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

Paper Code: PT03EDSC01	**Total Credit: 4**
Title Of Paper: Nano Science & Materials	

Unit	Description in Detail	Weightage (%)
I	Nanoscience- a revolution, implications of nanotechnology, technology of micro and nanoversion and strategies, functional nanosciences (nanopores, fabrication, molecular motors)	25%
II	Nanostrategy in Science: Antimicrobial activity, mechanism, viral inhibitors, fungal inhibitors, surface and chemical modification, induction plasma technology and its applications, methods of synthesis-radiofrequency plasma, chemical methods, thermolysis, pulsed-laser methods.	25%
III	Carbon nanostructures: Clusters and nanotubes (preparation, fabrication, structure, doping, electrical vibrational and mechanical properties), applications of carbon nanotubes, self assembly and catalysis (nanoparticles, porous materials, pillared clays and colloids)	25%
IV	Nanotechnology: Nanostructured ferromagnetism (basics, dynamics and ferromagnets and fluids), biological materials, nanostructures, nano wires and protein nanoparticles, biological nanostructures (proteins, micelles, vesicles, multilayered films), energetic and chemical transformation of biological nanomaterials, nanomedicine, biomolecular sensing.	25%

Basic Text & Reference Books:-

- Allan McMichael; Nanoscience, Random Exports
- David S. Goodsell; Bionanotechnology- lessons from nature, Wiley-India
- Charles P. Poole, Jr., Frank J. Owens; Introduction to Nanotechnology, Wiley-India