St.James College of Pharmaceutical Sciences St.James medical Academy River Bank, Chalakudy			
Programme:	B-PHARM	Sem.:	4
Name of Course: (*Subject*)	MEDICINAL CHEMISTRY 1	Course Code:	BP402T
Teaching faculty of the course	Mrs. DEENA BOSCO		

Summary of the Lecture Plan

Topic	Lectures	Hours
Introduction to medicinal chemistry	History and Development of medicinal chemistry	2
	Physico chemical properties	4
	Drug Metabolism	4
Drugs acting on Autonomic Nervous system- Sympathetic Agents	Adrenergic neurotransmitters	2
	Sympathomimetic agents	4
	Sympatholytic agents	4
Drugs acting on Autonomic Nervous system- Parasympathetic Agents	Cholinergic Neurotransmitters	2
	Parasympathomimetic agents	4
	Parasympatholytic agents	4
Drugs acting on central nervous system 1	Sedatives and hypnotics	3
	Antipsychotics	3
	Anticonvulsants	2
Drugs acting on central nervous system 2	General anesthetics	2
	Narcotic and non narcotic analgesics	2
	Anti inflammatory agents	3

Major issues or Core aspects to be addressed/ covered:

Topic Title - Introduction to medicinal chemistry
History and Development of medicinal chemistry
Physico chemical properties in relation to biological activity
Ionization, Solubility, Partition Coefficient, Hydrogen bonding, Protein binding, Chelation, Bioisosterism, Optical and Geometrical isomerism.
Drug Metabolism: Principles, Phase 1 and Phase 2
Factors affecting drug metabolism including stereochemical aspects

Topic Title - Drugs acting on Autonomic Nervous system- Sympathetic Agents
Adrenergic neurotransmitters: Release Adrenergic receptors: Distribution and function
Sympathomimetic agents: Classification, Mechanism of action, SAR, Synthesis and Uses
Sympatholytic agents: α and β blockers Classification, Mechanism of action, SAR, Synthesis and Uses
Topic Title - Drugs acting on Autonomic Nervous system- Parasympathetic Agents
Cholinergic Neurotransmitters: Biosynthesis and catabolism of Acetyl choline Cholinergic receptors: Distribution and function
Parasympathomimetic agents: Classification, Mechanism of action, SAR, Synthesis and Uses
Parasympatholytic agents: Natural and Synthetic Classification, Mechanism of action, SAR, Synthesis and Uses
Topic Title - Drugs acting on central nervous system 1
Sedatives and hypnotics: Classification, Mechanism of action, SAR, Synthesis and Uses
Antipsychotics: Classification, Mechanism of action, SAR, Synthesis and Uses
Anticonvulsants: Classification, Mechanism of action, SAR, Synthesis and Uses
Topic Title - Drugs acting on central nervous system 2
General anesthetics: Classification, Mechanism of action, SAR, Synthesis and Uses
Narcotic and non narcotic analgesics: Classification, Mechanism of action, SAR, Synthesis and Uses
Anti inflammatory agents: Classification, Mechanism of action, SAR, Synthesis and Uses

Sample Questions

Topic Title - Introduction to medicinal chemistry
Explain about geometrical isomerism and its influence on biological action
Write briefly about phase 1 metabolismof drugs with suitable examples
Define bioisosterism and give examples
Discuss phase 2 metabolism with examples
Short note on hydrogen bonding and ionization of drugs on biological activity
Discuss the effect of partition coefficient and solubility on drug action
Topic Title - Drugs acting on Autonomic Nervous system- Sympathetic Agents
Summarize the SAR of sympathomimetic agents with suitable illustrations

Mention any two alpha adrenergic blockers and their uses
Synthesis, SAR and uses of propranolol
Synthesis and use of phenylephrine and salbutamol
Topic Title - Drugs acting on Autonomic Nervous system- Parasympathetic Agents
Outline the biosynthesis of acetyl choline and cholinergic receptors distribution
Explain mechanism of action and uses of carbachol and Neostigmine
Relate any two synthetic cholinergic blocking agents and their structures
Discuss about cholinesterase reactivator with suitable examples
Topic Title - Drugs acting on central nervous system 1
Discuss the mechanism of action, synthesis of any one compound and SAR of benzodiazepines
Draw the structure and uses of meprobomate and valproic acid
Draw two structures of barbiturates give its SAR
Write synthesis of phenytoin and ethosuccimide
Give SAR of phenothiazines with suitable example
Write the structure, mechanism and uses of haloperidol
Topic Title - Drugs acting on central nervous system 2
Summarize SAR of morphine analogues
Mechanism of action and uses of aspirin
Write any two propionic acid derivative of anti inflammatory and analgesic agents
Explain the mechanism of action of piroxicam
Write the synthesis of mefenamic acid ibuprofen
Give the classification of general anesthetics with suitable examples