

COURSE DETAILS			
COURSE CODE	:	NP 2052	
STATUS(COURSE TYPE)	:	Common Compulsory(BSc-NMS,BSc-NLM, BSc-NS)	
COURSE TITLE	:	ANTI SUBMARINE WARFARE	
CREDITS	:	2 Credits	
TIME DURATION	:	Theory	Total 30Hrs
LEARNING OUTCOMES	:		
<p>On successful completion of this module, trainee will gain knowledge on the history of Submarine Warfare, evolution, weapons, sensors, tactics and platforms basics of Submarine Warfare and mine warfare. Trainee will be competent to perform duties of ASWO.</p>			
<u>PERIOD</u>		<u>TOPIC</u>	
01-07		Underwater Acoustics. <ol style="list-style-type: none"> Characteristics of sound. Factors affecting sound velocity. Wilson's equation. Snell's Law. Basic sound velocity gradients. Deep Sea sound velocity profile. 	
08-12		General ASW. <ol style="list-style-type: none"> Aim of ASW. Task of ASW. Duties of ASWO. ASW Weapons, Sensors and platforms. Introduction of SONAR/Types of SONAR 	
13-20		Introductions to Submarines. <ol style="list-style-type: none"> History of S/M. Role/Employment of Submarine. Types of Submarine (Conventional/Nuclear/AIP) Advantages / Disadvantages of Conventional Vs Nuclear S/M. Construction /Operating States. Weapons and Sensors on board Submarine. Methods available to detect Submarine. 	
21-28		Introductions to Mine Warfare. <ol style="list-style-type: none"> What is Sea mine? 	

29-34	<ul style="list-style-type: none"> b. Classification of Sea mine as per position in water and methods of actuation. c. Types of Mine Layers/ Comparison of mine layers d. Mine Counter Measures. e. Mine hunting and Mine sweeping. <p>Port Defence</p> <ul style="list-style-type: none"> a. Importance of ports b. Port defense, detection methods, SWD & SWD Principles c. Threats & Defense against UW attack d. Operation 'Awkward' 					
35-40	<p>Introductions to Tactics</p> <ul style="list-style-type: none"> a. Datum b. SAU c. TDZ & TDA d. TCM e. Types of ASW attacks./Hunter killer ops 					
METHODS OF TRAINING AND LEARNING	:	Lectures, Readings, Listening, presentations, Models, Discussions, Films.				
ASSESSMENT CRITERIA	:	<table border="1"> <tr> <td data-bbox="857 1236 1268 1314">Semester – end examination</td> <td data-bbox="1268 1236 1385 1314">70%</td> </tr> <tr> <td data-bbox="857 1314 1268 1371">Assignment</td> <td data-bbox="1268 1314 1385 1371">30%</td> </tr> </table>	Semester – end examination	70%	Assignment	30%
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RECOMMENDED READING	:	<ul style="list-style-type: none"> Docket on General ASW School Docket Mine and Mine Counter Measures 				

