MEDICINAL CHEMISTRY – I
THEORY 3 hours/ week

UNIT -I

Basic Principles of Medical Chemistry: Physico-chemical aspects (Optical, geometric and bioisosterism) of drug molecules and biological action Brief concept on QSAR: Hansch analysis – its derivation and discussion on different parameters like electronic parameters, steric factor, and partition coefficient. Free Wilson model. Virtual drug screening techniques and its applications. 3-D QSAR Analysis: Receptor independent 3-D QSAR Analysis, Receptor dependent 3-D QSAR Analysis

UNIT -II

Classification, mode of action, uses and structure activity relationship of the following classes of drugs. Synthesis of those compounds only exemplified against each class.
A. Drugs acting on autonomic nervous system:
Cholinergics and Anticholinesterase: Acetylcholine, Carbachol, Bethanechol, methacholine and Neostigmine. Adrenergic drugs and adrenergic blocking agents: Adrenaline, Salbutamol, Naphazoline ,Propranolol, Atenolol Antispasmodic and anti ulcer drugs:Homatropine, Cyclopentolate, Diclomine, Tropicamide. Neuromuscular blocking agents:Gallamine, succinylcholine

UNIT -III

B. Autacoids :
Antithistamines: Diphenhydramine, Mepyramine, Chlorpheniramine, Promethazine, Chlorcyclizine, Ranitidine. Eicosanoids : Occurrences, Chemical nature, Medicinal applications Analgesic – antipyretics, anti-inflammatory (non-steroidal) agents: Aspirin, Paracetamol, Ibuprofen, Naproxan, Diclofenac sodium.

UNIT -IV

Diuretics: Acetazolamide, Chlorthiazide, Furosemide, Cardiovascular drugs: Clonidine, Methyldopa, Procainamide, Nifedipine, Prazocin, clofibrate.

UNIT -V

Anti-TB and anti-leprosy Drugs: Isoniazid, Ethambutol, Pirazinamide, Dapsone, Antiamoebic agents: Metronidazole, Diloxamidefuroate Anthelmentics :Thiabendazole, Mebendazole, Niclosamide Diagnostic Agents:Propyliodone, Sodium diatrizoate, Fluorescein sodium.