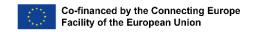
Training programme for icebreaker opetators – IceOC Basic

Day 1	Contents	Part	Detailed contents	Resp.
Introduction	Explanations,	OC:0	IceOC Basic Course	TT/FTA
0,5 Hour	introduction		Course Schedule	
			Ice Endorsement	
			Assessments	
Module	Organisations	OC:1:1	SMA Organization and Icebreaker Organization	TT/FTA
1,0 Hour		OC:1:2	FMA Organization and Icebreaker Organization	
		OC:1:3	Financing	
		OC:1:4	Icebreaker manning	
		OC:1:5	Coordinator	
Module	Regulations	OC:2:1	Regulations	TT/FTA
1,0 Hour		OC:2:2	Co-operations between the countries Sweden/Finland	
		OC:2:3	Winter Navigation	
Module	History	OC:3:1	The icebreaker development	TT/FTA
0,5 Hour		OC:3:2	Icebreaker origin	
Module	Ice classes and	PC:2:1	Ice classes	TT/FTA
1,5 Hour	performance	PC:2:2	Ice classes for areas where old ice can occur (IACS PC rules)	
	Ships in ice	PC:2:3	Polar ship rules contra Polar Code	
		PC:2:4	Icebreaker classes and SWE-FIN ice classes and equivalent	
			Ship construction, hull, propulsion, power line, stability	
Module	Preparations and	PC:5:1	Hypothermia, Cold weather health and safety	NOVIA
1,0 Hour	Safety	PC:5:2	Wind chill, hazards and necessary actions	
		PC:5:3	Protective clothing	



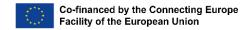




Day 2				
Module	Weather	OC:5:1	Freeze-up and debacle in Bay and Sea of Bothnia and the Baltic area including the Gulf of	NT/FMI
2,0 Hours			Finland	
		OC:5:2	Low and high pressure impact on the ice	
		OC:5:3	The impact of the wind, waves and swell on the ice and ice movements	
		OC:5:4	Knowledge of the weather and ice forecast for the estimated ice movements	
		OC:5:5	Polar weather and Polar Low	
Module	Satellites	OC:6:1	General information of satellites	JV/FMI
1,0 Hours		OC:6:2	Types of satellites and performance	
		OC:6:3	Satellite images suppliers	
		OC:6:4	Resolution and accuracy in images	
Module	Ice characteristics	PC:1:1	Sea ice	JV/FMI
1,0 Hours	Ice properties	PC:1:2	Ice Egg code and equivalent, color code	
		PC:1:3	Concentration, floe size and age	
		PC:1:4	Difference between First Year Ice (FYI) and Old Ice (SYI and MYI).	
			Forecasting and routing. Access to satellite images and how to use them.	
		PC:1:5	Ice regimes in Baltic, Canada and Russia.	
Module	Icebreakers	OC:4:1	Swedish Icebreakers and general arrangements	TT/FTA
0,5 Hour		OC:4:2	Finnish Icebreakers and general arrangements	
		OC:4:3	Chartered icebreakers	



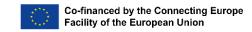




Day 3							
Module	IBNet	OC:8:1	General information				
2,0 Hour		OC:8:2	Education onboard and education handbook Equipment and materials M				
Module	Equipment's	PC:8:1	Equipment and materials				
1,0 Hour	performance in cold	PC:8:2	Life-saving and fire-fighting equipments				
	climate	PC:8:3	ffects of iceing				
		PC:8:4	Aids for navigation				
Module	Communications	OC:7:1	The need of communications and the importance of clear communications				
0,5 Hours during icebreaking			Satellite / VSAT				
		OC:7:3	Net1 / UkkoMobile				
		OC:7:4	IRIDIUM				
		OC:7:5	Mobile telephone				
		OC:7:6	VHF				
		OC:7:7	MF/HF				
		OC:7:8	Flight VHF				
		OC:7:9	UHF				
Module	Icebreaker operations	OC:9:1	General of the icebreaker operations	SE/Arctia			
1 Hours		OC:9:2	Icebreaker bridge operations and duties in port				
		OC:9:3	Master duties, CO duties, 2 nd duties				
		OC:9:4	Officers duties when connecting and de-connecting towing				
		OC:9:5	Reporting				
		OC:9:6	Ice-routings				
		OC:9:7	Helicopter				
		OC:9:8	Orders from icebreakers				
Module	Safe Operation	PC:3:1	Damages to hull, propulsion and steering arrangement	SE/TT			
2 Hours Danger in ice		PC:3:2	Remote areas, difficulties to get medevac and other assistance	Arctia/FTA			
	operations	PC:3:3	Extremely quick changes in wind force and direction resulting in dangerous changes in ice				
			movements				
		PC:3:4	Ice pressure				
0,5 Hours			Introduction to simulator training sessions	Novia			







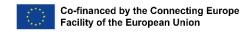
Simulator Practical training IceOC Basic

10 Hours

Module	Contents	Part	Detailed contents	Resp.
Module ST:1	dule ST:1 Familiarization of equipment and		Theory of the maneuverings	
	maneuvering in ice	ST:1:2	Going through the ridges	
		ST:1:3	Maneuvering in ice channel	
		ST:1:4	Maneuvering passing iceberg	
		ST:1:5	Maneuvering through ice-pressure	
Module ST:2	Break loose coming from astern	ST:2:1	Theory of the maneuverings	
		ST:2:2	Simulator training	
Module ST:3	Break loose coming from ahead	ST:3:1	Theory of the maneuverings	
		ST:3:2	Simulator training	
Module ST:4	Assisting in the notch without	ST:4:1	Theory of the maneuverings	
	wire	ST:4:2	Simulator training	
Module ST:5	Break loose coming from astern	ST:5:1	Theory of the maneuverings	
	of 2 merchant vessels	ST:5:2	Simulator training	
Module ST:6	Towing	ST:6:1	Theory of the maneuverings	
		ST:6:2	Simulator training	
Module ST:7	Azimuth thruster use for	ST:7:1	Theory of the maneuverings	
	breaking loose operations	ST:7:2	Simulator training	







TIMETABLE IceOC Basic COURSE / WEEK 47 2018 – Example timetable

Date	Time	Module	Resp.	Subject
Monday 19 Nov 2018	10:00-10:30		Novia	Welcome
	10:30-11:00	OC:0	FTA	Introduction
	11:00-12:00	OC:1	FTA	Organisations
	12:00-13:00			Lunch
	13:00-14:00	OC:2	FTA	Regulations
	14:00-14:30	OC:3	FTA	History
	14:30-15:00	PC:2	FTA	Ice classes and performance, ships in ice
	15:00-15:30			Coffee break
	15:30-16:00	PC:2	FTA	Ice classes and performance, ships in ice (continues)
	16:00-17:00	PC:5	Novia	Preparations and safety
Tuesday 20 Nov 2018	10:00-12:00	OC:6	FMI	Weather
	12:00-13:00			Lunch
	13:00-14:00	PC:1	FMI	Ice characteristics, ice properties
	14:00-15:00	OC:5	FMI	Satellites
	15:00-15:30			Coffee break
	15:30-16:00	OC:4	FTA	Icebreakers
Wednesday 21 Nov 2018	9:00-11:00	OC:8	FTA	IBNet
	11:00-12:00	PC:8	Novia	Equipment performance in cold climate
	12:00-13:00			Lunch
	13:00-13:30	OC:7	Arctia	Communications during icebreaking
	13:30-14:30	OC:9	Arctia	Icebreaker operations
	14:30-15:00			Coffee break
	15:00-16:30	PC:3	FTA+Arctia	Safe operation, danger in ice operations ice pressure
	16:30-17:00	ST:0	Novia	Introduction to simulator training sessions
Thursday 22 Nov 2018	9:00-17:00	ST:1		Simulator training
		ST:2		
		ST:3		
		ST:4		
Friday 23 Nov 2018	9:00-15:00	ST:5		Simulator training
		ST:6		
		ST:7		





