LS 101 - PHYSICS FOR BIOLOGISTS - (2 CREDITS, 26 LECTURES)

Prof. Ajay Kumar Saxena*, Prof. S. Gourinath & Dr. Karunakar Kar

S. no.	Topic	Faculty	No. of lectures
1	**Quantum Physics**		
	- Wave versus Particle ; - Heisenberg and Uncertainty		1
	- Radioactivity;- Photoelectric effect		1
	- Atom and Nuclei; - Particles		1
2	**Properties of Matter**		
	- Elasticity;- Hydrostatic		1
	- Surface tension; - scalars and vectors		1
	- Newton laws, Forces, Work, Energy		1
3	**Crystal theory**		
	- Structure of solids, amorphous solids		1
	- Structure of single crystals		1
	- Basic introduction to x-ray crystallography		1
	- Crystal theory		1
4	**Thermal Physics**		
	- Laws of Thermodynamics and its application in Biological system		1
	- Temperature and related topics		1
	- Internal energy, Heat and First law of Thermodynamics		1
	- The ideal monatomic gas		1
	- Application of first law to Ideal Gases		1
	- Entropy and the Second law		1
5	**Optics, waves and sound**		
	- Black body radiation; Optics, Geometrical optics		1
	- Sound; Interferences		1
6	**Fundamental Electromagnetism**		
	- Charge and Current		1
	- Coulomb's law, Electric field, Electrostatic potential		2
	- Magnetic effects on study currents		2
	- Forces on current in a Magnetic field		1
	- Forces on charges in Electric and Magnetic field		2
7	**Introduction to Nanotechnology**		
	- Fundamental aspects of nanotechnology and its biological relevance.		1
			1
	- Self-assembly of molecules into nanostructures		1
	- Rationally Engineered Nanomaterials for biomedical applications		1
	- Nanobiotechnology in tissue engineering and drug delivery systems		