SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Defence Science)
Semester: IV
Syllabus with Effect from: June - 2014

Paper Code: PT04CDSC02	**Total Credit: 4**
Title Of Paper: Antenna Systems & Radars	

Unit	Description in Detail	Weightage (%)
I	Fundamental principles of antenna, Introduction of different types of antennas (wire, loop, arrays, Yagi-Uda, horn, parabolic, patch and broadband antennas) and their applications, Antenna radiation pattern, power density, and intensity, Antenna beamwidth, directivity, efficiency, gain, Antenna polarization, input impedance, effective aperture,	25%
II	Friis transmission equation and radar range equation, Far-field radiation, RF propagation, ground effect, weather effect, RF safety, Dipole antennas, Loop antennas, Microstrip patch antennas, Antenna arrays, Antennas and wireless communication systems.	25%
III	Radar and Radar Equation, Radar range, Doppler measurement, Block diagram and characteristics (Approaching & receiving targets) CW Radar, FM - CW radar, altimeter, Multiple Frequency Radar, Pulse Radar, Pulse Doppler Radar, Tracking Radar.	25%
IV	RADAR System Design, Matched Filter, Detector Characteristics, Phased Arrays, Advantages and Limitations Navigational Aids.	25%

Basic Text & Reference Books:-

- Introduction Radar Systems, M.I. Skolnik, McGraw Hill Book Co., Fourth Edition, 2001.
- Radar Engineering and Fundamentals and Navigational Aids, G.S.N. Raju, I.K. International, 2008
- Understanding Radar Systems, Simon Kingsley and Shaun Quegan, SciTech Publishing, 1999.
- Introduction to Radar Systems, Merrill I. Skolnik, Tata McGraw Hill, 2001
- Antenna and wave Propagation for wireless Communication Systems Simon Saunders, Alejandro Aragón-Zavala -Wiley Publications, ISBN: 978-0-470-84879-1, 546 pages, March 2007