

# Vidyasagar University

## Curriculum for B. Sc (General) in Defence Studies

[Choice Based Credit System]

### Semester-IV

Course	Course Code	Name of the Subjects	Course Type/ Nature	Teaching Scheme in hour per week			Credit	Marks
				L	T	P		
<b>DSC-1D</b>		<b>DSC1DT:</b> Science & Technology for Defence and National Security, Weapons & Armaments and Arms control & Disarmament <b>DSC1DP: Practical</b>	Core Course	4	0	4	6	75
<b>DSC-2D</b>	TBD	<b>DSC-2D (Other Discipline)</b>	Core Course				6	75
<b>DSC-3D</b>	TBD	<b>DSC-3D (Other Discipline)</b>	Core Course				6	75
<b>SEC-2</b>		<b>SEC-2: TBD</b>	Skill Enhancement Course -2	1	1	0	2	50
<b>Semester Total</b>							<b>20</b>	<b>275</b>

**L**=Lecture, **T**=Tutorial, **P**=Practical, **CC** = Core Course, **TBD** = To be decided,

**DSC-1** = Discipline Specific Core of Subject-1, **DSC-2** = Discipline Specific Core of Subject-2,

**DSC-3** = Discipline Specific Core of Subject-3. **SEC** - Skill Enhancement Course.

**List of Core Courses (CC) and Electives**

**Core Course (CC)**

**DSC-1D: Science & Technology for Defence and National Security, Weapons & Armaments and Arms control & Disarmament**

**Skill Enhancement Courses (SEC)**

**SEC-2: India's Strategic Culture**

**Or**

**SEC-2: Logistics Management to the Indian Armed Forces**

**Or**

**SEC-2: Defense Industrial Potential, Transportation and Communication System in India**

**Or**

**SEC-2: Fundamentals of Peace**

**Semester-IV**  
Core Course (CC)

**DSC-1D (CC-4): Science & Technology for Defence and National Security, Weapons & Armaments and Arms control & Disarmament. Credits 06**

**DSC1DT: Science & Technology for Defence and National Security, Weapons & Armaments and Arms control & Disarmament. Credits 04**

**Course Contents:**

**A. Science, technology for Defence and National Security**

1. Military Technology - Introduction to Military Technology - its relevance to National Security.
2. **Warfare and Technology:** Introduction, concept, historical evolution of warfare, evolution of science & technology, synergy of warfare and science & technology.
3. **Science & technology and its Scope :** (a) S&T – applications - Military, Non-military, and Dual usage. (b) Industrial revolution & new technologies- IC- Engine, Radio, Electricity, (c) Emerging Technologies- Introduction to emerging technologies - Energy, Electronics, Computers, nanotech and Artificial Intelligence, Material Science, Biotechnology, Transportation and vehicle technology, Nuclear science, Oceanography, Space technology. Emerging technologies & warfare - (a) Information Technology and communication warfare. (b) Robotics and Cyber war. (c) R M A - revolution in military affairs.
4. Application of technologies to: i. Armament and Weapon systems - Weapons Technology & Warfare - (a) Weapons of Land Warfare- types of arms and armaments & artillery. (b) Naval Weapons- types of ships, aircraft carrier, submarines, torpedo. (c) Aerial War Weapons- types of aircrafts, missiles, satellites, radars. ii. Missile Technology. iii. Communications and Radar technology, iv. Electronic Warfare and Information Warfare. v. RNBC Warfare and Nuclear Energy, vi. Intelligence, vii. Logistics (transport, supplies, inventory, medical, repair, clothing and equipment), viii. Border Management.
5. Impact of developing technologies on Military Doctrine and conduct of warfare.
6. Application of new technologies for internal security, disaster management, training and administration.
7. Non military use of modern technologies and their impact on National Security (Power and energy, Trade, Economy, Banking, Media etc).
8. Weapons Technology and India- (a) Pioneering institutions and its contributions. (b) S & T policy of India. (c) D R D O - its role in weapons development.

**B. Weapons and Armaments:**

a. Evolution of arms and armaments in art of war.

b. **Modern weapons** - Small Arms - Theories of small arms. History, characteristics, design, variant, operating mechanism and military significance of following common arms used in Indian Army: Glock, Mouser, IM1 Galil sniper. .22 Rifle, .303 Rifle, 7.62 Self Loading Rifle . INSAS, LMG, 5.56 mm Rifle. Light Machine Gun (LMG).Multi caliber Individual Weapon System (MCIWS). Modern Submachine Carbine (MSMC), Artillery : Artillery Gun, No 35 HE Grenade, 2 inch Mortar. 40mm L-60 and L-70 BOFFORS GUN. DRDO 155 mm artillery gun, Dhanush Howitzer Indian Fields Gun. Shell and Ammunition: Explosive, Rockets and Mortar- Properties & Types. Missiles: Concept, characteristics, types. Anti Tank : Brief idea. Nuclear explosive: History, uses, effects, science for formation of nuclear bomb.

**Weapon Carriers**: Characteristics, mechanisms of operation, fire power and military importance of following: Land war weapon carrier, Naval war weapon carrier, Air war weapon carrier, Strategic transport aircraft, Tactile transport aircraft. Military Glider, Military Helicopter Fighter airplane, Bomber, Fighter- Bomber Airplane.

**Weapons of Mass Destruction** - Chemical & Biological Weapons: concept, characteristics and , uses. Nuclear weapons: Nuclear Command Authority in India. Strategic forces command, Indian land based nuclear armed ballistic missile, : Indian Sea based nuclear armed ballistic missiles, Nuclear armed cruise missiles. Air Defense: Brief idea.

### C. Arms control and Disarmament

1. Introduction: a. Definition of arms control, Arms limitations, Arms reduction and Arms trade. b. Differences between Arms control, Arms limitations, Arms reduction and Arms trade. c. Nature and Scope of arms control and Disarmament. d. Efforts towards Disarmament from Treaty of Westphalia to World War – II

2. UN and Disarmament: Efforts towards the formation of the UNO. UN's Perception on Disarmament and Arms control. Major efforts till the Disarmament decade. Causes and failures. Disarmament Efforts – Success story.

3. Disarmament efforts by other Bodies- a. NAM b. Nuclear Free Zones c. Efforts of India

### DSC1DP: Practical

Credit 02

#### A. Weapons Systems

1. Demonstrate following arms small arms: .22 Rifles. .303 Rifle, 7.62 Self Loading Rifles(SLR), Indian Small Arms System (INSAS) 5.56 mm Rifle, Light Machine Gun (LMG), Sten Machine Carbine. Modern Submachine Carbine (MSMC), Pistol & Revolvers. No 36 HE Grenade, 2 inch Mortar. Artillery Gun, Air Defense Gun, Indian Field gun 105 mm., Multiple Rocket Launchers.

Students will be required to draw Labeled sketch and explain the important stages of mechanism of the above weapons.

2. Students will be required to draw sectional diagrams showing the parts connected with the mechanisms of movements and firing of the following armaments: Tanks, Air craft - Fighters, Bombers, Transport, Helicopters. Naval Ships - Frigates, Destroyers, Submarine and Torpedo.

### **B. Tactical Exercise without Troops**

1. Sand model on the following: a) attack, b) defense.
2. Sand model exercise on rescue operations.
3. Outline organization of Infantry Battalion in Lab Note Book.
4. Chart showing organization, weapons at equipments at platoon level.
5. Message Writing

**C. Project Report:** Preparation of Project Report out of the data collected from field visit t to different defense establishment and geo-strategic areas of importance.

### **D. Laboratory Note Books**

Students will be required to maintain records of all works done in connection with the topic taught in this paper.

## *Skill Enhancement Courses (SEC)*

### **SEC-2: India's Strategic Culture**

**Credits 02**

#### **SEC2T: India's Strategic Culture**

#### **Course Contents:**

1. Concept of strategic culture.
2. Strategic culture and International relations theory.
3. Sources of Indian strategic culture.
4. Understanding Indian strategic culture.
5. Applying strategic culture in Indian context:
  - a. Internal security issues
  - b. Nuclear policy

Or

**SEC-2: Logistics Management to the Indian Armed Forces. Credits 02**

**SEC2T: Logistics Management to the Indian Armed Forces.**

**Course Contents:**

1. Nature of Modern War- Spectrum and Tools of Conflict, Economic Resources and Industrial base.
2. Meaning, Scope and Principles of Logistic management.
3. Organisational Structure for Logistic Support.
4. Logistic Planning in war and peace times.
5. Higher direction of Defence Logistics- Procurement of goods and services, financial implications, Contract management.
6. Reforms in Logistic management.

Or

**SEC-2: Defense Industrial Potential, Transportation and Communication System in India Credits 02**

**SEC2T: Defense Industrial Potential, Transportation and Communication System in India**

**Course Contents:**

**Unit-I: Defense Industrial Potential in India**

1. Resource – Definition, importance. Resource and its importance in national security.
2. Role of industrialization in Defense. Effects of industrialization on economy and defense of a country. Industrialization of India and its impacts on defense.
3. Scientific and industrial development in India since independence. Defence industries development of India since independence. Conversion of civil industries to defense industries.
4. Strategic minerals and logistic problems of India.
5. Defense industrial centers of India.

**Unit-II: Transportation System in India**

1. Transportation system in Indian- concept, types.
2. Significance and importance of transport in National Security.
3. Development of Roadways, Railways, Airways and Naval ways.

**Unit-III: Communication System in India**

1. Communication system in India- concepts. Significance and importance of communications in National security. Types of communications: Postal services in India, Telegraph, telephones, wireless, internet. Postal and Telecom service in Defense. Role of other communication system for defense.
2. Media: Public information, Publicity and Propaganda and its impact on National security.

**Or**

## **SEC-2: Fundamentals of Peace**

**Credits 02**

### **SEC2T: Fundamentals of Peace**

#### **Course Contents:**

#### **Unit -I: Introduction to Peace**

- a) Concept of peace - meaning and definition, typology of peace.
- b) Approaches to peace – Disarmament, International Law.
- c) Peace movement: Anti nuclear Movements – CND etc,
- d) Zones of peace and nuclear free zones.

#### **Unit -II: Mechanics of Peace**

- a) Settlement of international disputes [Amicable].
- b) Peace keeping, Peace keeping Operations.
- c) Peace Building, Peace Making and Peace Research.
- d) Role and function of International organizations – League of Nations, UNO.
- e) Amicable means to settle Inter-state conflicts.

#### **Unit -III: Diplomacy**

Diplomacy - Scope & Function. Type of diplomacy – its features.

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