

VIDYASAGAR UNIVERSITY

Midnapore, West Bengal



PROPOSED CURRICULUM & SYLLABUS (DRAFT) OF

**BACHELOR OF SCIENCE WITH MILITARY SCIENCE
(MULTIDISCIPLINARY STUDIES)**

3-YEAR UNDERGRADUATE PROGRAMME
(w.e.f. Academic Year 2023-2024)

Based on

**Curriculum & Credit Framework for Undergraduate Programmes
(CCFUP), 2023 & NEP, 2020**

VIDYASAGAR UNIVERSITY, PASCHIM MIDNAPORE, WEST BENGAL

VIDYASAGAR UNIVERSITY
BACHELOR OF SCIENCE IN MATHEMATICS & COMPUTER SCIENCES WITH MILITARY SCIENCE
(Under CCFUP, 2023)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks				
								CA	ESE	TOTAL		
B.Sc. in Multidisciplinary studies with Military Science	3 rd	V	SEMESTER-V									
			Major-A4	MLSPMJ04	T: Weapons, Armaments, Arms control & Disarmament; P: Practical (To be studied by students taken Military Science as Discipline- A)	4	3-0-1	15	60	75		
			Major-A5	MLSPMJ05	T: India's National Security Policies (To be studied by students taken Military Science as Discipline- A)	4	3-0-1	15	60	75		
			Major-A6	MLSPMJ06	T: Contemporary Issues to India's National Security (To be studied by students taken Military Science as Discipline- A)	4	3-0-1	15	60	75		
			Major (Elective) -2	MLSMJE02	Science & Technology for Defence and National Security OR International Terrorism (To be studied by students taken Military Science as Discipline- A)	4	3-1-0	15	60	75		
			Minor-5 (Disc.-C5)	MLSMIN05	T: India's National Security Policies (To be studied by students taken Military Science as Discipline- C)	4	3-0-1	15	60	75		
		Semester-V Total						20				375
		VI	SEMESTER-VI									
			Major-B4		To be decided (Same as Major-A4 for Military Science taken as Discipline-B)	4	3-0-1	15	60	75		
			Major-B5		To be decided (Same as Major-A5 for Military Science taken as Discipline-B)	4	3-0-1	15	60	75		
			Major-B6		To be decided (Same as Major-A6 for Military Science taken as Discipline-B)	4	3-0-1	15	60	75		
			Major (Elective) -3	MLSMJE03	Non Traditional Security Threats OR International Relations (To be studied by students taken Military Science as Discipline- A)	4	3-0-1	15	60	75		
			Minor -6 (Disc.-C6)	MLSMIN06	T: India and Her Neighbouring Countries (To be studied by students taken Military Science as Discipline- C)	4	3-0-1	15	60	75		
		Semester-VI Total						20				375
		TOTAL of YEAR-3						40	-	-	-	700
		Eligible to be awarded Bachelor of Science in Multidisciplinary Studies with Military Science on Exit						126	Marks (Year: I+II+III)			2325

MJP = Major Programme (Multidisciplinary), MI = Minor, A/B = Choice of Major Discipline; C= Choice of Minor Discipline; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical

MAJOR (MJ)

Major A4/B4: Weapons, Armaments, Arms control & Disarmament Credits 04 (Full Marks: 75)

Major A4/B4T: Weapons, Armaments, Arms control & Disarmament Credits 03 (Lectures: 45)

Course contents:

A. Weapons and Armaments:

1. **Evolution of arms and armaments** in art of war.
2. **Modern weapons –**
 - a. Assault Rifles – INSAS, AK-47, AK-103
 - b. Sniper Rifles- Vidhwansak, Barrett m95
 - c. Machine Guns- INSAS, LMG
 - d. Artillery- Bofors 155mm Howitzer, M777 Howitzer, Dhanush Artillery gun
 - e. Missile- Brahmos, Nag, Akash, Prithvi
 - f. UAVs- Searcher MK11, Heron, Nishant, Netra, skylark
 - g. Aircraft-HAL Dhruv, Mi-17, CH-47 Chinok
 - h. Tank- Arjun, T-90S Bhisma
3. **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.
4. **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.

B. Arms control and Disarmament

1. Introduction; Definition of arms control, Arms limitations, Arms reduction and Arms trade; Differences between Arms control, Arms limitations, Arms reduction and Arms trade; Nature and Scope of arms control and Disarmament; 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

A. Weapons Systems

1. Demonstrate following arms small arms: 0.22 Rifles. 0.303 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.
3. 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.

Suggested Readings:

1. A Cooper, D. (2021). Arms Control for the Third Nuclear Age. Georgetown University Press.
2. Abbasi, R. (2021). Building a Road to Nuclear Disarmament (1st edition). Routledge.
3. Badri Maharaj, S. (2019). Indian Nuclear Strategy. Routledge.
4. E. Williams, R., & R. Viotti, P. (2012). Arms Control: History, Theory and Policy. ABC-CLIO Publications.
5. Irmgard, N. (2020). Nuclear Non-Proliferation and Arms Control Verification. Springer Nature.
6. Rotfeld, A. D. (2000). Arms control and disarmament: SIPRI's new conceptual approach | United Nations iLibrary. United Nations ILibrary. <https://www.unilibrary.org/content/books/9789210581424c002>
7. S.P, C. (1994). Nuclear Proliferation in South Asia: The Prospects for Arms Control. New Delhi: Lancer
8. Sethi, M. (2009). Nuclear Strategy: India's March towards Credible Deterrence. New Delhi: KW Publishers
9. Steen, B. N. V., & Njølstad, O. (2019). Nuclear Disarmament. Routledge.
10. Street, T. (2021). The Politics of Nuclear Disarmament. Routledge.

Major A5/B5: India's National Security Policies

Credits 04 (FM: 75)

Major A5/B5T: India's National Security Policies

Credits 03 (45Hrs.)

Course contents:

Unit-I: National Security

- i. Meaning and concept
- ii. Importance of National security
- iii. Scope of National Security
- iv. Concept of India's National Security

Unit-II: India's Foreign Policy

- i. Meaning and Objectives
- ii. Basic Principles of India's Foreign Policy
- iii. Determinants of India's Foreign Policy
- iv. Evolution of India's Foreign Policy

Unit-III: India's Defence Policy

- i. Aims and Objectives
- ii. Evolution of India's Defence Policy
- iii. Linkages between Foreign and Defence Policy

Unit-IV: India's Nuclear Policy

- i. Aims and Objectives
- ii. Peaceful uses of Nuclear Power
- iii. 1947 P.N.E. (Peaceful Nuclear Explosions)
- iv. 1998 Nuclear Test (Operation Shakti).
- v. India's Nuclear Doctrine
- vi. Evaluation of India's Nuclear Policy

Unit-V: India's Maritime Policy

- i. Strategic Environment of Indian Ocean
- ii. Strategic Importance of Indian Ocean
- iii. Presence of super power in Indian Ocean
- iv. India's Navel Strategy and Maritime Policy

Major A5/B5P: India's National Security Policies

Credits 01 (30Hrs.)

1. Map Reading

- i) Disputed Land areas with bordering states
 - a) Pakistan, b) China, c) Nepal, d) Bangladesh
- ii) Disputed Sea areas with bordering states
 - a) Pakistan, b) Bangladesh

2. Conflict zones of South Asia

- a) India; b) Pakistan c) China; d) Nepal, e) Bangladesh,
- f) Srilanka, g) Bhutan, h) Afghanistan

3. Group Discussion and Seminar

For conflict issue in South Asia

Suggested Readings:

1. India's Defence Policy – Gautum Sen
2. Foreign Policy of India – K.P. Mishra
3. National Security Problems in India – L.R. Singh
4. India-China border dispute – Dr.M.L. Sali
5. Ethnic Conflict in Srilanka – Dr. P.A. Ghosh.
6. Defence security Alert Journal- Pawan Agrawal
7. Strategy Issues in South Asia- Arun Kumar Banerji
8. India-China Borderlands- Nimmi Kurian
9. India-China Relations in the Contemporary Era- C. Mahapatra
10. India-Bangladesh Relations- Jayanta Kumar Ray, Muntassir Mamoon
11. The Triangle India-Nepal-China-S.C.Bhatt
12. India and South Asia- David Ludden
13. India, Europe and Conflict Resolution in South Asia- Rajendra k. Jain
14. Neighbours, Major Powers and Indian Foreign Policy- Aneek Chatterjee
15. Afghanistan A Role for India- Arun Sahgal

Major A6/B6: Contemporary Issues to India's National Security Credits 04 (Full Marks: 75)

Major A6/B6T: Contemporary Issues to India's National Security Credits 04 (Lectures: 60)

Course contents:

Unit -1: National Security

- i) Meaning
- ii) Definition
- iii) Concept
- iv) Nature & Scope

Unit -2: Challenges to Indian Armed Forces

- i) Aspects of India's National Security Problems
- ii) Various types of challenges and its application to Indian Armed Forces
- iii) Role of awareness about the role of Indian Armed Forces

Unit- 3: Contemporary Issues – case studies

- i) Kashmir Issue
- ii) McMahan Line
- iii) Terrorism
- iv) Indian Ocean
- v) Naxalism
- vi) Siyachin
- vii) Tamil Problem.

Major A6/B6 P: Practical

Credits 01

Project Work:

- i) Project submission related to contemporary issues.
- ii) Interview with Indian Armed Forces Serviceman/Ex-Serviceman

Suggested Readings:

1. Indian Army – E.H.E. Choen.
2. Ministry of Defence – Annual Reports
3. Organisation and Administration in the Indian Army – Brigadier Rajendra Singh.

MAJOR ELECTIVE

(To be studied by students taken Military Science as Discipline- A)

Major Elective (MJE)-02:

(Science & Technology for Defence & National Security OR International Terrorism)

MJE-02T: Science & Technology for Defence and National Security Credits 04 (Full Marks: 75)

Course Content:

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.

Recommended Readings:-

1. Military Technology and Equipment Technology – Elexander J.
2. Military Transformation and Modern warfare – Sloan E.
3. Military war and Rescue Techniques – Anil K.C.
4. Military war and Rescue Techniques – Dixit A. K.
5. Successful Technology Armed Forces and the Society – Prasad R.

OR

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Course Contents:

Unit I: Terrorism, Meaning, Concept, Philosophy and Historical Perspective

Unit II: Causes of Terrorism: Social, Economic, Political and Religious

Unit III: International Terrorism, State Terrorism and State-sponsored Terrorism Context

Unit IV: Terrorism and National Security, Strategy for fighting against Terrorism

Unit V: Case studies on places/Units having importance on National Security and Strategic Defence

Suggested Readings:

1. Brass, Paul R., (1991): Ethnicity and Nationalism, New Delhi, Sage Publications.
2. Combs, Cindy C., (1997): Terrorism in the Twenty-first Century, New Jersey, Prentice Hall.
3. Kartha, Tara (1999): Tools and Terror: Light Weapons and India's Security, New Delhi, Knowledge World and ISDA
4. Lequer, Walter (1999): The New Terrorism, Oxford, Oxford University Press
5. Sondhi M L.(ed), (1999): Terrorism and Political Violence-A Source Book, New Delhi
6. Wardlaw, Grant(1982): Political Terrorism, Cambridge

Major Elective (MJE)-03:

(Non-Traditional Security Threats OR International Relations)

Major Elective -3T: Non-Traditional Security Threats

Credits 04 (FM: 75)

MJE-03T: Non Traditional Security Threats

Credits 03

Course contents:

Unit I: Human Security; Definition, Meaning, Concept, Threats & Challenges in the Indian context

Unit II: Environment Security: Definition, Meaning, Concept and Contemporary Issues in the Indian context

Unit III: Illegal Migration: Definition, Meaning, Concept and Contemporary Issues in the Indian context

Unit IV: Organised Crimes: Definition, Meaning, Concept, Recent Trend in the Indian Context

MJE-03 P: Practical

Credits 01

Course contents:

1. Paper Clippings on Security related Issues and a Case Study Report thereon.
2. Field Visit: Field Visit to a Place/Unit having importance on National Security and/or Strategic Defence.
3. Laboratory Note Book: Sand Model on Human Security/ Illegal Migration/Organised Crime.

Suggested Readings:

1. Joakim Palme, Kristof Tamas (2006): Globalizing Migration Regime: New Challenges to Transnational Cooperation
2. Moufida Goucha, John Crowley (2008): Rethinking Human Security
3. Shahrbanou Tadjbakhsh, Anuradha M. Chenoy (2007): Human Security: Concepts and Implications, Rutledge Advances and International Relations and Global Politics
4. Richard A Matthew and John Barnett Bryan Macdonald and Karen L. O'Brien (2010): Global Environmental Change and Human Security
5. Kimberley L. Thachuk (2007): Transitional Threats; Smuggling and Trafficking in Arms, Drugs and Human Life
6. Lal Marie (2008): The Geopolitics of Energy in South Asia, Institute of Southeast Asian Studies, Singapore
7. Leena (2000): Energy Infrastructure; Priorities, Constraints and Strategies for India, Oxford

OR

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Major Elective -3T: International Relations

Credits 04 (FM: 75)

MJE-03 T: International Relations

Credits 03

Course contents:

Unit I: Introduction to the Understanding of International Relations, Theories and Approaches

Unit II: Diplomacy and Foreign Policy: Theoretical Background, Contemporary Issues in Indian Context

Unit III: International Relation of India with its Neighbouring Countries (Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and China)

Unit IV: End of Cold War and Emergence of New World Order (after 9/11/2001)

MJE-03 P: Practical

Credits 01

Course contents:

1. Strategic Maps of India: India and her Neighbouring Countries; India and Indian States and Union Territories with Capital, Strategic Raw Materials, Defence Industries and Atomic Reactors
2. Short Presentation/ Lecture
3. Records
4. VIVA VOCE

Suggested Readings

1. Aron, Raymond (2003) Peace and War: A Theory of International Relations, Transaction Publishers
2. Coulombis, T. A and Wolfe, W. H. (1986): International Relations: Power and Justice, Prentice Hall, New Jersey
3. Kumar Mahendra (2017): Theoretical Aspects of International Politics, Shival Agarwala and Co , New Delhi.
4. Frenkel Joseph (1968): Making of Foreign Policy: An Analysis of Decision Making, Oxford University Press, London
5. Calvocoressi, Peter (2008): World Politics Since 1945, 9th Edition, Longman

MINOR (MI)

(To be studied by students taken Military Science as Discipline- C)

MI-5/C5: India's National Security Policies

Credits 04 (FM: 75)

MI-5/C5T: India's National Security Policies

Credits 03 (45Hrs.)

Course contents:

Unit-I: National Security

- v. Meaning and concept
- vi. Importance of National security
- vii. Scope of National Security
- viii. Concept of India's National Security

Unit-II: India's Foreign Policy

- v. Meaning and Objectives
- vi. Basic Principles of India's Foreign Policy
- vii. Determinants of India's Foreign Policy
- viii. Evolution of India's Foreign Policy

Unit-III: India's Defence Policy

- iv. Aims and Objectives
- v. Evolution of India's Defence Policy
- vi. Linkages between Foreign and Defence Policy

Unit-IV: India's Nuclear Policy

- vii. Aims and Objectives
- viii. Peaceful uses of Nuclear Power
- ix. 1947 P.N.E. (Peaceful Nuclear Explosions)
- x. 1998 Nuclear Test (Operation Shakti).
- xi. India's Nuclear Doctrine
- xii. Evaluation of India's Nuclear Policy

Unit-V: India's Maritime Policy

- v. Strategic Environment of Indian Ocean
- vi. Strategic Importance of Indian Ocean
- vii. Presence of super power in Indian Ocean
- viii. India's Navel Strategy and Maritime Policy

Major A5/B5P: India's National Security Policies

Credits 01 (30Hrs.)

1. Map Reading

- i) Disputed Land areas with bordering states
 - a) Pakistan, b) China, c) Nepal, d) Bangladesh
- ii) Disputed Sea areas with bordering states
 - a) Pakistan, b) Bangladesh

2. Conflict zones of South Asia

- a) India; b) Pakistan c) China; d) Nepal, e) Bangladesh,
f) Srilanka, g) Bhutan, h) Afghanistan

3. Group Discussion and Seminar

For conflict issue in South Asia

Suggested Readings:

16. India's Defence Policy – Gautum Sen
17. Foreign Policy of India – K.P. Mishra
18. National Security Problems in India – L.R. Singh
19. India-China border dispute – Dr.M.L. Sali
20. Ethnic Conflict in Srilanka – Dr. P.A. Ghosh.
21. Defence security Alert Journal- Pawan Agrawal
22. Strategy Issues in South Asia- Arun Kumar Banerji
23. India-China Borderlands- Nimmi Kurian
24. India-China Relations in the Contemporary Era- C. Mahapatra
25. India-Bangladesh Relations- Jayanta Kumar Ray, Muntassir Mamoon
26. The Triangle India-Nepal-China-S.C.Bhatt
27. India and South Asia- David Ludden
28. India, Europe and Conflict Resolution in South Asia- Rajendra k. Jain
29. Neighbours, Major Powers and Indian Foreign Policy- Aneek Chatterjee
30. Afghanistan A Role for India- Arun Sahgal

MI-6/C6: India and Her Neighbouring Countries

Credits 04 Full Marks: 75

MI-6/C6T: India and Her Neighbouring Countries

Credits 03 (45 Hrs.)

Course contents:

Unit I: India and her Neighbouring Countries

Study of Geo-Strategic Factors Relating to Pakistan, China, Bangladesh, Nepal, Bhutan, Myanmar, Maldives, and Sri Lanka

Unit II: Emergence of Pakistan as an Independent State

Pakistan's foreign and Defence Policies to India; Recent Trends of Bilateral Relations between Bangladesh and India

Unit III: Emergence of China and Global Power Policies

Political System in China, Ethnic Composition of China; Recent Trends of Bilateral Relations between China

Unit IV: Emergence of Bangladesh as an Independent State

Strategic Relations of India with Bangladesh; Recent Trends of Bilateral Relations between Bangladesh

Unit V: Strategic Relations of India

Strategic Relations of India with Nepal, Bhutan, Myanmar, Maldives and Sri Lanka; The issue of Immigration and Infiltration.

MI-6/C6P: Practical

Credits 01 (30 Hrs.)

Course contents:

1. Strategic Maps of India and her Neighbours with identification of and Special emphasis on Strategic Geographical locations, boundaries, Cities, Transport and Communication, Strategic Raw Materials, Defence Industries and Atomic Reactors, National Anthem, Symbol, Flower, Language, Culture and Customs.
2. Short Presentation/ Lecture
3. Records
4. Viva Voce

Suggested Readings

1. U. S. Bajpai: India and Its Neighbours
2. C. P. Bhambri: Foreign Policy of India
3. A. Shah: Indian Defence and Foreign Politics
4. Cohen, Stephen Philip: The Idea of Pakistan
5. Veena, Kukreja: Contemporary Pakistan, Political Processes, Conflict and Cases
6. Iftikar H. Malik; Culture and Customs of Pakistan