JAWAHARLAL NEHRU UNIVERSITY

CENTRE FOR INTERNATIONAL POLITICS, ORGANISATION AND DISARMAMENT

MPhil (Diplomacy and Disarmament)

WINTER SEMESTER 2014

COURSE NO IO621: SCIENCE, TECHNOLOGY AND NATIONAL SECURITY

COURSE TEACHERS: PROFESSOR SWARAN SINGH & DR J. MADHAN MOHAN

CLASS SCHEDULE

Tuesday and Friday: 2-3.30 p.m.

COURSE EVALUATION

PROF SWARAN SINGH – 30% (CLASS ASSIGNMENTS)

DR J. MADHAN MOHAN – 70%

Fortnightly Test - 15%
Mid-Semester Examination – 15%
Research Paper - 20%
End-Semester Examination – 20%

COURSE OUTLINE

UNIT I: INTRODUCTION: SCIENCE, TECHNOLOGY, AND POLITICS IN INTERNATIONAL RELATIONS

Understanding basic concepts and connotations: what is science? what is technology? what is the relationship of science and technology to politics and national security? What is the role of technology in war and peace?

Readings


John Street, Politics and Technology, (three chapters, Macmillan 1992)


Edward Mead Earle, Makers of Modern Strategy (One Chapter, Princeton, 1943)

Antulio J Echevarria II, Imagining Future Wars, (One Chapter, Praeger, 2007)

Arnulf Grubler, Technology and Global Change (Two chapters, Cambridge, 1998)

UNIT 2: SCIENCE, TECHNOLOGY AND NATIONAL SECURITY


Readings
Barry Buzan, Ole Waever, Jaap de Wilde, Security: A New Framework for Analysis (1998); Barry Buzan, People, State and Fear; Martin van Creveld, Technology and War, Supplying War; Chris Hables Gray, Post-Modern War; Guy Hartcup, The Effects of Science on the Second World War; Toffler and Toffler, War and Anti-War, Brodie and Brodie, From Crossbow to H-Bomb; Art and Jervis (ed), The Use of Force; Cipolla, Guns, Sails and Empire; William McNeil, In Pursuit of Power; George Quester, Offense and Defense in the International System.

UNIT 3: SECURITY: CONCEPTUALISATION, THEORISATION AND EVOLUTION

Conceptualisation of security in mainstream International Relations theory; traditional security studies; changing notions of security; the politics and ethics of national security; non-traditional security; human security; critical theory; critical security studies; securitisation and desecuritisation.

Core Reading


Steve Smith, “Singing Our World into Existence: International Relations

**Further Reading**


**UNIT 4: WEAPONS OF MASS DESTRUCTION (WMD), ESPECIALLY NUCLEAR REVOLUTION**

Concepts in nuclear physics; nuclear energy and nuclear weapons; causes of nuclear proliferation; strategic consequences of nuclear proliferation; nuclear technology and forms of nuclear proliferation; contemporary proliferation challenges; counter-proliferation; nuclear terrorism; nuclear politics.

**Core Reading**


**Further Reading**


**UNIT 5: WEAPONS OF MASS DESTRUCTION (WMD): CHEMICAL AND BIOLOGICAL WEAPONS**

Definition of chemical and biological weapons; the threat of chemical and biological warfare in historical perspective; research and development programmes in the twentieth century; challenges to control; toxic terror and dreaded risks; bio-terrorism.

**Core Reading**


**Further Reading**


**UNIT 6: SPACE WEAPONS, MISSILE TECHNOLOGIES, TECHNOLOGY TRANSFER**

Space weapons; problems of controlling missile proliferation; Ballistic Missiles and National Missile Defence; collaboration and technology transfer.

**Core Reading**


Dinshaw Mistry, ‘Beyond the MTCR: Building a comprehensive regime to contain ballistic missile protection’, *International Security*, vol. 27, no. 4, Spring 2003, pp. 119-149.
Further Reading


UNIT 7: TECHNOLOGY, STRATEGY AND MILITARY CULTURE

Offence-defence balance and explaining war and peace in the international system; determinants of offence-defence balance; technology, warfare and international relations.

Core Reading


Further Reading


UNIT 8: NATIONAL SECURITY STRATEGIES AND DOCTRINES
Impact of Science and Technology on evolution of national security debate and doctrines, Technologies versus Strategy, Science, technology and national security strategy; nuclear revolution and revolution in warfare, Indian national security debate.

General Readings

Nayyar, Jayal, Singh, Suri, Karim, National Security – Military Aspects; Earle, Makers of Modern Strategy; Peter Paret et al, Makers of Modern Strategy; Lawrence Freedman, The Evolution of Nuclear Strategy; Miller et al, Military Strategy and the Origins of First World War; Preston and Wise, Men and Arms; T. Ropp, War in the Modern Age; Kissinger, Nuclear Weapons and Foreign Policy.

UNIT 9: IMPACT OF CULTURE AND ETHICS ON SCIENCE, TECHNOLOGIES AND NATIONAL SECURITY

Impact of culture and ethics in the evolution of military science and technologies, culture and war, culture and national security, technology as social process, technology and society, technology and governance, information revolution and national security.

General Readings

Reilly et al, Justice and War in the Nuclear Age; Hare and Jeoynt, Ethics and International Affairs; Hardin et al, Nuclear Deterrence: Ethics and Strategy; Johnston, Just War Termination and Restraints of War; Michael Howard, Restraints of War; Walzer, Just and Unjust Wars; Iain Johnston, Cultural Realism; Katzenstein, Culture and Security; George Tanham, Indian Strategic Thought; Pillar, Negotiating Peace: War Termination as a Bargaining Process; Subrahmanyam, Nuclear Myths and Realities.

UNIT 10: CONVENTIONAL WEAPONS

Arms racing and tactics; proliferation of conventional weapons; aviation and missiles/space

Core Reading


Further Reading


**UNIT 11: WAR PREVENTION/TERMINATION AND ROLE OF SCIENCE AND TECHNOLOGY**

Defensive and offensive technologies, technologies supporting confidence building, hotlines, technologies of border management and surveillance, satellites etc, South Asian case studies.

**General Readings**


**UNIT 12: TECHNOLOGY AND SECURITY IN DEVELOPING STATES**

Evolution, politics, and efficacy of various Technology Control Regimes; and current debates on their role in international politics. Debates on new genre of technology control regimes and their impact on national security, especially of developing countries.

**Core Reading**


**Further Reading**


**UNIT 13: STATE, SOCIETY AND SECURITY**
Legitimising, privileging and theorising state; conceptualising violence; state violence and violence by non-state actors; terrorism; counter-terrorism; war on terror; just war; risk society.

**Core Reading**


**Further Reading**


**UNIT 14: POLITICS OF SCIENCE, TECHNOLOGY AND SECURITY**

Science and technology as the site of politics; scientific progress and its limits; Science and technology: levelling the gap or creating the divide? Science, rationality, enlightenment and hegemony; the politics of security: security for whom? what? why? how?; appreciating the expanding frontiers of science.

**Core Reading**


Richard Jackson, Eamon Murphy and Scott Poynting, *Contemporary State Terrorism: Theory and Practice* (Oxon: Routledge, 2010).

**Further Reading**


National security or national defence is the security and defence of a nation state, including its citizens, economy, and institutions, which is regarded as a duty of government. Originally conceived as protection against military attack, national security is now widely understood to include also non-military dimensions, including the security from terrorism, minimization of crime, economic security, energy security, environmental security, food security, cyber-security etc. Similarly, national The National Security Agency (NSA) sponsors the Science of Security (SoS) Initiative for the promotion of a foundational cybersecurity science that is needed to mature the cybersecurity discipline and to underpin advances in cyberdefense. The SoS initiative works in several ways: Engage the academic community for foundational research. Promote rigorous scientific principles. Grow the SoS community. The Science of Security initiative together with academia, industry, and other government partners is making a strong effort to create a research community dedicated to building security science.