DRAFT CURRICULUM FOR COURSE FOR COMPASS ADJUSTER &EFFECT OF SHIP MAGNETISM ON COMPASS

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	Name of topics	L	T	P	C	Hrs
Unit 1	Magnetism and types of metal	2	0	1	0.17	2.5
Unit 2	Geo magnetism and it's impact	2	0	1	0.17	2.5
Unit 3	Ship's magnetism –deviation & P,Q,R forces	2	0	1	0.17	2.5
Unit 4	Coefficients – A,B,C,D,E	2	0	1	0.17	2.5
Unit 5	Gaussin/Retentive errors and effects	1	0	0	0.06	1.0
Unit 6	Compass adjustment—various procedures	2	1	2	0.26	4.0
	TOTAL				**1**	15

Note: L = Lectures
T = Tutorials [guided]
P = Presentations[self] OR Practical demo
C = Credits

Total Credits for the course = 1

Equipment and accessories required for the Course: Magnetic Compass (preferably ship's Magnetic Compass), Magnets of various length and diameter----To be available @ MTI.or through you.tube--online mode.

Unit 1	Magnetism and types of metal	L	T	P	C	Hrs
		2	0	1		2.5

Section A 2.5 hrs

Objectives:

.Upon completion of the course, students should be able to:

1.1-Define the properties of magnetism

1.2-Explain Faraday's law of magnetism

1.3-Understand types of metal ;like ferromagnetic and others

1.4-Connect the shipboard materials and metals for bridge equipments and materials used onboard.

1.5- Box the compass and identify parts of compass.

Unit 2	Geo magnetism and it's impact	L	T	P	C	Hrs
		2	0	1		2.5

Section B 2.5 hrs

Objectives:

Upon completion of the course, students should be able to:

2.1 Understand that earth acts is a magnet-- GEO MAGNETISM,TERRESTRIAL MAGNETISM

2.2 Define the terms ' VARIATION'/or MAGNETIC DECLINATION, ' ISOGONIC-LINES' , 'AGONIC LINES', 'ISSALALOGONIC LINES'.

2.3 Read Variation charts and to be able to pick up values from nautical charts/ECDIS

2.4 Apply the values in 'true course' for magnetic course and vice versa.

Unit 3	Ship's magnetism –deviation & P,Q,R forces	L	T	P	C	Hrs
		2	0	1		2.5

Section C 2.5 hrs

Objectives:

Upon completion of the course, students should be able to

3.1 Explain how ship gets magnetised in earth field.

3.2 The resultant magnetic field of ship and its components 'P', 'Q', 'R'.

3.3 Describe the Permanent and Induced magnetism.

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Unit 4	Coefficients – A,B,C,D,E	L	T	P	C	Hrs
		2		1		2.5

Section D 2.5 hrs

Objectives:

Upon completion of the course, students should be able to

4.1Understand basic coefficients, A,B,C,D,E and brief knowledge of the impacts on different directions- 'headings of ship'--including heeling error.

4.2 Show Corrective mechanism adopted in Compass binnacle for controlling Permanent and induced magnetism.

Unit 5	Gaussin/Retentive errors and effects	L	T	P	C	Hrs
		1	0	0		1

Section E 1.0 hrs

Objectives:

Upon completion of the course, students should be able to:

5.1 Explain Gaussin effect and errors of semi permanent nature such as retentive error and their

remedial understanding.

5.2 Analyse literatures connected to these effects—SOLAS Chapter V-19.2.1,HSC Code Ch 13/2000 IRS circular, AMSA Guidelines, IMO Resn A.382[XI], ISO-25862:2009

Unit 6	Compass adjustment—various procedures	L	T	P	C	Hrs
		2	1	2		4

Section F 4.0 hrs

Objectives:

Upon completion of the course, students should be able to:

6.1 Define 'Compass adjustment' and When /Why to do adjustment? Who may do adjustment?

6.2 Understand Basic requirements - preparing ship for--'swinging the ship' and getting deviation curve.

6.3 List down the names of different instruments and to identify through pictures of 'VERTICAL FORCE INSTRUMENT', DEVIASCOPE etc.

6.4 Know uses and significance of different methods of compass adjustment--i.e.- 'Tentative', 'Analysis', 'Directive-force' methods.

6.5 Know about alternate and advanced means of Direction finding INSTUMENTS—like Gyro/GPS compasses..

Reference materials-

1. 'Ship's Magnetic compass'—Capt. T.K, Joseph and Capt. SSS Rewari

2.https://www.amsa.gov.au/about/regulations-and-standards/192016-maintenance-and-adjustment-magnetic-compasses

SOLAS V_Reg19.pdf

A_X_Resolution_382.pdf

maintenance-and-adjustment-of-magnetic-compasses.pdf

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