat A	Hydro	6	6	4	4
	Carto	0			
Ind. Recog. Schemes		1	1	0	0
		TOTAL	15		10

- **Revision of S-5 and S-8 standards**
- **New standards development (S-5B almost ready)**
- **1st IBSC Stakeholder seminar, March 7th in IHB**



1st IBSC Stakeholder seminar



Program and outcomes

- 4 sessions (Role of the IBSC; New standards development; Cat A and Cat B standards in the Industry; CB and new types of delivery)
- Outcomes:
 - S-5 and S-8 revision (2014): Large majority of approval;
 - Information about S5-B and S5-A development: positive feedback from the stakeholders;
 - Information about the role of S-5 and S-8 standards in the industry
 - More interactions between IBSC and CBSC (new types of delivery: e-learning, portable courses)



S-5 and S-8 revisions



2014: S-5 **11.1.0** and S-8 **3.1.0** revision

- Provision for e-learning component as part of the submission;
- Annual report, and comprehensive internal assessment every 3-5 years;
- IBSC on-site program review process and content (internal review documents, on-site visits, outcomes);
- New guidelines for practical exercises and field training.
- Minimum Time frames:
 - Cat B: 24 weeks, and 16 weeks with exemptions
 - Cat A: 2 semesters + field training



STANDARDS OF COMPETENCE for Hydrographic Surveyors

Publication S-5
Eleventh Edition
Version 11.0.1 – May 2011

Guidance and Syllabus for Educational and Training Programmes

Published by:
The International Hydrographic Bureau
4, quai Antoine 1er
B.P. 445
Monaco, MC 98011 Cedex
MONACO
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<www.ihb.int>

Comments arising from the experience gained in the application of the guidance and syllabus are welcome. They should be addressed to the Chairman of the International Board at the above address. This document is published periodically. Please check with IHB for the latest edition, including current amendments.
Please consult the companion IHO publication C-6 "Reference Texts for Training in Hydrography", available from the IHB.



Synthesis of responses to IHO CL 11/2014

- 18 member states responded ;
- Large majority of approval;
- Some MSs consider Category B as a pre-requisite for Category A. *IBSC do not.*
- In cases where a Category A programme is preceded immediately prior by a Category B programme then time frames for the Category A program may take into account the time devoted to the Category B program : No objection from the Board.
- Time frame *without exemption* = time frame *including basics* subjects
- Remarks on the S-5 syllabus: overtaken by new S-5B in preparation.
- Minor corrections (typos, wording): will be incorporated before publications



New Standards development



The IBSC workprogram (2013-2017)

“IBSC to develop a new Standards framework to separate competency requirements for Cat A and Cat B hydrographers and nautical cartographers by

- **developing two discrete parts in the standards S-5 and S-8 ;**
- **updating their content to comply with the scientific and technological developments in the fields of Hydrography and Nautical Cartography.”**



Existing Model (for many programs)

Learning Progression



Category A Competencies
Essentials and Options

Category A Basics (more math, more physics, etc.)

Category B Competencies
Essentials and Options

Category B Basics (math, physics, computer science, etc.)



New Model

To be introduced 2016 - 2018

Category B

Practical Competencies and
Basic-level Theoretical
Understanding



Typical Academic
Prerequisites

Associate Degree, Technical Diploma, or
BA degree

Category A

Theoretical,
Analytical, and Practical
Competencies



Typical Academic
Prerequisites

BSc degree



Content

“Geodesy, the geoid, Helmert, normal and orthometric heights

A list of topics that is meaningless to prospective course participants.

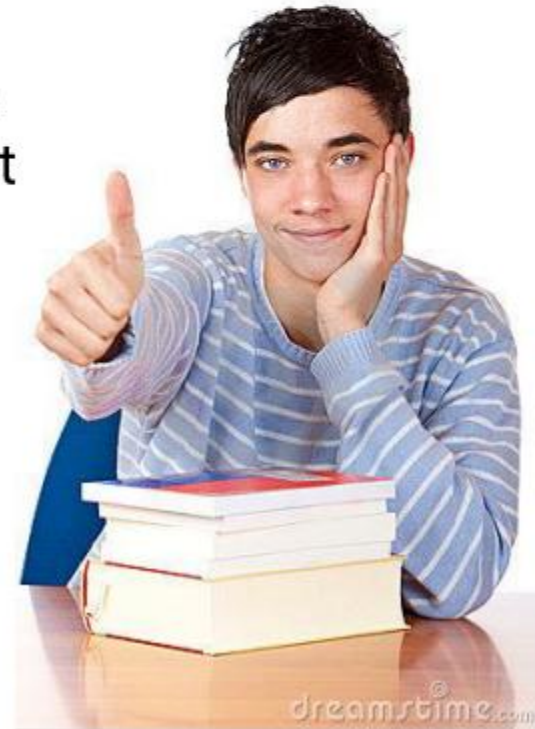
To the student who has not yet taken the course, it looks like this:





Course descriptions must be interesting

- In hydrography you will learn the principles of precise navigation from satellite systems and techniques in underwater positioning,
- You will spend lots of time doing practical work in boats using sophisticated sensors and devices that take measurements above and below the water without need for the operator to get wet.
- You will use hardware platforms and applications that make your ipad look like a Lego brick.





Competencies

- Are for instructors, to support preparation of programmes and courses.
 - Generic ILO's give expectations
 - Content places the learning outcomes into a set of essential topics that must be covered towards meeting an ILO.

- Minimum standards are much more difficult to define, for example from the draft S-5B an ILO is written:

“Using appropriate units, describe acoustic wave behaviour with reference to physical properties of the water column”

Would be covered differently by a student in acoustics or in physics.

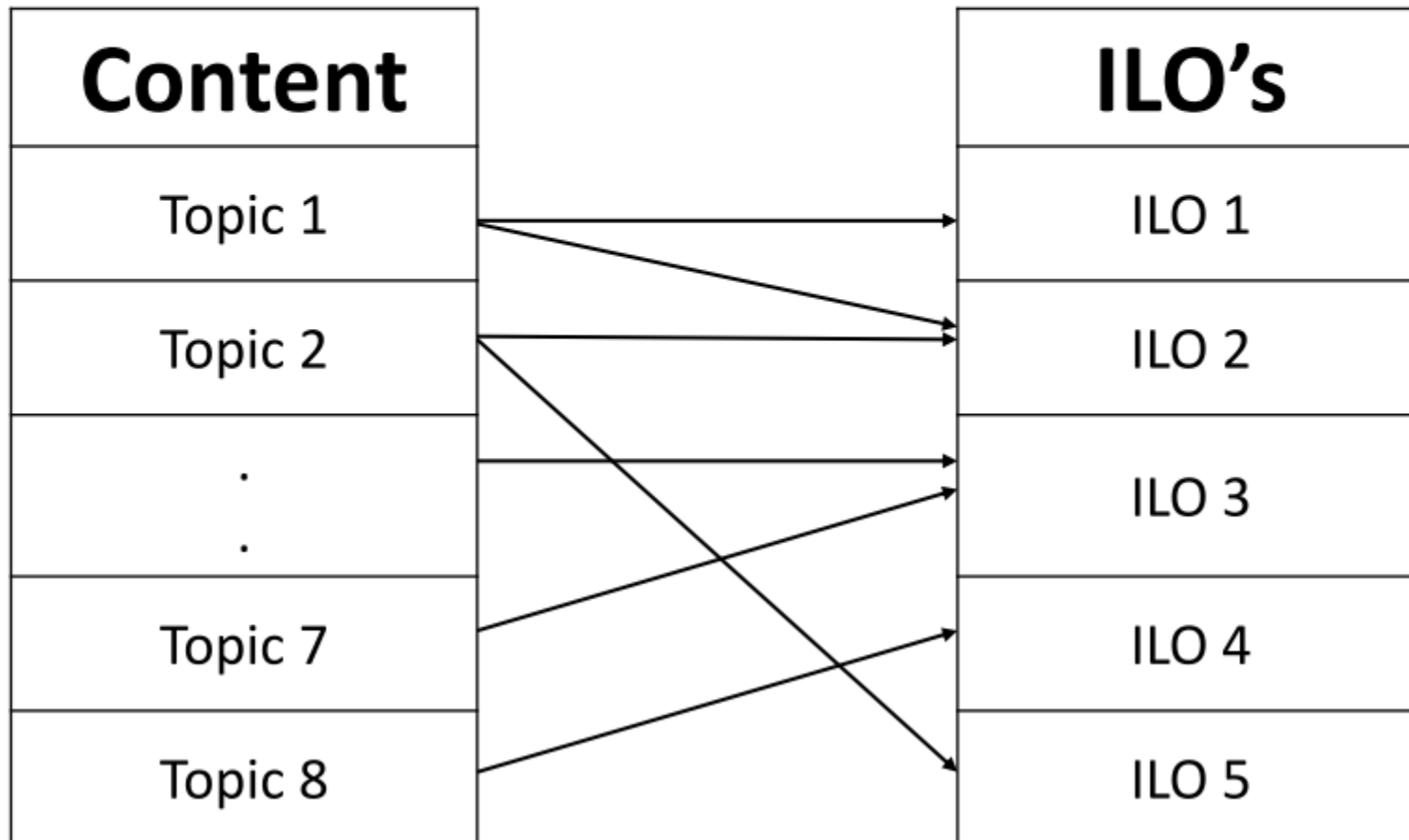
The specified content should place the ILO into context, but the material could still be covered at different levels.

It is therefore important for the Board to receive information relating to time allocated and method of delivery.



Mapping content to ILO's

(many to many relationship)



Assessment



General example

Subject	T/P/ SG	Hou rs	Course and content	Content	Learning outcomes
1.2b. Single beam echo sounder data recording.	T	5	HYD01 (i)(ii)(iv)(v)	(i) Split beam and dual beam echo sounders	Interpret echo sounder returns through differentiation between return signals.
	P	3	FW02 (iii)(iv)(v)	(ii) components of a single beam echo sounders.	
	SG	10	(ii)(iv)(x)	(iii) Operation of single beam echo sounders. (iv) Bottom detection principles.	

Where and how is the learning outcome addressed?



Example 1 from draft S-5B

E1 UNDERWATER ACOUSTICS

E1.1 Acoustic Theory

1.1a Generation of acoustic waves				(i) Plane and spherical waves in terms of wavelength, amplitude and frequency. (ii) Speed of sound in relation to water properties and profile in the water column.	Explain how transducer parameters impact upon beam characteristics.
1.1b Propagation of acoustic waves				(iii) Acoustic units, intensities and sound levels (iv) active Sonar Equation including sound source, causes of propagation loss in relation to water properties together with characteristics of the sea floor and targets, noise level and directivity	Using appropriate units, describe acoustic wave behaviour with reference to physical properties of the water column.
1.1c Reflection, scattering and system performance.				(v) Refraction and the path of sound rays through the	Detail sources of noise and the impact of noise on operation of acoustic systems.



Example 2 from draft S-5B

				(vii) Sextant (viii) Total station (ix) Theodolite (x) Electromagnetic positioning devices (xi) Intersection, Resection, Polar and Traverse (xii) Astronomic methods for determination of orientation. (xiii) Expansion of traditional geodetic networks (xiv) Principle of GNSS positioning (xv) GNSS services characteristics (single baseline, network, Precise Point Positioning) (xvi) Performance of code vs. carrier; differential vs. autonomous modes; multiple vs. single frequency; fixed vs. float ambiguity resolution (xvii) Control stations (xviii) Economic and logistical aspects of providing	appropriate methods and use corresponding instruments for positioning. Establish azimuth using astronomic methods.
E4.2b Satellite positioning					Explain the GNSS concept and principles. Define pseudo ranging and carrier phase based modes of satellite positioning Differentiate between base station and permanent networks, real-time and post-processing.
E4.2c Positioning systems					Field test and use distance and angle measurement instruments. Apply field validation procedures Operate GNSS and DGNSS equipment, assess accuracy and precision, post-process GNSS data using appropriate software.
E4.2d Historical surveys					Relate historical surveys to legacy positioning systems.



New Category A and Category B standards development plan

- S5-B: draft available on 15 June 2014
- S5-A: Draft available by the end of Feb 2015
- Guidelines as a separate document ;

Objective: S-5A and S-5B in force for Dec 2015 submissions

S-8A and S-8B to follow (TBD)