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GU/Acad –PG/BoS –B. Voc/2022/410 Date: 08.09.2022

CIRCULAR

The syllabus for Advance Diploma Security Management & Risk Assessment (SMRA) Programme offered at INS Mandovi, Verem Goa has been approved by the Vice Chancellor on behalf of the Academic Council for implementation from the Academic year 2022-2023 onwards.

The approved Semester I to IV Syllabus of the **Advance Diploma Security Management & Risk Assessment (SMRA)** Programme is attached.

The Dean/ Vice-Deans of the Goa Business School and Principal of INS Mandovi, Verem Goa are requested to take note of the above and bring the contents of the Circular to the notice of all concerned.

Digitally signed by DONALD AGNELO ERASMO RODRIGUES
Date: 2022.09.08 '14:53:48 +05'30

(Donald A. E. Rodrigues)
Joint Registrar – Academic

To,

1. The Dean, Goa Business School, Goa University.
2. The Vice-Deans, Goa Business School, Goa University.
3. The Principal, INS Mandovi, Verem Goa.

Copy to:

1. The Chairperson, Board of Studies in Skill Enhancement & Vocational Studies
2. The Controller of Examinations, Goa University.
3. The Assistant Registrar, UG/PG Examinations, Goa University.
4. Directorate of Internal Quality Assurance, Goa University for uploading the Syllabus on the University website.

Advance Diploma (Security Management and Risk Assessment)

Course Structure

NSQF Level 4: Certificate in Security Management and Risk Assessment (Semester I)

Job Role: Junior Diver Technician

Course Outcome: After successfully completing the courses of Semester-I, the students are expected to acquire the skills to be employable as Land and Underwater Security Breach Investigators and Enforcers.

NSQF Level / Semester	Course Code	Course Title		Course Credits	Contact Hours		Evaluation Scheme		
Level 4	**General Education**			**12**	**210**	**ISA**	**SEA**	**Practical**	**Total 275**
	SRTG-101	Amphibious phase	Theory	5	75	25	100		125
	SRTG-102	Special ops phase	Theory	5	75	25	100		125
	SRPG-103	Waterman ship phase	Outdoor Training-Lab	2	60			25	25
	{Skill Development Qualification Pack & On – Job - Training (OJT)}			**18**	**Contact Hours: 330**	**Total Marks 450**			
	SRTS-101	MARCOS Admin	Theory	3	45	75 Marks			
	SRTS-102	MCF Weapons phase	Theory	5	75	125 Marks			
	SRTS-103	Diving phase	Theory	6	90	150 Marls			
	SRPS-104	Hell week	Outdoor Training-Lab	3	90	75 Marks			
	SRPS-105	Tactical Exercise	Outdoor Training-Lab	1	30	25 Marks			

General Education: Credits: 12 Contact Hours: 210 and Marks: 275

Skill Development and On – Job - Training (OJT): Credits: 18, Contact Hours: 330 and Marks: 450

Total : Credits: 30, Total Hours: 540 and Marks: 725.

SEA for external evaluation will be an officer of the rank of Commander from an operational unit.

NSQF Level 5: Diploma in Security Management and Risk Assessment (Semester II):

Job Role: Senior Diver Technician

Course Outcome: After successfully completing the courses of Semester-II, the students are expected to acquire the skills to be employable as Underwater Demolition Experts and Dispatching of Personnel from Aircraft and Helicopters.

NSQF Level / Semester	Course Code	Course Title		Course Credits	Non-Contact Hours		Evaluation Scheme		
Level 5	**General Education**			**12**	**270**	**ISA**	**SEA**	**Practical**	**Total 300**
	SRTG-104	**Theory of Explosives and Effects**	Theory	4	60	20	80		100
	SRTG-105	**Communication skills**	Theory	2	30	10	40		50
	SRPG-106	**Weapon and Demolition handling in Urban and Jungle Counter Insurgency Areas**	Outdoor Training-Lab	6	180	30		120	150
	Skill Development {Qualification Pack & On Job Training}			**18**	**450**	**Total marks: 450**			
	SRTS-106	**Theory of parajumping and emplaning and deplaning from aircraft**	Theory	6	90	150 Marks			
	SRPS-107	**Underwater Diving and Maintenance**	Outdoor Training-Lab	6	180	150 Marks			
	SRPS-108	**Parajumping and Special Heli Borne Operations**	Outdoor Training-Lab	6	180	150 Marks			

General Education: Credits: 12, Non-contact Hours: 270 and Marks: 300

On Job Training: Credits: 18, Non-Contact Hours: 450 and Marks: 450

Total : Credits: 30, Total Hours: 720 and Marks: 750.

SEA for external evaluation will be an officer of the rank of Commander from an operational unit.

NSQF Level 6: Diploma in Security Management and Risk Assessment (Semester III):

Job Role: Deep Sea Security Supervisor

Job outcome: After successfully completing the courses of Semester-III, the students are expected to acquire the skills to be Experts in Determining Asymmetric Threats and Carry Out Field Trauma Medication and Handling of Snipers, Support Weapons and Explosives.

NSQF Level / Semester	Course Code	Course Title			Course Credits	Contact Hours		Evaluation Scheme		
	General Education				**12**	**180**	**ISA**	**SEA**	**Practical**	**Total 300**
	SRTG-201	Asymmetric Warfare, FTM and Special Equipment		Theory	5	75	25	100		125
	SRTG-202	Seamanship		Theory	2	30	10	40		50
	SRTG-203	Sniper Support Weapon and Demolition Expert		Theory	2	30	10	40		50
	SRTG-204	Escape Training		Theory	3	45	15	60		75
	Skill Development Qualification Pack & On – Job - Training (OJT)				**18**	**Non-Contact Hours: 360**	**Marks: 450**			
Level 6	**SRTS-201**	Weapon Theory		Theory	6	90	150 Marks			
	SRTS-202	Oxygen Diving Phase		Theory	6	90	150 Marks			
	SRPS-203	*Sniper and Surveillance*	*Electives (Student is to select any one of the subject)*	*Outdoor Training-Lab*	*6*	*180*	*150 Marks*			
	SRPS-204	*Support weapon*		*Outdoor Training-Lab*						
	SRPS-205	*Demolition*		*Outdoor Training-Lab*						

General Education: Credits: 12, Contact Hours: 180 and Marks: 300

On – Job - Training (OJT): Credits: 18, Non-Contact Hours: 360 and Marks: 450

Total : Credits: 30, Total Hours: 540 and Marks: 750.

SEA for external evaluation will be an officer of the rank of Commander from an operational unit.

NSQF Level 6: **Advance Diploma in Security Management and Risk Assessment (Semester IV)**

Job Role: Security Supervisor

Job Outcome: After successfully completing the courses of Semester-IV, the students are expected to acquire the skills to be able to Supervise Diving Operations, Detailed Planning of Covert Missions and Lead Small Team Missions.

NSQF Level / Semester	Course Code	Course Title		Course Credits	Contact Hours		Evaluation Scheme		
Level 6	**General Education**			**12**	**180**	**ISA**	**SEA**	**Practical**	**Total marks: 300**
	SRTG-205	Leadership Mission Planning Tactics and Demolition	Theory	5	75	25	100		125
	SRTG-206	Special equipment	Theory	2	30	10	40		50
	SRTG-207	Institute naval medicine capsule course	Theory	2	30	10	40		50
	SRTG-208	Environmental Studies	Theory	3	45	15	60		75
	Skill Development Qualification Pack & On – Job - Training (OJT)			**18**	**Non-Contact Hours: 450**	**Total Marks: 450**			
	SRTS-206	Table Top Exercises and Modelling of Missions	Theory	6	90	150 Marks			
	SRPS-207	Combat diving and RCC	Outdoor Training-Lab	6	180	150 Marks			
	SRPS-208	Diving supervision	Outdoor Training-Lab	6	180	150 Marks			

General Education: Credits:12, Contact Hours: 180 and Marks: 300

On Job Training: Credits:18, Non-Contact Hours: 450 and Marks: 450

Total: Credits: 30, Total Hours: 630 and Marks: 750

SEA for external evaluation will be an officer of the rank of Commander from an operational unit.

Syllabus of Semester I

Code	Subject	Credits	Hours
SRTG-101	Amphibious phase	5	75
Objectives	At the end of the subject, the student will have the competence to plan and carry out amphibious operations including pre assault ops, securing of amphibious beach head and diversionary operations to full fill MARCOS charter of duties. This would include but not be limited to the following:- 1. To apply knowledge of land and marine navigation in amphibious operations. 2. To apply SF (Special Forces) communication skills. 3. To describe various survival techniques for land, sea, marshy and coastal regions and apply them on ground. 4. To carry out CBR (Combat Beach Reconnaissance) and OTB (Over The Beach) ops. 5. To be proficient in raid ambush during ops, E & E (Escape and Evasion), Intelligence gathering 6. To conduct ex-Amphex (Amphibious Exercise) efficiently. 7. To be proficient in handling CQB (Close Quarter Battle) weapons. The student would demonstrate the ability to navigate both on land and marine environments in various real life situations within the institution itself.		

Contents	**Unit 1: GPS:15 Hours** Map reading and handling of maps Handling of GPS (Global Positioning System) and compass Reading and recognition of geo features Preparation of day/ night march charts Astro navigation, land navigation, marine navigation Use of gilly suits and paints **Unit 2: Communication: 15 Hours** RT (Radio Telephony) procedures Handing of GP-338/ LUP 329/ PRC-6020 Land and jungle/ marshy/ sea survival techniques Camouflage and concealment of individual weapons and equipment Cache techniques and passing of cache reports ISR (Intelligence Surveillance Reconnaissance) techniques **Unit 3: Ambush: 15 hours** Preparation of various traps Capabilities and limitations of CBR in amphibious ops Concept of raid and types Mission planning and target analysis Planning and setup of ambush Techniques of escape and evasion Techniques of intelligence gathering
Pedagogy	The objectives will be met through theory classes as well as practical, both in-house and outdoor real time exercises
Reference Books	1. Map reading by Robert B Matkin (Published in March 1997) 2. Effective map reading by Xavier Pinto (Published in Jan 2020) 3. Manuals of the corresponding radio sets (Confidential) 4. Handouts/ dockets for CBR/ ISR/ Cache (Confidential) 5. Evasive wilderness survival techniques by Sam Fury (Published in Apr 20) 6. SAS survival guide by John Lofty Wiseman (Published in1986) 7. Bushcraft 101 by Dave Canterbury (Published in 2014)
Learning Outcomes	1. The student will be able to use the natural features of land and terrain to find his own position. 2. The student will be able to handle communication equipment's used in special operations efficiently.

Code	**Subject**	**Credits**	**Hours**
SRTG-102	Special Ops Phase	5	75
Objective	To conduct the evolutions which are parts of special operations of MARCOS as per laid down charter of duties to conduct independent combined special operations in area of national interest. This would include but not be limited to the following:- 1. To be proficient in special heli borne operations. 2. To be proficient in build up ops and CT (Counter Terrorism) scenario. 3. To attain basic knowledge of preparation and handling of demolition charges/ booby traps/ IEDs (Improvised Explosive Devices). 4. To be proficient in maritime intervention and offshore intervention. 5. To be proficient in SBS (Special Boat Section) ops. 6. To be proficient in mission planning. 7. To be proficient in use of special equipment.		
Content	**Unit 1: Slithering : 25 Hours**		
	Slithering/ abseiling practicals (both with and without weight) in day and night Low hover jump/ pickup, STIE(Small Team Insertion and Extraction), CDO (Commando) ladder recovery, AIZC (Auto Inflatable Zodiac Craft) Rock climbing		
	Unit 2: TCCC: 15 Hours		
	Donning procedure of assault gear, correct body posture/ movement while firing in CQB Use of throwbot camera and fiberscope TCCC (Tactical Combat Casualty Care)/ CASEVAC (Casualty Evacuation) during live firing		
	Unit 3: CQB: 15 hours		
	Two and four men entry, simunation and live firing inside kill house Familiarization of dynamic entry tools Use of hand and stun grenades, hostage rescue and prisoner		

	handling drills Types of breaching charges, basic insight of IEDS
	Unit 4: MIO: 20 hours
	Introduction of MIO (Martitime Interdiction Operation) and types of MIO, types of VBSS (Visit Board Search and Seizure) Hot insertion and extraction, helo snipping SBS procedure from all class of submarines, dry and wet shod Handling operating and maintenance of special equipment's
Pedagogy	The syllabus would be covered class room instructions, video analysis and practical's on live platforms.
Reference Books	1. Manuals of special heli borne operations (Confidential) 2. Manuals of maritime interdictions operations (Confidential) 3. Manuals of SOR handling (Confidential) 4. Manuals of SBS operations (Confidential)
Learning Outcomes	1. The student will be able to conduct and perform special heli borne operations. 2. The student will be able to basic demolition charges for CQB scenarios. 3. The student will be able to plan missions for MIO and SBS operations.

Code	**Subject**	**Credits**	**Hours**
SRPG-103	Watermanship (outdoor training)	2	60
Objective	To conduct the waterborne activities to combat terrorism in a maritime environment and to support amphibious operation. This would include but not be limited to the following: - 1. Operation of OBM (Out Board Motor)/ CRRC (Combat Rubber Rigid Craft) and impart training on maintenance 2. Medical contingencies during waterborne activities		
Content	**Unit 1: CRRC: 15 Hours**		
	CRRC Parts & its assembling & dissembling and repair of craft. Rigging of CRRC.		
	Unit 2: Saving Drills: 15 hours		

	Different types of Life Saving Drills. CRRC Capsizing and overturn drills.
	Unit 3: Poratge Drills: 15 hours
	Portage, Righting & Paddling. Propulsion system, Power system, Cooling system, Fuel system, Mechanical system.
	Unit 4: OBM: 15 Hours
	Comparison of features of OBM's of Yamaha & Mariners of 30/40/55 HP Routine/Post routine of OBM, problem rectification on operator level.
Pedagogy	The course would be conducted both on the site for practical learning of the subject and better appreciation and in water for other activities.
Reference Books	Manuals of CRRC (Confidential) Manuals of OBMs (Confidential)
Learning Outcomes	1. The student will be able to rig and maintain the CRRCs. 2. The student will be able to maintain and operate OBMs.

Code	**Subject**	**Credits**	**Hours**
SRTS-101	Marcos Administration	3	45
Objective	To make the trainee aware of organization structure of various Marcos Ops unit, Command and IHQ (Integrated Headquarters) level.		
Content	**Unit 1: organization of karna: 15 hours** Organization at Abhimanyu, Karna, Marcos(PB) Marcos organization at Command HQ and IHQ **Unit 2: Gulf of Aden : 15 hours** Lecture on Gulf of Aden Patrol (one case study) Lecture on J& K deployment (one case study)		

	Unit 3: creek deployment: 15 hours Lecture on Creek deployment lecture on core values of Indian Navy
Pedagogy	The course would be conducted in classroom using PowerPoint presentations and smart boards.
Reference books	Handouts of Marcos Administration (Confidential)
Learning Outcomes	1. The student will be able to understand the organizational structure and hierarchy of MARCOS. 2. The student will be able to appreciate the requirements of creek deployments and CI (Counter Insurgency) /CT (Counter Terrorism) operations in J&K.

Code	**Subject**	**Credits**	**Hours**
SRTS-102	MCF weapons phase	5	75
Objective	At the end of the subject, the student will have competence in theoretical as well as the practical aspects of all MCF weapons. This would include but not be limited to the following:- 1. To achieve proficiency in weapon handling and firing 2. To achieve proficiency in demolition.		
Content	**Unit 1: Bullet theory: 15 hours** Basic knowledge of projectile and basic structure of cartridge and bullet **Unit 2: Handling weapons: 15 hours** Handling, operation zeroing and maintenance of AK series, Tavor, LMG, MMG, Negav, RL, AGS-30 **Unit 3: Firing of MCF weapons: 15 hours** Firing of MCF assault weapons in day and night, Type of explosives, military detonators, safety fuses **Unit 3: Igniters: 15 hours**		

	igniters, primers, Preparation of various circuits, priming/ fitting of charges **Unit 4: Claymore Mines: 15 Hours** Introduction to claymore mines, DRFD (Distance Remote Firing Device), FLSC (Flexible Linear Shape Charge), shaped charges, Misfire drills.
Pedagogy	The syllabus would be covered in class with videos of weapons and their functioning while the practical aspects (firing and maintenance would be covered in firing ranges)
Reference Books	1. Manuals of various weapons (Confidential) 2. Manuals of explosive handling (Confidential)
Learning Outcomes	1. The student will be able to handle different types of MARCOS weapons and conduct independent firing safely. 2. The student will be able to conduct demolition and prepare charges.

ode	**Subject**	**Credits**	**Hours**
SRTS-103	Diving phase	6	90
Objective	At the end of the course the student will be able to achieve proficiency in diving in Divator 324. This would include but not be limited to:- 1. Spot diving both in day and dark hours 2. Underwater sea bed searches 3. Underwater hull inspection and maintenance 4. Combat diving using OX 10 set		
Content	**Unit 1: Divator: 15 hours** Use of Divator 324 Maintenance of Divator 324 **Unit 2: Seabed searches: 15 hours** Planning of seabed searches		

	Undertaking seabed searches in nil visibility. **Unit 3: Underwater jobs: 15 hours** Undertaking underwater jobs in tank and in channel Undertaking underwater hull maintenance and inspection **Unit 4: ox- 10 : 15 hours** Use of ox-10 set Maintenance of ox-10 **Unit 5: Combat diving: 15 hours** Combat diving in ox-10 set both in day and dark hours **Unit 6: Operation of RCC: 15 hours** Familiarization with the operation of RCC (Recompression Chamber)
Pedagogy	Classroom instructions on the maintenance of Divator 324 and OX-10 set. Diving in tank/ swimming pool/ channel.
Reference Books	BR 2806 (Confidential) Manual of Divator 324 (Confidential) Manual of OX-10 (Confidential)
Learning Outcomes	1. The student will be able to use and maintain the Divator 324. 2. The student will be able to plan seabed searches. 3. The student will be able to carry out underwater hull inspection of the ships in harbor. 4. The student will be able to carry combat diving operations using Ox-10 set.

Code	Subject	Credits	Hours
SRPS-104	Hell week (outdoor training)	3	90

Objective	To test the requisite physical and mental attributes of MARCOS to conduct the clandestine attack against enemy ships, offshore installation and other vital assets behind enemy lines.
Content	**Unit 1: Fining and Swimming : 15 hours** Combat Fin & Free swimming Floating **Unit 2: Long run : 15 hours** Long Run Weight Run **Unit 3: Field craft : 15 hours** Field Craft PPET (Personal Physical Efficiency Test) BOC (Battle Obstacle Course) **Unit 4: CRRC portage : 15 hours** CRRC portage & paddling Competition in CRRC portage, paddling , assembling & dissembling **Unit 5: Tent pitching : 15 hours** Tent Pitching **Unit 6: Casualty evacuation : 15 hours** Stretcher making & causality carrying technique.
Pedagogy	The course would be conducted both on land and in water for the better assessment of the trainees.
Reference Books	Manuals of physical training (Confidential)
Learning Outcomes	The student will be able to test and gain confidence for required to undertake clandestine attacks under extreme stress.

Code	**Subject**	**Credits**	**Hours**
SRPS-105	Tactical Exercise (outdoor training)	1	30
Objective	To assess the trainees in their various skills learned by them during the course in special ops phase		
Contents	**Unit 1: launch of Gemini : 15 hours** Launch/ Insertion/Infiltration by SOR (Special Operations RHIB) /Gemini Conduct of OTB/CBR on hostile beach Creek Navigation Cache of equipment & passing of Cache Report Land navigation **Unit 2: ISR and Hideout : 15 hours** Set up of Commando Base and Hide out Management. ISR of target area Movement to target area Vehicle Ambush Action while counter ambush. Execution of Raid. Escape and Evasion(E & E)		
Pedagogy	The course would be conducted on basis of real time scenarios and situations.		
Reference Books	Manuals of Special Operations (Confidential) Manuals of Mission Planning (Confidential)		
Learning Outcomes	1. The student will be able to apply the different facets of training in one exercise. 2. The student will be able to operate as a team for the successful completion of the mission.		

Syllabus of Semester II

Code	Subject	Credits	Hours
SRTG-104	Theory of explosives and effects	4	60
Objective	At the end of the course the student will be able to explain the process of detonation of explosives, different types of explosives and their effects, explosives made out of common materials. This would include but not be limited to: - 1. Introduction of common materials to be used explosives. 2. Different types of detonators. 3. Safety distances for different explosives. 4. Integration of explosives in covert missions.		
Content	**Unit 1: Theory of demolition: 15 hours** Theory of demolition and safety precautions. **Unit 2: Directional explosives: 15 hours** Use of directional explosives. **Unit 3: Supervision of demolition: 15 hours** Prepare supervise demolition charges and their uses. **Unit 4: Calculation of charges : 15 hours** Calculation of requirement of demolition charges for surface demolition. Design of limpet mines and other underwater explosives		
Pedagogy	On site instructions on the preparation of charges and studying their effects, identifying different materials for use as explosives, explosives and their safety distances and practical effects.		
Reference Books	• Manuals of different explosives (Confidential) • Naval manual for explosives handling. (Confidential)		

Learning Outcomes	• The student will be able to find common materials for use as explosives in different scenarios. • The student will be to use different demolition techniques in covert operations for maximum destructive effects.

Code	**Subject**	**Credits**	**Hours**
SRTG-105	Communication skills	2	30
Objective	To achieve successful receivers' role in communication through input of hearing		
Content	**Unit 1: Listening basics: 10 hours** Introduction, Types of Listening. Traits Of Good Listener: Being Non-Evaluate, Paraphrasing, Reflecting Hidden Feelings, Inviting Further, Contributions, Responding Non-Verbally, Exercises **Unit 2: Barriers to Communication-I: organizational : 8 hours** Definition Of Noise, What Is Noise, Classification of Barriers, Information Overload, Exercises **Unit 3: Barriers to Communication-II: human : 7 hours** Intrapersonal Barriers: Wrong Assumptions, Varied Perceptions, Differing Backgrounds, Wrong Inferences, Impervious Categories, Categorical Thinking. Interpersonal Barriers: Limited Vocabulary, Incongruity of Verbal, And Nonverbal Messages, Emotional Outburst, Communication Selectivity, Cultural Variations, Poor Listening Skills, Noise in The Channel, Exercises **Unit 4: Effective Listening: 5 hours** Active Versus Passive Listening: Paying Attention, Dealing with Distractions, Implications of Effective Listening, Exercises		

Pedagogy	Lectures/Tutorial/Assignments/ Practice Sessions
Reference Books	• Technical-Communication-Principles-And-Practice: Meenakshi Raman, Sangeeta Sharma Oxford-University-Press-2004 (Published in 1960) • The Zen of Listening- Mindful Communication in the Age of Distraction : Rebecca Z.Shafir (Published in 2000) • Powerful Listening. Powerful Influence - Work Better. Live Better. Love Better: Tim Hast (Published in Oct 2013) • The Five Keys to Mindful Communication- Using Deep Listening and Mindful Speech to Strengthen Relationships, Heal Conflicts, and Accomplish Your Goals: Susan Gillis Chapman (Published in Apr 2012) • Power Listening- Mastering the Most Critical Business Skill of All: Bernard T Ferrari (Published in Mar 2012) • The Compassionate Connection-The Healing Power of Empathy and Mindful Listening : David Rake (Published in Apr 2018) **The Dynamics of Effective Listening: Tony Alessandra** (Published in 2010)
Learning Outcomes	• Challenges of Listening effectively and efficiently in workplaces will be overcome; since real-life example and strategies oriented to practical scenario are given

Code	**Subject**	**Credits**	**Hours**
SRPG-106	Weapon and Demolition handling in Urban and Jungle during Counter Insurgency scenarios. (outdoor training)	6	180
Objective	At the end of the course the student will be able to plan and operate in counter insurgency scenarios. This would include but not be limited to: - 1. Handling of different weapons in covert missions. 2. Effective use of explosives for demolition of strategic targets. 3. Practical exposure to urban and jungle scenarios during Live Situational Training.		
Content	**Unit 1: Firing of weapons** Firing of weapons and conduct of firing exercises. **Unit 2: Supervision of demolition**		

	Supervision of demotion range and conduct of demolition firing. **Unit 3: Counter insurgency operations** Live exposure in counter insurgency areas and other similar scenarios.
Pedagogy	On job instructions and practical training on effective use of weapons and demolition charges for the accomplishment of the mission.
Reference Books	• Mission planning manual. (Confidential) • Manual of weapons. (Confidential) • Demolition dockets. (Confidential)
Learning Outcomes	• The student will be able to appreciate the situation and select the best weapons and demolition charges for the mission. • The student will be able operate in counter insurgency scenarios.

Code	**Subject**	**Credits**	**Hours**
SRTS-106	Theory of Para jumping and emplaning and deplaning from different aircrafts.	6	90
Objective	At the end of the course the student will be able to distinguish different types of aircraft and their jumping procedures at different heights. This would include but not be limited to: - 1. Introduction to different types of aircraft. 2. The theory of Para jumping 3. Introduction of different types of parachutes. 4. Safe landing procedures		
Content	**Unit 1: Introduction of parajumps: 15 hours** History of Para jumping. **Unit 2: Operations related to parajumps : 15 hours** Operations in which Para jumping of troops have had successful results. **Unit 3: Introductions to aircrafts : 15 hours**		

	Aircrafts from which Para jumps in conducted in India. Introduction of various tools which can be used to simulate different landing positions. **Unit 4: Introduction of parachutes : 15 hours** Practical demonstration of different parachutes and the peculiarities. **Unit 5: Emplaning and Deplaning procedures : 15 hours** Emplaning and deplaning procedures used in different aircrafts **Unit 6: Emergencies : 15 hours** Emergencies which can occur in air and their remedies.
Pedagogy	On site instructions and practical training on embarkation of troops in an aircraft and taking positions in for jumps. Practical exposure to handle emergencies.
Reference Books	• Dockets for SHBO (Special Heliborne Operations) and Para jumping. (Confidential) • Manual of aircrafts. (Confidential)
Learning Outcomes	• The student will be able to identify different aircrafts. • The student will be able carry out Para jumps safely and without injuries. • The student will be able to carry out loaded jumps.

Code	**Subject**	**Credits**	**Hours**
SRPS-107	Underwater Diving and Maintenance (Lab- outdoor training)	6	180
Objective	At the end of the course the student will be able to inspect ships hull and do underwater photography and undertake basic maintenance of diving sets. This would include but not be limited to: - 1. Diving under ship's hull both in day and dark hours. 2. Basic pre and post sailing checks of the ships.		

	3. Operating underwater videography camera for inspection 4. Carrying out Spiromatic tests on divator-324.
Content	**Unit 1: Structure of ships** Basic structure of ships underwater hull and it's appreciation in nil visibility. **Unit 2: Removal Of Obstructions and blanking** Removal of nets, wires and other obstructions from the ships propellers. Blanking of outlets in ship's hull **Unit 3: Maintenance of Divator** Maintenance of Divator-324 Practical experience of conducting Spiromatic tests on Divator-324
Pedagogy	On job instructions on the maintenance of Divator 324 and diving in harbors and at sea. Diving in harbor/ channel/ sea.
Reference Books	• BR 2806 (Confidential) • Manual of Divator 324 (Confidential)
Learning Outcomes	• The student will be able to use and maintain the Divator 324. • The student will be able to inspect ships hull.

Code	**Subject**	**Credits**	**Hours**
SRPS-108	Para jumping and Special Heli Borne Operations	6	180

Objective	At the end of the course the student will be able Para jump from air force and naval aircrafts and helicopters and undertake Special Heli Borne Operations. This would include but not be limited to: - 1. Para jumping over both sea and land. 2. Slithering, Abseiling and Rappelling from helicopters. 3. AIZC and Helocasting operations.
Content	**Unit 1: Introduction Of Helicopters** Exposure to different types of helicopters and fixed wing aircraft (SKG, C-130, UH3H etc.). **Unit 2: Supervision And Dispatching** Supervision and dispatching of personnel from Helos and aircraft during Para jumps both on land and in water.
Pedagogy	On job instructions and practical training on special Heliborne operations and Para jumps from aircrafts.
Reference Books	• Mission planning manual. (Confidential) • Manual of Indian aircrafts. (Confidential) • Dockets on Special Heliborne Operations. (Confidential)
Learning Outcomes	• The student will be able to supervise conduct of operations involving movement of troops through helicopters and aircraft.

Syllabus for Semester III

Code	Subject	Credits	Hours
SRTG-201	Asymmetric warfare, FTM (Field Trauma Management) and special equipment	5	75
The subject would be covered under three heads 1.Asymmetric warfare 2.FTM 3.Special equipment			
Asymmetric warfare			

Objective	At the end of the course, the students would have competence in understanding and countering asymmetric threats This would include but not be limited to the following:- 1. To understand prevalent security scenario in country and in neighborhood. 2. Plan and conduct of special ops 3. Audit of ships and establishments for security readiness. 4. Passage and survival in marine environment 5. Plan and conduct MIO and CBR ops
Content	**Unit 1: Introduction Of Indian NeighborHood: 05 Hours** Immediate neighborhood of both western and eastern sea board, **Unit 2 : Terrorism : 05 hours** Terrorism and types of terrorism **Unit 3 : Conduct Of Offensive Operations : 05 hours** Planning and conduct of water borne offensive/ defensive ops including SOR, Action in case of terrorist attack of naval installations **Unit 4 : Security Setup : 05 Hours** Understand the security setup of base, Identify lacunae with deliberations on VA (Vulnerable Assets)/ VPs (Vulnerable Points). Mission planning of CBR ops/ procedure.
Pedagogy	Case Studies, Presentations And Practical's In Outdoor Real Time Scenarios.
Reference Books	1. Manuals of Asymmetric Warfare (Confidential)
Learning Outcomes	1.The student will be able to estimate the security threats within the country and in the immediate neighborhood. 2. The student will be able to do through planning for the conduct of special operations. 3. The student will be able to guide the team through the marine environment (rivers, creeks, open sea).

Field Trauma Management

Objective	At the end of the course, the students would have honed the skills in field trauma management. This would include but not be limited to the following:- 1. To impart training in FTM 2. To understand first aid management of medical and surgical emergencies.
Content	**Unit 1: Cardiac Arrests: 05 Hours** Cardiac malfunctions **Unit 2: Snakebites: 05 Hours** Snakebite Hemorrhage and method of control **Unit 3: Fracture : 05 Hours** Fracture and dressing **Unit 4: Gunshot Wounds: 10 Hours** Gunshot wound Blast injuries **Unit 5: Burns And Scalds: 05 Hours** Burns and scalds Carrying of casualty and casualty evacuation
Pedagogy	Practical and demonstrations on mannequins, presentations and lectures by the medical staff.
Reference books	1. Manuals of FTM (Confidential)
Learning outcomes	1. The student will be able to perform the basic first aid in case of emergencies. 2. The student will be able to perform the basic cleaning of wounds in the absence of medical experts. 3. The student will be able to identify the snake and provide first aid 4. The student will be able to dress the fracture both internal and external and immobilize the same using available resources.
Special Equipment	
Objectives	At the end of the course the student will be able to attain proficiency in operations of special equipment.

Content	**Unit 1: Night Vision Devices: 10 Hours** Operating principles and handling of all night visions **Unit 2: Equipment For MIO : 05 Hours** Operating principles and handling of equipment's used in MIO **Unit 3: Special Equipment for CQB: 10 Hours** Operation and handling of special equipment's used in CQB.
Pedagogy	The syllabus would be covered class room instructions, video analysis and practicals in MC store.
Reference Books	User/ Maintainer Manuals of various special equipment's (Confidential)
Learning Outcomes	1. The student will be able to differentiate the types of night visions and use them efficiently in operations and exercises. 2. The student will be able to operate the MIO equipment and the safety aspects related to it.

Code	**Subject**	**Credits**	**Hours**
SRTG-202	Seamanship	2	30
Objective	At the end of the course the student will have the proficiency in seamanship evolutions gears and other requirements. This would include but not be limited to:- 1. Knowledge of ropes blocks knots tackles rigging fittings danbouys and jackstays. 2. Knowledge about boats construction davits stowage RDG sea boats and boat bags 3. Knowledge about anchor cables and procedure for letting go anchor/ mooring/ towing and securing procedure 4. Knowledge about the duties in NBC (Nuclear Biological Chemical)/ damage control and firefighting organization. 5. Knowledge about corrosion and precautions while painting.		

Content	**Unit 1: Rope Work: 10 Hours** Advance rope work bends hitches knots splice whipping and their application Seamanship gears and their applications Seamanship evolutions (jackstays/ fueling etc) **Unit 2: Boats : 10 Hours** Types and class of boats Stowage of boats Safety precautions while operating davits Types of berthing hawsers and preparation for berthing Sea boat/ boat gears/ reporting procedure from sea boat Procedure for anchor letting go **Unit 3: Fire And NBC Warfare: 10 Hours** Types of mooring and gears Chemistry of fire and types of fire NBC warfare and effects Types of corrosion and preventive measures Methods of surface preparation for painting and precautions
Pedagogy	The course would be conducted both on the site for practical learning of the subject and in classrooms for theory part.
Reference Books	BR 67 (Confidential)
Learning Outcomes	1. The student will be able to apply the knowledge of rigging and tying of knots in practical applications onboard ships and in various seamanship evolutions. 2. The student will be able to operate davits and lower boats. 3. The student will be able to let go the anchor.

Code	**Subject**	**Credits**	**Hours**
SRTG-203	Sniper support weapon and demolition expert	2	30
Support weapon			

Objective	The student at the end of this course would be able to gain proficiency in handling support weapons and firing. This would also include but not be limited to:- 1. Proficiency in support weapon handling and firing 2. Proficiency in firing of area/ support weapons 3. Proficiency in tactical employability of support weapons
Contents	**Unit 1: Firing Orders: 3 Hours** Firing orders **Unit 2: LMG/ MMG/ RL: 3 Hours** Operation and handling of LMG/ MMG/ Negav, 84mm RL **Unit 3: Mortar/ Ubgl: 4 Hours** Operation and handling and of 84mm RL/ 51mm mortar/ UBGL/ AGS/ VOG 17 and VOG 30
Pedagogy	The instructions will be imparted in armory regarding the maintenance of weapons and the firing of weapons and tactical employability will be done in weapon firing range.
Reference Books	Manuals of support weapons (Confidential)
Learning Outcomes	1. The student will be able to conduct firing safely using proper firing orders. 2. The student will be able to handle and fire weapons effectively.
Sniper Weapons	
Objective	The student at the end of this course would be able to gain proficiency in handling sniper weapons . This would also include but not be limited to:- 1. Thorough knowledge of sniper weapon 2. Effects of weather 3. Surveillance and observation technique 4. Tactical employment in various operations

Content	**Unit 1: Characteristics Of Sniper : 03 Hours** Characteristics of sniper rifle, zeroing of sniper rifle Effect of light, temp, humidity, wind classification and lead setting **Unit 2: Surveillance Techniques: 03 Hours** Technique and calculation of lead/ range estimation Surveillance techniques **Unit 3: Uses Of Sniper In VBSS: 04 Hours** Various equipment's used in surveillance tasks, Significance of sniper during VBSS Sentry silencing with assault team during raid
Pedagogy	The instructions regarding the weapon maintenance will be imparted in the armory and the demonstration of the firing of sniper weapon and the tactical employability will be done in the firing range.
Reference Books	Manuals of sniper weapons (Confidential)
Learning Outcomes	1. The student will be able to maintain the sniper rifles. 2. The student will be able to tactically employ the snipers.
Advanced Demolition	
Objective	The student at the end of the course would be able to hone his skills in advanced demolition and IEDs. This would include but not be limited to:- 1. Knowledge of techniques of demolition 2. Knowledge of handling of demolition 3. Demolition accessories 4. Knowledge of shape charge and preparation setting up of charges 5. Knowledge of U/W (Under Water) demolition 6. Knowledge of preparation of IEDs/ booby traps 7. Proficiency in use of mines 8. Proficiency in study of special ops targets in conjunction with demolition
Contents	**Unit 1: Cutting Charges: 03 Hours** Cutting charge and its calculation Advance steel cutting charge techniques and calculation Placement and methods of initiation

	Unit 2: Underwater Demolition : 03 Hours Knowledge of equipment and material used in U/W demolition **Unit 3: IEDs And Mines: 04 Hours** Introduction to IEDs Preparation and setting up of various IEDs, limpet mines Demolition of offshore structure/ pipelines, demolition of coastal batteries, scuttling of ships
Pedagogy	The instructions on the different types of charges and explosives will be provided through PowerPoint presentations and the practical demonstration of the same will be done on the demolition range.
Reference Books	Manuals of demolition (Confidential) Manuals of explosives (Confidential) Manuals of IEDs (Confidential) Manuals of mines (Confidential)
Learning Outcomes	1. The student will be able to conduct the demolition safely and with proper orders. 2. The student will be able to prepare charges and effectively use them in different scenarios.

Code	**Subject**	**Credits**	**Hours**
SRTG-204	Escape Training	3	45
Objective	At the end of the course the student will be able to escape through the torpedo tube of a submarine and maintain the diving sets and suits required for the same. This would include but not be limited to the following:- 1. Trained in preparation and maintenance of ISP 60 2. Trained in basin exercises 3. Trained about the conduct, procedures and techniques of escape at various depth in escape tower 4. Thoroughly trained about various escape exercises through TT (Torpedo Tube) 5. Trained about the escape and surfacing drills/ exercises in SEIE Mk 11 escape suit. 6. Construction of a submarine 7. Various escape fittings onboard submarines.		

Content	**Unit 1: Introduction To ISP 60: 15 Hours** Construction and maintenance of ISP 60 Lecture on medical illness related to diving Water entry techniques and moving at the bottom of the diving basin **Unit 2: Introduction To Escape Tower: 15 Hours** Construction of escape tower layout of waterline/ air pipelines and their controls Escape from 11m/ 18m/ 30m in escape tower by free ascent Construction of TT escape system Escape through TT both under pressure and flooded **Unit 3: Introduction To SEIE Mk 11 Escape Suit: 15 Hours** Main features of SEIE Mk 11 escape suit Rush escape and trunk escape from a depth of 10m using SEIE Mk 11. Construction of torpedo tube conning tower and other escape arrangements on board submarines.
Pedagogy	The course would be conducted both on the site for practical learning of the subject and better appreciation and in dummy TT and actual TT in submarines.
Reference Books	Manuals of ISP-60 (Confidential) Manuals of SEIE Mk 11 (Confidential)
Learning Outcomes	1. The student will be able to don and maintain ISP 60. 2. The student will be able to conduct diving operations in ISP 60. 3. The student will be able to escape through the TT both wet and dry using ISP 60. 4. The student will be able to don and maintain SEIE Mk 11.

Code	**Subject**	**Credits**	**Hours**
SRTS-201	Weapon Theory	6	90
Objective	At the end of the course the student will be able to understand the working principles of weapons. This would include but not be limited to: - 1. Different makes of weapons. 2. Appreciation of materials for weapon construction. 3. Different moving parts in weapons and their uses. 4. Working of safety features		
Content	**Unit 1: Principle Working Of Weapons: 15 Hours** Working principles of automatic, semiautomatic weapons. **Unit 2: Bullets And Their Construction : 20 Hours** Construction of different bullets used in warfare. **Unit 3: Effect Of Caliber On Human Body: 20 Hours** Practical effects of different caliber of bullets on the victim. **Unit 4: Construction Of Barrels: 20 Hours** Construction of barrels and their effect on bullet trajectories. **Unit 5: Safety Features Of Weapons: 15 Hours** Working of safeties on the weapons.		
Pedagogy	• On site instructions on weapons and practical demonstration on their construction. • Cutouts of bullets and barrels for better appreciation. • Videos of working of different weapons.		
Reference Books	• Snipers docket. (Confidential) • Area weapons docket. (Confidential) • Assault weapons docket. (Confidential)		
Learning Outcomes	• The student will be able to differentiate in the use of weapons and select the best for the missions.		

Code	**Subject**	**Credits**	**Hours**
SRTS-202	Oxygen diving phase	6	90

Objective	At the end of the course the student will be able to carry out clandestine attacks on enemy ships and offshore installations and lightly defended coastal targets using oxygen in closed circuit diving apparatus. This would include but not be limited to the following:- 1. Knowledge of diving theories applicable to clandestine attacks 2. Knowledge of diving regulations applicable to oxygen diving tasks 3. Diving using oxygen in closed diving apparatus 4. Clandestine diving operations using closed circuit oxygen set up to 10m 5. Carry dummy limpet mines on enemy ships and offshore installations
Content	**Unit 1: Combat Diving: 15 Hours** History of combat diving Different laws related to diving **Unit 2: Safety Regulations Of Diving: 15 Hours** Safety regulations related to combat diving Periodical testing of oxygen related diving equipment Limits of impurities in breathing gases **Unit 3: Operation Of Ox-10: 15 Hours** Operation of OX 10 sets Diving using DHNS **Unit 4: Canoe And Combat Craft: 15 Hours** Rigging of canoe Handling of combat craft in various conditions of sea **Unit 5: Attack Using Limpet Mines: 15 Hours** Carrying procedure of limpet mines and emergencies in clandestine attack **Unit 6: Night Diving Operations: 15 Hours** Precautions while carrying out night operations and hazardous diving Practical's in clandestine diving drills

Pedagogy	The course would be conducted both on the site for practical learning of the subject and better appreciation and in water for other activities.
Reference Books	BR 2806 (Confidential) Manuals of OX-10 (Confidential)
Learning Outcomes	1. The student will be able to conduct diving operations using closed circuit diving sets. 2. The student will be able to conduct clandestine attacks on enemy ships in harbor and at sea.

Electives Syllabus for Semester-III for On Job Training (OJT)

Code	Subject	Credits	Hours
SRPS-203	Sniper and surveillance	6	180
Objective	At the end of the course the student will be able to practically apply the sniper training in operations. This would include but not be limited to: - 1. Sniper firing day and night/ low visibility. 2. Sniper firing from helo over land and in water. 3. Practical exposure for firing in live situational training.		
Content	**Unit 1: Sniper Theory** Application of sniper theory. Bullet theory and ballistics application. Practical application of camouflage and concealment in sniper and spotter placement. **Unit 2: Helo Sniping** Placement of spider gear in different types of helo Helo sniping at sea and over land on fixed and moving targets. Use of snipers in counter insurgency operations.		
Pedagogy	• On job instructions and practical training on sniper weapon handling and maintenance. • Instructions on helo sniping with exposure to appendages to fix spider gear on the helo.		

Reference Books	• Sniper manuals. (Confidential) • Helo sniping dockets. (Confidential) • Sniper docket (Confidential)
Learning Outcomes	• The student will be able to supervise conduct firing of sniper weapons and maintain safety over range, ascertain the correct target and weight of fire.

Code	**Subject**	**Credits**	**Hours**
SRPS-204	Support Weapon	6	180
Objective	At the end of the course the student will be able to practically apply the support weapon training in operations. This would include but not be limited to: - 1. Support weapon firing during day and night/ low visibility. 2. Support weapon firing from SOR over SIT targets at sea. 3. Practical exposure for firing in live situational training.		
Content	**Unit 1: Support Weapon Theory** Application of support weapon theory. Bullet theory and ballistics application. Practical application of placement of support weapon on vantage points to effect clear and effective fire. Maintenance of support weapons. **Unit 2: Firing Of Weapons From SOR** Firing at sea from SOR on fixed and moving targets. Use of support weapons in counter insurgency operations.		
Pedagogy	• On job instructions and practical training on support weapon handling and maintenance. • Instructions on SOR with exposure to appendages to fix weapon on the SOR.		
Reference Books	• Weapon manuals. (Confidential) • SOR operating manual. (Confidential) • Support weapon docket (Confidential)		
Learning Outcomes	• The student will be able to supervise conduct firing of support weapons and maintain safety over range, ascertain the correct target and weight of fire.		

Code	**Subject**	**Credits**	**Hours**
SRPS-205	Demolition	6	180
Objective	At the end of the course the student will be able to practically apply the concept of explosive handling and formation of circuits. This would include but not be limited to: - 1. Understanding of explosives. 2. Safety over range and handling of explosives. 3. Practical exposure of using explosives in live situational training.		
Content	**Unit 1: Initiation Train Theory** Application of initiation train theory. Identifying different types of explosives and their safe handling. **Unit 2: Application Of Explosives** Practical application of placement of explosives on door and other strategic places for placing of booby traps. Handling of detonators. Underwater demolition and placement of mines on ship sides. Use of explosives in counter insurgency operations.		
Pedagogy	• On job instructions and practical training on explosives handling and stowage. • Instructions on formation of circuits to use explosives in different scenarios.		
Reference Books	• Explosives manuals. (Confidential) • Demolition dockets (Confidential)		
Learning Outcomes	• The student will be able to supervise conduct firing of explosives and maintain safety over range, gauge the explosives required for a particular mission/ objective and the safe distances for firing.		

Syllabus For Semester-IV

Code	Subject	Credits	Hours
SRTG-205	Leadership, Mission Planning, Tactics and Demolition	5	75

Leadership and Mission Planning

Objective

At the end of the course the student would be able to plan and conduct of special operations during exercise and actual scenario

This would include but not be limited to:-

1. Mission planning of SF ops
2. Knowledge on SF operations on eastern and western seaboard
3. Terrorism
4. Conduct Spl ops with safety including contingency plans
5. Conduct defensive operation in case of terrorist attack
6. Conduct of Table top tactical Exercise
7. Audit of IN establishment and ships for security readiness and Knowledge of SF communication.
8. identify vulnerabilities in the security set up of ship/ establishment
9. Planning of MIO Operation
10. Planning of CBR operations
11. Knowledge of Field Trauma management and Ongoing Responsibilities for Medics.
12. First Aid Management Of Medical & Surgical Emergencies.
13. ORM (Operational Risk Management) in the domain of Special Ops and Diving

Contents

Unit 1: Mission Planning : 15 Hours

Mission analysis at unit /team level
Leadership traits
Terrorism and types of terrorism and Impact of terrorism

Unit 2: Mission Planning Of Underwater Ops: 15 Hours

Planning and conduct of water borne defensive ops including SOR
Action in case of Terrorist attack on naval installation.
Audit of IN establishment and ships for security

Unit 3: Communication Equipments: 10 Hours

Handling / Operating procedure of PRC 6020/ LUP 329/ MSS/ PRC 6020
Carrying of Casualty and Causality Evacuation
Prepares ORM Templates for Individual Events and Discussions.

Pedagogy:	The syllabus would be covered class room instructions using case studies and table top exercises.
Reference books	Manuals Of Mission Planning (Confidential)
Learning Outcomes	1. The student will be able to plan special operations including contingency planning. 2. The student will be able to plan MIO and SBS operations.
Demolition	
Objectives	This would include but not be limited to:- 1. Carry out/ supervise surface demolition 2. Carry out/ supervise underwater demolition. 3. Prepare limpet mines (Maindeka) on surface and underwater.
Contents	**Unit 1: Theory Of Explosvies: 10 Hours** Theory of explosives/ types of explosives, Classification of charges, detonators, General safety regulations while handling of explosives. **Unit 2: Effects Of Explosivies: 10 Hours** Munroe effect, cone shaped charges, standoff distance, linear cutting charge, Bubble pulse, shock wave, charge near the surface and charge on bottom. Carry out/supervise u/w demolition exercise. **Unit 3: Calculation Of Demolition Charges For Different Scenarios: 15 Hours** Calculation of demolition charges for demolition of docks, cranes, buildings, guns and vehicles etc. Describe types, design, features of maindeka mine
Pedagogy	The syllabus would be covered class room instructions and practical on site instructions on the range.
Reference Books	Manuals of demolition and explosives (Confidential) Manuals of Maindeka mines (Confidential)

Learning Outcomes	1. The student will be able to conduct and supervise underwater and surface demolition. 2. The student will be able to prepare different types of charges.

Code	**Subject**	**Credits**	**Hours**
SRTG-206	Special equipment	2	30
Objective	At the end of the course the student will have proficiency in special equipment operation and maintenance including logs and records. This would include but not be limited to the following:- 1. Handling, operation and maintenance of all night visions available in MCF inventory. 2. Handling, operation and maintenance of all Spl equipment used for MIO. 3. Handling, operation and maintenance of all Spl equipment used in CQB.		
Content	**Unit 1: Maintenance Of Night Visions: 10 Hours** Operating principles and handling and maintenance of all Night visions. **Unit 2: Maintenance Of Equipment Of MIO : 10 Hours** Operating principles and handling and maintenance of equipments used in MIO. **Unit 3: Maintenance Of Equipment Of CQB : 10 Hours** Operation and handling of special equipments used in CQB.		
Pedagogy	The course would be conducted in the classroom using ppt and smart boards and in mc store for practical experience.		
Reference Books	Manuals of various special equipment's (Confidential)		

Learning Outcomes	1. The student will be able to handle, maintain and effectively use the night vision devices in the inventory.

Code	**Subject**	**Credits**	**Hours**
SRTG-207	Institute of naval medicine capsule course	2	30
Objective	At the end of the course the student will be able To gain knowledge of Diving Disorders and Medical Management. This would include but not be limited to:- 1. Physics of Diving 2. Cardiac vascular physiology in hyperbaric exposure 3. Respiratory physiology I hyperbaric exposure 4. Special senses in hyperbaric and underwater environment 5. Medical supervision of diving operations 6. Medical management and investigations of diving accidents		
Content	**Unit 1: Physics Of Diving : 10 Hours** Basic knowledge of Hyperbaric physics Trainee should understanding effects of pressure on cardio vascular system Understanding effects of pressure on respiratory system Understanding changes in special senses underwater **Unit 2: Effects Of Nitrogen And Oxygen Of Human Body: 10 Hours** Identification & management of inert gas narcosis Identification & management of Oxygen Toxicity Identification and management of Carbon Dioxide poisoning Identification & management of cases of toxic gas inhalation **Unit 3: Management Of Illness Of Diving : 5 Hours** Identification & management of Barotraumas Identification & management of Decompression illness Types of Decompression tables, their interpretation & utility in diving		

	Application of suitable Therapeutic recompression tables Identification & management in cases of Drowning Identification & management of Heat exhaustion and heat stress Identification & Management in a cases of Hypoxia **Unit 4: Survival At Sea: 05 Hours** Aiding survival at sea Identification and management of injuries by marine animals and snake bite. Identification & management of medical emergencies in specialized diving
Pedagogy	The course would be conducted using PowerPoint in classrooms and in medical center.
Reference Books	Manuals of Marine Medicine and Disorders (Confidential)
Learning Outcomes	1. The student will be able to gain the knowledge of physics of diving and apply the same in safe conduct of diving. 2. The student will be able to investigate the accidents related to diving. 3. The student will be able to manage diving related emergencies effectively.

Code	**Subject**	**Credits**	**Hours**
SRTG-208	Environmental Studies	3	45
Objective	To provide various awareness programs required for the welfare of the environment apart from the emphasis on the general and conventional issues surrounding the environment		
Content	**Unit 1:Introduction : 15 Hours** Definition, scope, and importance, need for public Awareness, Renewable and non- renewable resources. Natural resources: associated problems, Role of an individual in conservation, Equitable use for sustainable lifestyles. Ecosystems: Concept, Structure, and function of an ecosystem. Producers, consumers, and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. **Unit 2: Biodiversity And Its Conservation: 10 Hours** India as a mega diversity Nation, Bio-geographically classification of India. Biodiversity: Hotspots, Value of biodiversity, Biodiversity at global, National, and local levels. Threats to biodiversity: habitat loss, poaching of wildlife, man- wildlife conflicts. Endangered and endemic		

	species of India. Conservation of biodiversity: In– situ and Ex- situ conservation of biodiversity. **Unit 3: Pollution: 10 Hours** Environmental Pollution: Definition, Cause, effects, and uncontrolled measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards. Solid waste Management: Causes, effects, and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides. **Unit 4: Social Issues And Ethics: 10 Hours** Social Issues and the Environment: From Unsustainable to Sustainable development. Urban problems related to energy. Water conservation: rainwater harvesting, watershed management. Resettlement and Rehabilitation of people; its problems and concerns. Case Studies. Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, and holocaust. Case Studies. Wasteland reclamation. Consumerism and waste products. Issues involved in enforcement of environmental legislation. Public awareness.
Pedagogy	The course would be conducted using PowerPoint in Classrooms/ Tutorials/ Assignments.
Reference Books	Mike Hulme, Climates and Cultures. (Published in Jul 2015) Mark Garrett, Encyclopedia of Transportation Social Science and Policy. (Published in 1976) Steel, Science An A - to - Z Guide to Issues and Controversies. (Published in 2014) John A Matthews, Encyclopedia of Environmental Change. (Published in Dec 2013)
Learning Outcomes	Vigilance and actions to prevent degradation of environment will be inculcated

Syllabus for On Job Training (OJT) Semester-IV

Code	Subject	Credits	Hours
SRTS-206	Table top exercises and modelling of missions	6	90

Objective	At the end of the course the student will be able to practically apply the concept of special operations in simulated exercises. This would include but not be limited to: - 1. Simulation of different scenarios for the modelling of missions. 2. Sand model training. 3. Mission planning and load plan of the team.
Content	**Unit 1: Concepts Of Mission Planning: 20 Hours** Learning the concepts of planning missions in different scenarios and their complexities/ peculiarities. **Unit 2: Intelligence Gathering Operations: 20 Hours** Asset management and provisioning of intelligence. **Unit 3: Load Plan For Operations: 20 Hours** Load plan formation and selection of weapons/ special equipment. **Unit 4: Table Top Exercises: 20 Hours** Table top exercises for stimulating thought process. **Unit 5: Sand Model Training : 10 Hours** Different types of sand models Other materials to be used for projection of target and mission areas
Pedagogy	• On job instructions and practical training on planning covert missions both at land and sea/ harbor.
Reference Books	• Mission planning manual. (Confidential) • Open source.
Learning Outcomes	• The student will be able to assess the situation and plan the mission including the selection of team/ weapon/ special equipment and assets and making of sand models.

Code	**Subject**	**Credits**	**Hours**
SRPS-207	Combat diving and RCC	6	180
Objective	At the end of the course the student will be able to practically apply the clandestine attack theory and philosophy and maintenance and operation of RCC. This would include but not be limited to: -		

	1. Operation and maintenance of OX-10 set. 2. Identifying targets in harbor and at sea. 3. Operation of RCC for hyperbaric treatment of patients.
Content	**Unit 1: Application Of Ox-10 Sets** Practical application of OX-10 sets. Identification of ships structure underwater for the placement of mines and explosives. **Unit 2: Maintenance Of RCC** Operation and maintenance of RCC. Charging of quads and record keeping of gas analysis tests. **Unit 3: Hyperbaric Oxygen Therapy** Practical application of conducting hyperbaric oxygen therapy.
Pedagogy	• On job instructions and practical training on ox-10 diving sets and carrying and placement of mines on ships/ crafts and offshore platforms. • Instructions on operations of RCC and conducting of hyperbaric oxygen therapy.
Reference Books	• BR 2806. (Confidential) • OX-10 manual. (Confidential) • Mission planning docket. (Confidential) • RCC operation manual. (Confidential)
Learning Outcomes	• The student will be able to supervise and conduct the combat diving operations. • The student will be able to undertake hyperbaric oxygen therapy.

Code	**Subject**	**Credits**	**Hours**
SRPS-208	Diving Supervision	6	180
This course would be covered under the following topics:- 1. Air Diving Phase 2. Search and Rescue 3. Combat Diving 4. Recompression Chamber 5. Dive Administration 6. Supervision Board			

Air diving phase	
Objectives	At the end of the course the student would be able to plan, supervise and execute underwater tasks safely & efficiently in air diving operations up to a depth of 35 mtr using self-contained air and surface supply air diving equipment This would include but not be limited to:- 1. To plan and supervise underwater tasks safely & efficiently to a depth of 35 M using self-contained air diving breathing apparatus. 2. To plan and supervise underwater tasks safely & efficiently to a depth of 35 mtrs using surface supplied air diving equipment. 3. To conduct Air diving operations up to 35 mtrs depth in day and night conditions. 4. To administer appropriate first aid treatment to a diver suffering from diving related physiological conditions. 5. To use Air decompression tables for supervising normal decompression in dives up to 35 mtrs. 6. To evaluate the standards achieved in Air diving.
Contents	**Unit 1: Operation Of Self Contained Diving Sets** Principle of operation of self-contained air diving equipment. Various components of air diving equipment, their uses, capabilities and limitations. Dive/supervise in self-contained mode to 35 mtrs using SCUBA. **Unit 2: Maintenance Of Diving Sets** Care and maintenance of air diving set. Dive/supervise in self-contained mode to 35 mtrs using Divator 324. **Unit 3: Operation Of SDDE Panel** Various components, capabilities and limitations of. SDDE (Surface Diving Demand Equipment). Emergency drill procedure while using SDDE. Use and maintenance of various components of SDDE. **Unit 4: Introduction To Superlite Helmets** Describe various components of superlite helmet 17B, their capabilities and limitations. Emergency drills and procedures while using 17B helmet Use and maintenance of superlite helmet 17B. Dive up to 10 mtrs in 17B superlite helmet using DCS (diving Communication System) panel **Unit 5: Physiology Of Diving**

	Symptoms, causes, prevention and treatment for barotrauma. Causes, symptoms, prevention and treatment for pulmonary over inflation syndrome (POIS). Causes, symptoms, prevention, and treatment for CO poisoning, nitrogen narcosis, hypoxia, hypercapnia and oxygen toxicity. Oxygen tolerance doses in diving. Decompression sickness. Types, causes symptoms, prevention, and treatment of DCS.
Pedagogy	The syllabus would be covered class room instructions and practicals in the tank and in sea.
Reference Books	BR 2806 (Confidential) Manual of Divator 324 (Confidential)
Learning Outcomes	1. The student will be able to supervise diving for the personnel and undertake diving related tasks upto a depth of 35m. 2. The student will be able to administer first aid treatment to a diver suffering from diving related physiological conditions/ decompression sickness. 3. The student will be able to use Air decompression tables.
Search and rescue	
Objectives	At the end of the course the student would be able to plan, conduct and supervise a SAR (Search And Rescue) operation. This would include but not be limited to:- 1. Plan, supervise and undertake a diving operation as part of a SAR operation. 2. Evaluation of the standards achieved in SAR skills
Contents	**Unit 1: Introduction To BASAR Set** Construction, maintenance schedule, pre and post dive checks of BASAR (Breathing Apparatus Search and Rescue). Drills and emergencies while carrying out/supervise un-weighted jumps from 10 mtr height and attach a marker to a submerged fitting/ object at depths of 5 to 10 mtr **Unit 2: Introduction And Practical To Helo Jumps** Helo construction, regulations and safety norms. Supervise simulated rescue of survivor from deep end of swimming pool post clearing of simulated parachute shrouds using BASAR set.

	Practical SAR drills.
Pedagogy	The syllabus would be covered in class room instructions and in the sea.
Reference Books	BR 2806 (Confidential) Manual of BASAR set (Confidential)
Learning Outcomes	1. The student will be able to plan and supervise diving operations during SAR. 2. The student will be able to supervise weighted jumps both at sea and in the pool using BASAR sets.
Combat diving	
Objectives	At the end of the course the student would be able to Supervise and carry out clandestine attacks on enemy ships and offshore installations and lightly defended coastal targets. This would include but not be limited to:- 1. Knowledge of diving theory applicable to clandestine diving tasks. 2. Knowledge of diving regulations applicable to oxygen diving tasks. 3. Supervise and carry out diving using oxygen in closed circuit diving apparatus. 4. Conduct clandestine diving operations using closed circuit oxygen set
	Unit 1: Supervision Of Ox-10 Diving Principle of operation of OX-10 set. Capabilities and limitations of OX-10 set. Formula for calculation of endurance.

Contents	Care and maintenance of OX-10. Dive/supervise in self-contained mode to 10 mtrs using OX-10 sets **Unit 2: Supervision Of Diving In RCC** Plan & conduct diving upto 18 mtrs using pure oxygen in OX-10 sets in RCC Working principle, advantages/ disadvantages, limitation & components of DHNS (Diver Handheld Navigation System). Supervise clandestine attack using combat canoe with OX-10 set. Basic handling of combat craft in various condition i.e. Surf, swell, choppy seas. Basic maintenance of combat diving accessories. **Unit 3: Supervision Of Diving With Underwater Mines** Supervise clandestine attacks for simulated u/w designated targets using dummy Maindeka. Carry out /supervise clandestine attacks on near shore installations while carrying small arms/ explosives using OX-10 set.
Pedagogy	The syllabus would be covered in class room instructions and in the sea.
Reference Books	BR 2806 (Confidential) Manual of OX-10 set (Confidential)
Learning Outcomes	1. The student will be able to apply the know-how of diving theory during the clandestine attacks. 2. The student will be able to conduct diving operations in accordance with diving regulations with respect to oxygen. 3. The student will be able to carry out diving operations and supervise the same using closed circuit diving sets.
Recompression chamber	
Objectives	At end of the course the student will be able to carry out/supervise safe operation and diving in Recompression chamber ashore or afloat This would include but not be limited to:- 1. Supervise safe operation of fixed recompression chamber. 2. Supervise safe operation of portable Recompression chamber.

Contents	**Unit 1: Various Types Of RCC** Various types of RCCs in service. Pressure testing procedures of RCC. **Unit 2: Design Of RCC** Basic RCC design and function of each part. **Unit 3: Calculation Of Air Of RCC Diving** Calculation of Air, oxygen for carry out RCC diving. Supervise RCC diving. Explain function of all components of portable RCC
Pedagogy	The syllabus would be covered class room and on site instructions with practical's on RCC.
Reference Books	BR 2806 (Confidential) Manual of RCC (Confidential)
Learning Outcomes	1. The student will be able to operate and supervise diving operations as well as therapeutic decompression in fixed RCC. 2. The student will be able to operate portable RCC and conduct diving operations.
Diving Administration	
Objective	At the end of the course the student will be able To organize and administer Clearance Diving Teams/ Units.
Contents	**Unit 1: History Of Diving In Indian Navy** History of diving in Indian Navy, Diving Organization and responsibilities, Job specifications for all categories of divers. **Unit 2: Introduction To charter and working of CCDTs** Charter of duty of CCDT/ CDUs /CDTs organization chart. Diving rules and regulations as per BR 2806 R, relevant NOs and NIs, DCNs and policy files. **Unit 3: Rules And Regulation In Diving Set Maintenance** Rules and regulations regarding maintenance and upkeep of all diving equipment and accessories.

	Various diving returns, records, forms and log books. Authorization for extra clothing and ration, procedure for procurement. **Unit 4: Practical Exposure To Record Keeping** Diving records keeping, rules and regulations, Mandatory records to be maintained Rules and regulations concerning rendering diving aid to civil authority, procedure to be adopted and record keeping.
Pedagogy	The syllabus would be covered in class room instructions.
Reference Books	BR 2806 (Confidential)
Learning Outcomes	1. The student will be able to maintain diving records of the personnel of the unit. 2. The student will be able to render returns of diving.

PROPOSED SYLLABUS FOR ADVANCE DIPLOMA SECURITY MANAGEMENT AND RISK ASSESSMENT (SMRA) PROGRAMME

Objective:-

SMRA program is designed with a view to train students to effectively undertake Security Management and Risk Assessment of various institutions having varied security classifications both onshore and offshore as per the stipulated standards. The qualified student will be able assess, analyze threat conditions and arrive at an optimum solution to problems encountered in the given situation.

Duration:-

The advance diploma shall be a 120 week programme comprising *ab initio* (basic) MARCOS course in the first semester of 30 weeks. After which the sailor undergoes On Job Training (OJT) of approx. 30 weeks as the second semester, and is evaluated by external agencies of the Indian Navy. The sailors return back for third semester of which 13 weeks of contact training is being carried out at NSWTTC while the rest 17 weeks in OJT and are again evaluated for the same by external agencies. Finally, the student completes the course after the fourth semester of 30 weeks of which 17 weeks is contact training at NSWTTC and the rest 13 weeks is OJT and the evaluation is again by external agencies.

The instructional scheme for the advanced diploma in Security Management and Risk Assessment (SMRA) shall comprise of classroom instructions, practical operations of equipment and outdoor exercises which comprise of navigation on land and sea, firing of different types of weapon on firing ranges etc. This is practical oriented course and therefore the practical classes will outnumber the theory (class room instructions).

Prerequisites:-

10+2 or equivalent from any recognized board across the country (India).

MINIMUM CREDIT REQUIREMENT

Sem I (30)		Sem II (30)		Sem III (30)		Sem IV (30)		Total
GE	SD/OJT	GE	SD/OJT	GE	SD/OJT	GE	SD/OJT	
12	18	12	18	12	18	12	18	120

Number of Semesters:- The no of semester for the course would be four, however the semester would not be continuous due to the operational requirements of the Indian Navy and therefore semesters would be staggered, thus the course would be completed in five to six years.

Semester	Duration	Remarks
Semester 1	30 weeks	At NSWTTC
Semester 2	30 weeks	At operational unit
Semester 3	30 weeks	13 weeks at NSWTTC and 17 weeks at operational unit.
Semester 4	30 weeks	17 weeks at NSWTTC and 13 weeks at operational unit.

Lab-Outdoor Training:-

Lab-Outdoor Training and assignments are normally included as part of all the courses

List of Courses and Program Structure

Course Code	Name of the Course	Credits	Marks	Remarks
Sem 1				
	General Education			
SRTG-101	Amphibious phase	5	125	Total credits required for Sem 1 is 30.
SRTG-102	Special ops phase	5	125	
SRPG-103	Waterman Ship	2	50	
	Skill Development			
SRTS-101	Marcos Admin	3	75	
SRTS-102	MCF weapons phase	5	125	
SRTS-103	Diving phase	6	150	
SRPS-104	Hell Week	3	75	
SRPS-105	Tactical exercise	1	25	
Sem 2				
	General Education			
SRTG-104	Theory of Explosives and Effects	4	100	
SRTG-105	Communication skills	2	50	
SRPG-106	Weapon and Demolition	6	150	

	handling in Urban and Jungle Counter Insurgency Areas			Total credit required for Sem 2 is 30.
	Skill Development/ OJT			
SRTS-106	Theory of weapon handling and working mechanism	6	150	
SRPS-107	Underwater Diving and Maintenance	6	150	
SRPS-108	Parajumping and Special Heli Borne Operations	6	150	
Sem 3				
	General Education			
SRTG-201	Asymmetric Warfare, FTM and Special Equipment	5	125	
SRTG-202	Seamanship	2	50	
SRTG-203	Sniper, Support Weapon and Demolition	2	50	
SRTG-204	Escape Training School	3	75	
	Skill Development/ OJT			
SRTS-201	Weapon Theory	6	150	
SRTS-202	Oxygen Diving Phase	6	150	
	Elective Courses			Total credit for Sem 3 is 30.
SRPS-203	Sniper and Surveillance			
SRPS-204	Support weapon			
SRPS-205	Advanced Demolition	6	150	
Sem 4				
	General Education			
SRTG-205	Leadership, Mission Planning, Tactics and Demolition	5	125	
SRTG-206	Special Equipment	2	50	
SRTG-207	Institute of naval medicine capsule course	2	50	
SRTG-208	Environmental studies	3	75	
	Skill Development/ OJT			

Total credit for the Sem 4 is 30.

SRTS-206	Table Top Exercises and Modelling of Missions	6	150	
SRPS-207	Combat diving and RCC	6	150	
SRPS-208	Diving Supervision	6	150	

Note:- 1. The total number of hours required for the conduct of the course is 2430 hrs.

Ser	**Semester**	**Contact Hours**	**Non-Contact Hours**
(a)	Semester 1	540	-
(b)	Semester 2	-	720
(c)	Semester 3	180	360
(d)	Semester 4	180	450

2. One credit is equal to:
   (a) Theory: 15 hours
   (b) Practical: 30 hours

3. One credit shall be assessed for 25 marks.

4. The student shall be graded as follows:-

Grade	**Percent**	**Remarks**
D	80% and Above	Distinction
AA	70% to 79.5%	Above Average
HA	60% to 69.5%	High Average
A	55% to 59.5%	Average

The minimum pass marks to complete the course would be 55% aggregate with minimum 50% in each subject.