Optional Course

LS 572: Redox Biology [2 credits]

S K Goswami

S No	Topic	Contact Hours
1.	Redox Biology, a historical perspective and contemporary concepts	1
2.	Redox metabolism and cellular processes: Photosynthesis and Oxidative Phosphorylation	1
3.	Organelle specific pro-oxidant enzymes and their functions	1
4.	Antioxidant systems and redox buffers	2
5.	In vivo and in vitro detection of reactive oxygen species and free radicals	2
6.	Redox signalling in normal physiological processes: Protein thiols, their oxidative and nitrosative modifications and cellular functions, Hydrogen peroxide and cell signalling, S-nitrosylation and protein function, Redox sensitive transcription factors and regulation of gene expression, Redox status and epigenetic regulation, Redox regulation of cell-cell communication	15
7.	Emerging concept of redox homeostasis, oxidative stress and human diseases	2
8.	Robustness and pitfall of the “Free Radical theory of Aging”	1
9.	Role of nitric oxide and peroxynitrite in human health and diseases	3

Discussion on recently published research papers will be carried.