

# Govt. Nagarjuna P.G. College of Science, Raipur (C.G.)



## **CURRICULUM & SYLLABI** (Based on CBCS & LOCF)

### **M.Sc. I SEMESTER** (One Year Programme) **PROGRAMME STRUCTURE**

| Course Nature | Course Code | Course Title                            | Course Type (T/P) | Hrs/ Week | Credits | Marks |     |       |
|---------------|-------------|-----------------------------------------|-------------------|-----------|---------|-------|-----|-------|
|               |             |                                         |                   |           |         | CIA   | ESE | Total |
| Core          | DS-101      | Science, Technology, Society & Security | T                 | 5         | 5       | 30    | 70  | 100   |
| Core          | DS-102      | UN System and Global Governance         | T                 | 5         | 5       | 30    | 70  | 100   |
| Core          | DS-103      | Disaster Management in India            | T                 | 5         | 5       | 30    | 70  | 100   |
| Core          | DS-104      | Arms Control and Disarmament            | T                 | 5         | 5       | 30    | 70  | 100   |
| Core          | DS-105      | Geopolitics through News & Maps         | P                 | 2         | 2       | 30    | 70  | 100   |
| Core          | DS-106      | Military Psychological Experiments - I  | P                 | 2         | 2       | 30    | 70  | 100   |
| Qualify       | DSIKS       | Bhartiya Yuddha Shastra                 | T                 | 2         | 2       | 30    | 70  | 100   |

**Applicable for admission from A.Y. 2026-27 onwards**

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**Department of Defence Studies**  
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**M. Sc. I Semester (One Year Programme)**

**Session: July-December 2026**

**Course/Paper - I (Code : DS-101)**

**Course Title: Science, Technology, Society and Security**

**Detailed Syllabus/Curriculum:**

| Unit | Topics                                                                                                                                                                                                                                                                                                                                           | No. of Lectures | CO No. |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
| I    | <ul style="list-style-type: none"><li>Gradual development of S&amp;T in war (Ancient Age, Age of Gun Powder, Age of Steam, Age of Oil, Modern Age)</li><li>Technological Changes from Industrial Revolution to Information Revolution</li><li>Relevance of Science &amp; Technology in National Security</li></ul>                               | 15              | 1      |
| II   | <ul style="list-style-type: none"><li>India's Civil Nuclear Programme – Importance, growth, problems and achievements</li><li>India's Space Programme – Importance, growth, problems and achievements</li><li>India's Missile Development Programme - Growth and achievements</li><li>Emerging New technologies of Indian Armed Forces</li></ul> | 15              | 2      |
| III  | <ul style="list-style-type: none"><li>Revolution in Military Affairs (RMA) &amp; Military Industrial Complexes</li><li>Chemical, Biological and Nuclear Weapons &amp; the WMD Terrorism</li><li>Use of Science &amp; Technology by Terrorist Groups</li><li>Dual Use and Critical Technologies and its Impact</li></ul>                          | 15              | 3      |
| IV   | <ul style="list-style-type: none"><li>Information warfare and India's Security</li><li>Social Media and Impact on India's National Security</li><li>Cyber threats &amp; India's Cyber Security Policy</li><li>New Challenges - Artificial Intelligence, Deep Fake</li></ul>                                                                      | 15              | 4      |

**Websites/Government Reports:**

1. Annual Reports and Achievements of ISRO and DRDO.
2. National Cyber Security Policy of India and IT ACT – 2000
3. NITI Aayog Papers on Emerging Technologies
4. Annual Reports of Ministry of Defence, Government of India.
5. SIPRI Year Book (2020-2025)
6. PIB Year End Review (2023-2025)

**Reference Books:**

1. Yudh me Vigyan avam Prodhaugiki – Prof. Girish Kant Pandey
2. India's Missiles and Strategic Forces – Laxman Kumar Behera (IDSA Monographs)
3. India's Nuclear Policy – Bharat Karnad
4. Military Technology and Defence Industrialization - S.K Sen
5. The High-Tech War of twentieth century - V.M. Tewari

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**M. Sc. I Semester (One Year Programme)**

**Session: July-December 2026**

**Course/Paper - II (Code: DS-102)**

**Course Title: UN System and Global Governance**

**Detailed Syllabus/Curriculum:**

| Unit | Topics                                                                                                                                                                                                                                                                                                               | No. of Lectures | CO No. |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
| I    | <ul style="list-style-type: none"> <li>International Organisation – Definition, Scope &amp; Approaches</li> <li>Emergence of the UNO - Historical Context and Objectives</li> <li>UN Charter and Principles of Sovereignty and Multilateralism</li> <li>Main Organs &amp; Specialized Agencies of the UNO</li> </ul> | 15              | 1      |
| II   | <ul style="list-style-type: none"> <li>United Nation General Assembly (UNGA)</li> <li>United Nation Security Council (UNSC)</li> <li>Economic and Social Council (ECOSOC)</li> <li>International Court of Justice (ICJ)</li> <li>UNO Secretariat</li> </ul>                                                          | 15              | 2      |
| III  | <ul style="list-style-type: none"> <li>Pacific Settlement of International Disputes and UNO</li> <li>Arms Control &amp; Disarmament and IAEA</li> <li>Collective Security Management and UNO</li> <li>Regional Security arrangement and UNO</li> <li>Sustainable Development and Environment</li> </ul>              | 15              | 3      |
| IV   | <ul style="list-style-type: none"> <li>Reform Debates - Security Council Reforms, Veto Power, Global South Representation</li> <li>Criticisms of the UN System and Global Governance</li> <li>India's Engagement with the UN and Global Governance</li> <li>India's Role in UN Peacekeeping Missions</li> </ul>      | 15              | 4      |

**Websites/Government Reports:**

1. United Nation Official Website
2. UN Charter & Preambles
3. Niti Aayog Official Website, Government of India.
4. UN Sustainable Development Goal Reports and Achievements

**Reference Books:**

1. Newman, E., A Crisis of global institutions? Multilateralism and international security. London and New York: Routledge, 2007.
2. Price, R., & Zacher, M. (eds.) The United Nations and global security. New York/Houdmills: Palgrave Macmillan, 2004.
3. R. Price, M. Zacher (eds), The United Nations and Global Security (Paperback), New York: Palgrave Macmillan, 2004.
4. Rita Parker Anthony Burke, The United Nations and Global Security, Global Insecurity, 2017.
5. Thakur, Ramesh, The United Nations, Peace and Security From Collective Security to the Responsibility to Protect, New York: Cambridge University Press, 2017.

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**M. Sc. I Semester (One Year Programme)**

**Session: July-December 2026**

**Course/Paper - III (Code: DS-103)**

**Course Title: Disaster Management in India**

**Detailed Syllabus/Curriculum:**

| Unit | Topics                                                                                                                                                                                                                                                                                                                               | No. of Lectures | CO No. |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
| I    | <ul style="list-style-type: none"><li>Disaster Management: Concept &amp; Significance</li><li>Disaster Management: Types, Causes, Consequences</li><li>Disaster Management Acts: National Policy, National Guidelines and plans on Disaster Management.</li></ul>                                                                    | 15              | 1      |
| II   | <ul style="list-style-type: none"><li>Dimensions and typology of Disasters - Natural disasters</li><li>Dimensions and typology of Disasters - Manmade Disasters</li><li>Disaster Management Cycle (Response, and Recovery, Relief, and Reconstruction) and Mitigation Approaches in India.</li></ul>                                 | 15              | 2      |
| III  | <p>Study of Disaster in India / Around the World –</p> <ul style="list-style-type: none"><li>Bhopal Gas Tragedy (1984)</li><li>Chernobyl Nuclear Disaster (1986)</li><li>Indian Ocean Tsunami (2004)</li><li>Fukushima Nuclear Disaster (2011)</li><li>Uttarakhand Flood (2013)</li></ul>                                            | 15              | 3      |
| IV   | <ul style="list-style-type: none"><li>Role of NDMA, DDMA and DDMA at various stages of Disaster Management.</li><li>Role of Military and Paramilitary and NDRF During Disaster</li><li>Role of NGOs, IGOs and Local Community at various stages of Disaster Management.</li><li>India's Role in Global Disaster Management</li></ul> | 15              | 4      |

**Websites/Government Reports:**

1. Annual Report, Ministry of Home Affairs, Govt. of India
2. Annual Report, Ministry of Defence, Govt. of India
3. Official Website of The National Institute of Disaster Management (NIDM)
4. Official Website of National Disaster Management Authority (NDMA)
5. United Nations International Strategy for Disaster Reduction
6. Global Assessment Report on Disaster Risk Reduction
7. NDMA Guidelines on Disaster Management for Various Disasters

**Reference Books:**

1. Disaster Management, by I. Sundar, I. T. Sezhiyan, Sarup & Sons, 2007
2. Disaster Management, by Shailendra K. Singh, Shobha Singh Mittal Publications, 1998
3. Singh, R.B. (Ed.) Natural Hazards and Disaster Management: Vulnerability and Mitigation
4. Ariyabandu, Madhavi Malalgoda Bringing Together Disaster and Development: Concepts, Practice and New Approaches

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**M. Sc. I Semester (One Year Programme)**  
**Session: July-December 2026**  
**Course/Paper - IV (Code : DS-104)**  
**Course Title: Arms Control and Disarmament**

**Detailed Syllabus/Curriculum:**

| Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                               | No. of Lectures | CO No. |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
| I    | <ul style="list-style-type: none"> <li>• Basic Concepts &amp; Theories of Arms Control and Disarmament</li> <li>• Relations and Difference between the Both Concepts</li> <li>• Nature and Scope of Arms Control and Disarmament</li> <li>• Objectives and Condition of Disarmament</li> <li>• Types of Disarmament</li> </ul>                                                                                                       | 15              | 1      |
| II   | <ul style="list-style-type: none"> <li>• Disarmament Efforts Under the League of Nations</li> <li>• Disarmament Efforts Outside of the League of Nations</li> <li>• Disarmament Efforts Under the United Nations</li> <li>• Unilateral, Bilateral and Multilateral approaches</li> </ul>                                                                                                                                             | 15              | 2      |
| III  | <ul style="list-style-type: none"> <li>• Biological and Chemical Weapons Convention</li> <li>• Nuclear Arms Limitation and Arms Control Treaties (ABM, SALT, START, INF etc.)</li> <li>• Concept of Non-Proliferation and Major treaties (PTBT, NPT, CTBT, FMCT and Others)</li> <li>• Multilateral Export Control Regimes (MTCR, NSG, Australia Group, Wassenaar Agreement)</li> <li>• Nuclear Weapon Free Zone Treaties</li> </ul> | 15              | 3      |
| IV   | <ul style="list-style-type: none"> <li>• Potential Future Trend of Arms Control and Disarmament</li> <li>• Challenges towards Arms Control and Disarmament Efforts</li> <li>• India's Efforts towards Arms Control and Disarmament</li> <li>• Arms Control and Disarmament &amp; Economic Development</li> </ul>                                                                                                                     | 15              | 4      |

**Websites/Government Reports:**

1. The United Nations, Disarmaments Year Book, New York.
2. SIPRI Year Book on Armament and Disarmament.
3. IISS publications
4. Military Balance ISSS, London.
5. WMD Reports, Indian Parliament, Govt. of India.
6. Arm Control Associations, United Nation.
7. United Nations Office for Disarmament Affairs (UNODA)
8. Official Website of United Nation

**Reference Books:**

1. India's Nuclear Policy Disarmament and International Security – S.K. Mishra
2. Chemical Weapons – Parsad S. K.
3. Conventional Deterrence - J.J. Mearsheimer
4. Security in the Nuclear Age - J.H. Kahn
5. Deterrence and Strategy - Andre Beaufre

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**M.Sc. (Defence Studies) One Year Programme Semester - I (Lab Course A)**

| Program       | Subject                                    | Year | Semester    |
|---------------|--------------------------------------------|------|-------------|
| M.Sc.         | Defence Studies                            | I    | I           |
| Course Code   | Course Title                               |      | Course Type |
| DS - 105      | <b>Geopolitics through News &amp; Maps</b> |      | Core        |
| Credit        | Hours Per Week (L-T-P)                     |      |             |
|               | L                                          | T    | P           |
| 03            | 2                                          | -    | 4           |
| Maximum Marks | CIA                                        |      | ESE         |
| 100           | 30                                         |      | 70          |

**Detailed Syllabus/Curriculum:**

| Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | No. of Lectures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <ul style="list-style-type: none"> <li>Collection and compilation of newspaper cutting on national and international affairs</li> <li>Focus on defence, diplomacy, internal security, conflicts, and peace efforts</li> <li>Political and strategic mapping of –               <ul style="list-style-type: none"> <li>a. India (States, UTs, Borders, Strategic locations)</li> <li>b. Asia (Neighbouring countries, conflict zones, sea routes)</li> <li>c. World (Alliances, power blocs, strategic chokepoints)</li> </ul> </li> <li>Preparation of a 10-minute Power Point Presentations on a current defence &amp; security related issue.</li> <li>Sessional Work and Record</li> </ul> | 60              |

**Books Recommended:**

1. **Journals of Defence Studies** – MP-IDSA, New Delhi.
2. **Modern World Affairs** – N. Jayapalan
3. **Defence Studies: Contemporary Perspectives** – Dr. V.P. Malik & M. Amarjeet Singh
4. **Strategic Affairs Yearbook** – MP-IDSA
5. **Annual Report** – Ministry of Defence, Government of India.
6. **Yojana / Kurukshetra** – For Indian Defence and Internal Security Updates.
7. **Daily Newspaper Editorial** – Danik Jagran, Indian Express & The Hindu.
8. **MP-IDSA** – Commentaries and Policy Briefs.

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**M.Sc. (Defence Studies) One Year Programme Semester - I (Lab Course B)**

| Program       | Subject                                       | Year | Semester    |
|---------------|-----------------------------------------------|------|-------------|
| M.Sc.         | Defence Studies                               | I    | I           |
| Course Code   | Course Title                                  |      | Course Type |
| DS - 106      | <b>Military Psychological Experiments - I</b> |      | Core        |
| Credit        | Hours Per Week (L-T-P)                        |      |             |
|               | L                                             | T    | P           |
| 03            | 2                                             | -    | 4           |
| Maximum Marks | CIA                                           |      | ESE         |
| 100           | 30                                            |      | 70          |

**Detailed Syllabus/Curriculum:**

| Topics                                                                                                                                                                      | No. of Lectures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <ul style="list-style-type: none"> <li>Koh's Block Design Test</li> <li>Alexander Pass Along Test</li> <li>Mental Fatigue test</li> <li>Picture Contruction Test</li> </ul> | 60              |

**Books Recommended:**

1. Ministry of Defence Manuals on Selection and Mental Health
2. DIPR (DRDO) – *SSB Preparation and Testing Methods*
3. Ministry of Defence Manuals and SSB Booklets
4. Bhatia, C.M. – *Performance Tests of Intelligence* (Manual)
5. A.P. Singh – *Psychological Testing in Defence Settings*
6. R.C. Mishra – *Military Psychology: Applications and Theory*
7. Robert J. Gregory – *Psychological Testing: History, Principles, and Applications*
8. APA Journal – *Military Psychology*

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**M. Sc. I Semester**  
**Session: July-December 2026**  
**Course/Paper - I (Code: DSIKS)**  
**Course Title: *Bhartiya Yuddha Shastra***

**Detailed Syllabus/Curriculum:**

| Unit | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                | No. of Lectures | CO No. |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|
| I    | <ul style="list-style-type: none"> <li>Definition and scope of IKS in warfare</li> </ul> <b>Ancient Texts and Philosophies –</b> <ul style="list-style-type: none"> <li>a. Mahabharata (Ethical &amp; Strategically Insights)</li> <li>b. Ramayana (War &amp; Valour)</li> <li>c. Bhagavad Gita (Principles of Duty &amp; Morality)</li> <li>d. Dhanur Veda (Art of War and Military Training)</li> <li>e. Kautilya's Arthshastra</li> </ul>                          | 15              | 1      |
| II   | <b>Strategic and Tactical Knowledge -</b> <ul style="list-style-type: none"> <li>○ Chaturanga Bal (The Four Components)</li> <li>○ Vyuh (Battle Formations)</li> <li>○ Guerrilla Yuddh (Guerrilla Warfare)</li> <li>○ Guptchari (Espionage)</li> </ul> <b>Technology and Innovation in Warfare -</b> <ul style="list-style-type: none"> <li>○ Weapons of War (Astra-Shastra)</li> <li>○ Mobile Warfare (Yuddh Rath)</li> </ul>                                        | 15              | 2      |
| III  | <b>Ethics and Dharma in Warfare -</b> <ul style="list-style-type: none"> <li>○ Fairness in Combat (Dharm Yuddh)</li> <li>○ The Just War (Niti aur Nyaya)</li> <li>○ Violence and Non-Violence (Himsaya aur Ahimsa)</li> </ul> <b>Role of Knowledge and Learning in Warfare -</b> <ul style="list-style-type: none"> <li>○ Military Training and Education, Gurukul System</li> <li>○ Psychological Warfare and Intelligence</li> <li>○ Diplomatic Strategy</li> </ul> | 15              | 3      |
| IV   | <ul style="list-style-type: none"> <li>Influence of Indian Warfare on Global Military Traditions</li> <li>Relevance of Ancient Military Thought in Nuclear &amp; Information Age</li> <li>Indian Knowledge System in 21st Century Defence Strategy</li> </ul>                                                                                                                                                                                                         | 15              | 4      |

**Suggested Readings:**

1. R. Shamasastri (1905). Kautilya Arthshastra (Translated), Penguin Publications.
2. Basham, A. L. (2004). The Wonder That Was India. Rupa Publications.
3. Boesche, R. (2002). The First Great Political Realist: Kautilya and His Arthshastra.
4. Chaturvedi, B. K. (2019). Chanakya's Political Wisdom. Diamond Pocket Books.
5. Gurjar, R. (2020). The Art of War in Ancient India. Read worthy Publications.
6. Jha, D. N. (2010). Ancient India: In Historical Outline. Manohar Publishers.
7. Majumdar, R. C. (2003). The Military System of Ancient India. Bhartiya Vidya Bhavan.
8. Mishra, R. (2016). Indian Warfare: From Vedic Period to the Mauryan Age. Aryan Books.
9. George Tanham – *Indian Strategic Thought: An Interpretive Essay*
10. Stephen Cohen – *India: Emerging Power*