

Number	Competency The student should be able to	Specific learning Objectives	Domain K/S/A/C	level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizontal Integration	
PHARMACOLOGY											
KNOWLEDGE: Topic: Pharmacology							Number of procedures that require certification : (NIL)				
PH1.1	Define and describe the principles of pharmacology and pharmacotherapeutics		K	K	Y	Lecture		Written/ Viva voce			
PH1.2	Describe the basis of Evidence based medicine and Therapeutic drug monitoring	1.Able to describe evidence based medicine 2. Describe what is Therapeutic drug monitoring. Principles of therapeutic drug monitoring. Knows how Therapeutic drug monitoring is done. Describe indications and advantages of Therapeutic drug monitoring	K	KH	Y	Lecture		Written/ Viva voce			
PH1.3	Enumerate and identify drug formulations and drug delivery systems	Enumerate the various types of drug formulations 2. Advantages of each drug formulation with examples3. Disadvantages of each drug formulation with examples 4. Enumerate types drug delivery systems5. Advantages of each drug delivery system with examples 6.Disadvantages of each drug delivery system with examples.	K/S	SH	Y	Lecture, Practical		Written/ Viva voce			
PH1.4	Describe absorption, distribution, metabolism & excretion of drugs	At the end of session phase II MBBS student should be able to 1. Describe how drugs are absorbed.2. Describe factors affecting absorption of drugs. 3. Define what is bioavailability. 4. Discuss factors affecting bioavailability of drugs. 5. Describe measurement of bioavailability..6. Describe how drug are distributed.6. Describe what is apparent vol.G distribution.7. Describe what is re distribution.8. Describe factors governing vol. of drug distribution.9. describe plasma protein binding.10. Describe clinical significance of PP binding.11. Describe clinically important displacement reactions.12. Describe drug metabolism/ biotransformation.13. Describe what is first pass metabolism.14. Describe phase I drug biotransformation reaction.15. Describe phase I drug biotransformation reaction 16. Describe drug metabolizing enzymes(Microsomal enzyme/Non microsomal enzyme).17. Describe what is enzyme induction.18 Describe clinical relevance of enzyme induction.19. Describe clinical relevance of enzyme inhibition.20 Describe factors affecting drug metabolism.21. Describe how drug are excreted/ routes of drug excretion.22. Describe elimination kinetics.23. Describe what is half life of drug.24. Describe first order kinetics.25 Describe first order kinetics26. Describe zero order kinetics/michaelis menten kinetics.27 Know how to calculate loading dosage of drug.28. How to calculate maintenance dose of drug.	K	KH	Y	Lecture, Small Group discussion		Written/ Viva voce			

PH1.5	Describe general principles of mechanism of drug action	At the end of session Phase II MBBS student should be able to Define Pharmacodynamics 1. Describe Principles of drug action.2. Describe what is affinity 3. Describe what is intrinsic activity.4. Describe what is agonist with suitable examples.5. Describe what is antagonist with suitable examples.6. Describe what is partial agonist with suitable examples.7. Describe what is inverse agonist with suitable examples.8. Describe four major types of biomolecules.9. Target of drug action.10. Describe drug action through enzymes with examples.11. Describe drug action through ion channels with examples.12. Describe drug action through membrane bound transporters with examples.13. Describe drug action through receptors.14. Define receptors & types of receptors.15. Discuss receptor occupancy theory.16. Discuss ionotropic R.17. Discuss G-protein coupled R.18. Discuss intracellular/cytosolic R.19. Discuss enzyme R.20. Discuss drug acting through modulation of voltage gated ion channel.21. Describe receptor regulation.22. Describe function of R.23. Describe dose response relationship.24. Describe drug potency & efficacy.25. Describe therapeutic index.26. Describe combined effect of drug with examples.27. Describe antagonism.28. Describe type of antagonism.29. Describe competitive/ non-competitive antagonism.30. Discuss difference between competitive/ non-competitive antagonism. 31. Describe dose response curve shortly competitive/ non-competitive antagonism.	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		
PH1.6	Describe principles of Pharmacovigilance & ADR reporting systems	At the end of session Phase II MBBS student should be able to 1. Define what is Pharmacovigilance 2. Define Principal of Pharmacovigilance 3. Know about national Pharmacovigilance programme 4. About zonal, regional, PV centre. 5. How ADR reporting is done & what to report. 6. How to fill & ADR form. 7. Discuss Pharmacoepidemiology	K	KH	Y	Lecture, Practical	Written/ Viva voce		
PH1.7	Define, identify and describe the management of adverse drug reactions (ADR)	1. Define what is adverse drug reaction (ADR). 2. Describe types of ADR. 3. Describe mechanism of development of allergic reaction. 4. Describe how to identify ADRs. 5. Describe the management of ADR	K/S	KH	Y	Lecture, Practical	Written/ Viva voce		
PH1.8	Identify and describe the management of drug interactions	At the end of the session phase II MBBS student should be able to 1. Identify the drug interactions 2. Describe how to manage the drug interactions	K/S	KH	Y	Lecture, Practical	Written/ Viva voce		
PH1.9	Describe nomenclature of drugs i.e. generic, branded drugs	At the end of the session phase II MBBS student should be able to 1. Describe drug categories 2. Describe what is chemical name of drug. 3. Describe what is non-proprietary/ name of drug. 4. Describe what is proprietary/ brand name of drug. 5. What is prototype drug.	K/S	SH	Y	Lecture, Practical	Written/ Viva voce		
PH1.10	Describe parts of a correct, complete and legible generic prescription. Identify errors in prescription and correct appropriately	At the end of the session phase II MBBS student should be able to 1. Define what is Prescription 2. Write what are the parts of the Prescription. 3. Able to identify errors in Prescription. 4. Able to rewrite correct prescription.	K/S	SH	Y	Lecture, Practical	Written/ Viva voce		

PH1.11	Describe various routes of drug administration, eg., oral, SC, IV, IM, SL	At the end of the session phase II MBBS student should be able to 1. Describe various routes of drug administration. 2. Describe oral route of drug administration with examples. 3. Describe advantages of oral route of drug administration with examples. 4. Describe disadvantages of oral route of drug administration with examples. 5. Describe parenteral routes of drug administration with examples. 6. Describe advantages of Parenteral route of drug examples. 7. Describe disadvantages of Parenteral route of drug examples. 8. Describe inhalation route of drug administration with examples. 10. Describe advantage of inhalation route of drug administration. 11. Describe disadvantage of inhalation route of drug administration. 12. Describe topical route of drug administration with example. 13. Describe advantages of topical route of drug administration with example. 14. Describe disadvantages of topical route of drug administration. with examples.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly and patient with renal dysfunction.	At the end of the session phase II MBBS student should be able to calculate drug dosages using appropriate formula for individual patients. 1. Should know how to calculate individual dose according to body weight, body surface area. 2. Should be able to calculate children dosage using young's formula, Dilling's formula. 3. Knows how to calculate corrected dosage of drugs for elderly patients with renal disease.	K/S	SH	Y	Lecture, practical	Written/ Viva voce		Pediatrics, General Medicine
PH1.13	Describe mechanism of action, types, doses, side effects, indications and contraindications of adrenergic and anti-adrenergic drugs	At the end of the session phase II MBBS student should be able to 1. Discuss adrenergic receptors & their location. 2. Classify adrenergic / non adrenergic drug 3. Describe Mechanism of action of adrenergic drug/ non adrenergic drugs. 4. The dosage of adrenergic /non adrenergic drugs. 5. List the side effect, indication & contraindications of adrenergic/non adrenergic drugs.	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		
PH1.14	Describe mechanism of action, types, doses, side effects, indications and contraindications of cholinergic and anticholinergic drugs	At the end of the session phase II MBBS student should be able to 1. Discuss cholinergic receptors & their location. 2. Classify cholinergic /anti cholinergic drugs. 3. Describe Mechanism of action of cholinergic /anti cholinergic drug. 4. Choose the dosages of cholinergic /anti cholinergic drug. 5. List the side effect, indication & contra indication of cholinergic /anti cholinergic drug.	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		
PH1.15	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of skeletal muscle relaxants	At the end of the session phase II MBBS student should be able to 1. Classify skeletal muscle relaxants. 2. Describe mechanism of action of skeletal muscle relaxants. 3. Choose dosage & side effect indication & contra indications of skeletal muscle relaxants.	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology, Physiology
PH1.16	Describe mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act by modulating autacoids, including: anti-histaminics, 5-HT modulating drugs, NSAIDs, drugs for gout, anti-rheumatic drugs, drugs for migraine	1. Discuss the pathogenesis of migraine. 2. Classify anti-migraine drugs. 3. Discuss Mechanism of action of anti migraine drugs. 4. Describe drugs used in Prophylaxis of migraine. 4. Describe drugs used in acute attack of migraine. 5. discuss side effects of anti migraine drugs.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.17	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of local anesthetics	At the end of the session phase II MBBS student should be able to 1. Classify local anesthetics. 2. Describe Mechanism of action of local anaesthetic. 3. discuss dosage, side effect, indication & contra indication of various local anesthetics.	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology

PH1.18	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of general anaesthetics, and pre- anesthetic medications	At the end of the session phase II MBBS student should be able to 1. Classify stages of anaesthetics 2. Classify types of general anaesthetics.3. Describe Mechanism of action , Dosage, Side effect, Indication, & Contra indication of inhalational & intravenous anaesthetics 4. Discuss about malignant hypertensive & its treatment.5. Describe Preanaesthetic medications.	K	KH	Y	Lecture	Written/ Viva voce		Anesthesiology
PH1.19	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS, (including anxiolytics, sedatives & hypnotics, anti-psychotic, anti- depressant drugs, anti-maniacs, opioid agonists and antagonists, drugs used for neurodegenerative disorders, anti-epileptics drugs)	At the end of the session phase II MBBS student should be able to 1. Classify anxiolytics.2. Describe mechanism of action (MOA) of anxiolytics.3. Describe doses of anxiolytics.4. Describe indications anxiolytics.5. Describe drug interactions anxiolytics.6. Classify sedatives & hypnotics.7. Describe MOA of sedatives & hypnotics.8. Describe doses of sedatives & hypnotics.9. Describe side effect sedatives & hypnotics.10. Describe indication sedatives & hypnotics .11. Describe CI of sedatives & hypnotics12. Discuss drug interactions13..Describe MOA of anti-psychotic14.. Describe doses of anti-psychotic.15. Describe side effect anti-psychotic.16. Describe indication anti-psychotic .17 Describe CI of anti-psychotic. Classify anti depressants 18.Describe MOA of anti-psychotic.19. Describe doses of anti-psychotic.20. Describe indications anti-psychotic 20 Classify anti depressants 21. MOA anti- depressant 22. Describe doses anti- depressant23. Describe side effect of anti-depressant24. Describe medication of anti- depressant 25. Describe CI anti- depressant 26. Drug interaction anti- depressant 27. Classify of anti-maniacs, 28. MOA of anti-maniacs,29. Describe dosage anti-maniacs,30. Describe side effect anti-maniacs, 31. Describe indication anti-maniacs, 32. Describe CI anti-maniacs, 33. Classify of opioid agonists and antagonists 34. Discuss opioid agonists and antagonists & their uses.35. Discuss MOA opioid agonists and antagonists 36. Doses of opioid agonists and antagonists 37. Discuss side effect opioid agonists and antagonists 38. Discuss indication opioid agonists and antagonists 39. Discuss CI opioid agonists and antagonists 40. Classify drugs used in neurodegenerative 41. Classify drugs used in Parkinsonism 42. Discuss MO Parkinsonism 43. Discuss side effect of drug used in Parkinsonism 44. Discuss CI Parkinsonism 45. Discuss drug interaction of Parkinsonism46. Discuss drug used in Alzheimers disease. 47. Discuss MO Alzheimers disease. 48. Discuss side	K	KH	Y	Lecture	Written/ Viva voce		Psychiatry, Physiology
PH1.20	Describe the effects of acute and chronic ethanol intake	At the end of the session phase II MBBS student should be able to 1. Describe acute effect of ethanol intake.2. Describe chronic effect of ethanol intake.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry
PH1.21	Describe the symptoms and management of methanol and ethanol poisonings	At the end of the session the phase II MBBS Students must be able to differentiate symptoms of methanol poisoning from ethanol poisoning oral management.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine
PH1.22	Describe drugs of abuse (dependence, addiction, stimulants, depressants, psychedelics, drugs used for criminal offences)	At the end of the session the phase II MBBS students must be able to describe. 1 Drug of Abuse.2. Discuss dependence. 3. Describe addiction.4. Describe various stimulant.5. Describe depressants. 6. Describe Psychedelics.7. Describe drugs used for criminal offences.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry
PH1.23	Describe the process and mechanism of drug deaddiction	At the end of the session the phase II MBBS students must be able to describe. 1. The process and mechanism of drug deaddiction.	K/S	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Psychiatry

PH1.24	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs affecting renal systems including diuretics, antidiuretics-	At the end of the session the phase II MBBS students must be able to describe drugs affecting renal systems. 1 Diuretics their mechanism/s of action, types, dosage comprincal.2. Antidiuretics. 3. Vasopressin oral analosics.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.25	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs acting on blood like anticoagulants, antiplatelets.	At the end of the session the phase II MBBS students must be able to describe , mechanism/s of action, Types, Dosage, Side effect, indication and contraindications 1. Anticoagulent.2. Anti Platelet. 3. Fibrilytics 4. Plasma expenders.	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine
PH1.26	Describe mechanisms of action, types, doses, side effects, indications and contraindications of the drugs modulating the renin- angiotensin and aldosterone system	At the end of session the Phase II MBBS students must be able th describe , mechanism/s of action, Types, Dosage, Side effect, indication and contraindications. 1. Drugs modulating renin angiotensin system.2. Drug modulating Aldosterone system.	K	KH	Y	Lecture	Written/ Viva voce		Physiology, General Medicine
PH1.27	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antihypertensive drugs and drugs used in shock	1. At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of anti hypersensitive drugs.2. At the end of session the Phase II MBBS students must be able to different types of shock. 3. At the end of session the pphase II MBBS	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.28	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in ischemic heart disease (stable, unstable	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, Indication. 1. ischemic heart disease (stable, unstable angina and myocardial infarction) 2. peripheral vascular disease	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.29	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in congestive heart failure	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications.of drugs used in Congestive heart failure	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.30	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the antiarrhythmics	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of the anti arrhythmics.	K	KH	N	Lecture	Written/ Viva voce		General Medicine
PH1.31	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in the management of dyslipidemias	1. At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications. of the drugs used in the management of dyslipidemia.2. At the end of the session the phase II MBBS students must be able to discuss, The management of types of Dyslipidemia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine
PH1.32	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in bronchial asthma and COPD	1. At the end of session the phase II MBBS students must be able to describe mechanism/s of action Types, Dosage, Side effect, indication and contraindications of drugs used in bronchial asthma.2 At the end of session the phase II MBBS students must be able to describe MOA, Types, Dosage, Side effect, Inclication oral contruinclication of drugs used in COPD.	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine
PH1.33	Describe the mechanism of action, types, doses, side effects, indications and contraindications of the drugs used in cough (antitussives, expectorants/ mucolytics)	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of the drugs used in cough(Antitussive, Expectorants/Muslytics)	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		Respiratory Medicine
PH1.34	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs used as below: 1. Acid-peptic disease and GERD 2. Antiemetics and prokinetics 3. Antidiarrhoeals 4 . Laxatives	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of the drugs use in below1. Acid peptic ds./GERD 2. Anemetics and prokinetics.3. Anti diarrhoeals.4. Laxatives 5. Inflammatory bowel 6. Irritable bowel disorder.7. Pancreatic disease	K	KH	Y	Lecture, Small Group discussion	Written/ Viva voce		General Medicine

PH1.35	Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of drugs used in hematological disorders like:	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of drug used in hematological disorder 1. Anemia. 2. Colony stimulatory factors.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Physiology
PH1.36	Describe the mechanism of action, types, doses, side effects, indications and contraindications of drugs used in endocrine disorders (diabetes mellitus, thyroid disorders and osteoporosis)	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, Indication oral contraindication of drug used in 1. Diabetes mellitus a) Insulin b) oral hypoglycemics c) Parenteral anti diabetics 2. Thyroid disorder a) Hypo thyroidism b) Hyperthyroidism (c) Thyrotoxicosis 3. Osteoporosis	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.37	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used as sex hormones, their analogues and anterior pituitary hormones.	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of drugs 1. Androgens oral relative drugs.2. Estrogen and Progesterone. 3. Anterior pituitary hormone.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.38	Describe the mechanism of action, types, doses, side effects, indications and contraindications of corticosteroids	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications 1. Corticosteroid.2. Glucocorticosteroid antagonist	K	KH	Y	Lecture	Written/ Viva voce		
PH1.39	Describe mechanism of action, types, doses, side effects, indications and contraindications the drugs used for contraception	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of contraceptives	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology
PH1.40	Describe mechanism of action, types, doses, side effects, indications and contraindications of 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications of drug used in treatment of 1. Infertility. 2. Erectile dysfunction	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology
PH1.41	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of uterine relaxants and stimulants	At the end of session the phase II MBBS students must be able to describe mechanism/s of action, Types, Dosage, Side effect, indication and contraindications 1. Uterine relaxants 2. Uterine stimulants	K	KH	Y	Lecture	Written/ Viva voce		Obstetrics & Gynaecology
PH1.42	Describe general principles of chemotherapy	At the end of the session phase II MBBS students must be able to discuss 1. Classification of Anti Microbial. 2. Problems with use of Anti Microbials. 3. Choice of an Anti Microbial agent. 4. Combined use of anti Microbials. 5. Prophylactic use anti Microbial. 6. Failure of Anti Microbial therapy.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.43	Describe and discuss the rational use of antimicrobials including antibiotic stewardship program	At the end of session the phase II MBBS students must be able to 1. Describe rational use of anti microbials 2. Discuss in brief anti biotec stewardship programme	K	KH	Y	Lecture	Written/ Viva voce		General Medicine, Pediatrics
PH1.44	Describe the first line antitubercular drugs, their mechanisms of action, side effects and doses.	At the end of session the phase II MBBS students must be able to 1. Classify anti tubercular drugs 2. Describe first line anti tubercular drug with their dosage. 3. Enumerate adverse effect associate with first line anti tubercular. 4. Describe DOTS / short course chemotherapy in treatment of tuberculosis.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine
PH1.45	Describe the drugs used in MDR and XDR Tuberculosis	At the end of session the phase II MBBS students must be able to 1. Describe drug treatment of MDR tuberculosis. 2. Drug treatment of XDR tuberculosis.	K	KH	Y	Lecture	Written/ Viva voce		Respiratory Medicine
PH1.46	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of antileprotic drugs	At the end of session the phase II MBBS students must be able to 1. Classify anti leprotic drugs. 2. Describe the mechanism of action of dapsone as anti leprotic drug along with adverse drug. 3. Describe the mechanism of action of clofazimine. 4. Enumerate adverse effect & contradictions of clofazimine treatment 5. Describe drug treatment of Leprosy. (Multi drug Therapy) 6. Describe lepra reaction.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy

PH1.47	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in malaria, KALA-AZAR, amebiasis and intestinal helminthiasis	At the end of session the phase II MBBS students must be able to classify anti malarian drug.1. Describe pharmacotherapy of uncomplicated malaria.2. Describe pharmacotherapy of severe & complicated malaria.3. Describe mechanism of action, uses & side effect of chloroquine.4. Discuss artemisinin based combination therapy.5. Describe anti helminthic drugs.6. Classify anti amoebic drugs.7. Describe mechanism of action of metronidazole along with side effect contraindication & indication for its use.8. Describe pharmacotherapy for treatment of kalaazar.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.48	Describe the mechanisms of action, types, doses, side effects, indications and contraindications of the drugs used in UTI/ STD and viral diseases including HIV	At the end of session the phase II MBBS students must be able to 1. Classify anti viral drug.2. Enumerate HIV treatment guideline including preferred & alternate anti HIV regimen 3. Discuss post exposure prophylaxis of HIV infection.4. Discuss in detail NRTI'S in terms of mechanism of action, dosage, side effect indications & contraindication of use.5. Discuss protease inhibitors in terms of mechanism of action, dosage, side effects, indications and contraindication for use.6. Discuss NNRTI's in detail.6. Describe drug therapy for herpes simplex virus with emphasis on acyclovir.7. Enumerate anti influenza drug.8. Describe pharmacotherapy of urinary tract infection along with dosage, side effect, mechanism of action & contraindication.	K	KH	Y	Lecture	Written/Viva voce		
PH1.49	Describe mechanism of action, classes, side effects, indications and contraindications of anticancer drugs	At the end of session the phase II MBBS students must be able to classify anti cancer drug.1. Describe general Principles of chemotherapy.2. Describe in detail alkylating agents along with their mechanism of action side effect, indication & contra indication for their uses.3. Describe anti metabolites drugs in details with mechanism of action side effect indications for use.4. Describe anti biotech class of anti cancer drugs in brief.	K	KH	Y	Lecture	Written/Viva voce		
PH1.50	Describe mechanisms of action, types, doses, side effects, indications and contraindications of immunomodulators and management of organ transplant rejection	At the end of session the phase II MBBS students must be able to classify immunomodulator drugs. 1. Describe immunosuppressant drug in detail outline mechanism of action, indication, for use.2. Describe calcineurin inhibitors in details.3. Describe immunosuppression in organ transplantation.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.51	Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents	At the end of session the phase II MBBS student must be able to 1. Describe occupational pesticides. 2. Describe environmental pesticides.3. Describe food adulterant. 4. Describe pollutants 5. Describe briefly insect repellents.	K	KH/	Y	Lecture	Written/ Viva voce		
PH1.52	Describe management of common poisoning, insecticides, common sting and bites	At the end of session the phase II MBBS students must be able to 1. Describe management of common poisoning 2. Describe management of insecticides poisoning 3. Describe management of commonly encountered sting 4. Describe management of common animal bites.	K	KH	Y	Lecture	Written/ Viva voce		General Medicine
PH1.53	Describe heavy metal poisoning and chelating agents	At the end of session the phase II MBBS student must be able to 1. Describe common heavy metal poisoning.2. Define chelating agent.3. Briefly describe some of the commonly used chelating agent.	K	KH	N	Lecture	Written/ Viva voce		
PH1.54	Describe vaccines and their uses	At the end of session the phase II MBBS students must be able to 1. Discuss various vaccines 2. Discuss the use of different vaccines.	K	KH	Y	Lecture	Written/ Viva voce		

PH1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filariasis, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency	At the end of session the phase II MBBS students must be able to 1. Describe various national health programme in index.2. Discuss immunization programme.3. Discuss tuberculosis programme in brief.4. Discuss Leprosy programme in brief 5. Discuss malaria programme in brief 6. Discuss HIV programme in brief.7. Discuss filariasis programme in brief 8. Discuss national kala azar programme in India.9. Discuss national diarrhoeal disease programme.10. Discuss national anaemia & nutritional disorder programme.11. Discuss national blindness programme in India.12. Discuss national non-communicable disease programme in India.13. Discuss national cancer programme in India.14. Discuss national Iodine deficiency programme in India.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.56	Describe basic aspects of Geriatric and Pediatric pharmacology	At the end of session the phase II MBBS students must be able to 1. Describe basic aspects of Geriatric Pharmacology.2. Describe basic aspect of Pediatric pharmacology	K	KH	Y	Lecture	Written/ Viva voce		Pediatrics
PH1.57	Describe drugs used in skin disorders	At the end of session the phase II MBBS students must be able to 1. Describe drugs used in various common skin disorder.	K	KH	Y	Lecture	Written/ Viva voce		Dermatology, Venereology & Leprosy
PH1.58	Describe drugs used in Ocular disorders	At the end of session the phase II MBBS students must be able to 1. Describe drugs used in common Ocular disorders.	K	KH	Y	Lecture	Written/ Viva voce		Ophthalmology
PH1.59	Describe and discuss the following: Essential medicines, Fixed dose combinations, Over the counter drugs, Herbal medicines	At the end of session the phase II MBBS students must be able to 1. Discuss the essential medicine.2. Discuss the FDC.3. Discuss the OTC. 4. Discuss the Herbal medicine.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.60	Describe and discuss Pharmacogenomics and Pharmacoeconomics	At the end of session the phase II MBBS students must be able to 1. Discuss Pharmacogenomics. 2. Discuss Pharmacoeconomics.	K	KH	N	Lecture	Written/ Viva voce		
PH1.61	Describe and discuss dietary supplements and nutraceuticals	At the end of session the phase II MBBS must be able to 1. Describe dietary supplement. 2. Discuss nutraceuticals	K	KH	N	Lecture	Written/ Viva voce		
PH1.62	Describe and discuss antiseptics and disinfectants	At the end of session the phase II students must be able to 1. Discuss antiseptics. 2. Discuss Disinfectants	K	KH	Y	Lecture	Written/ Viva voce		
PH1.63	Describe Drug Regulations, acts and other legal aspects	At the end of session the phase II students must be able to 1. Discuss drug regulations of various countries. 2. Discuss different drugs act.3. Discuss other legal aspects.	K	KH	Y	Lecture	Written/ Viva voce		
PH1.64	Describe overview of drug development, Phases of clinical trials and Good Clinical Practice	At the end of session the phase II students must be able to 1. Discuss the drug development. 2. Discuss the Phases of Clinical trials. 3. Describe GLP.	K	KH	Y	Lecture	Written/ Viva voce		

SKILLS: Topic: Clinical Pharmacy									
			Number of competencies: (04)			Number of procedures that require certification : (NIL)			
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid)	At the end of session a phase II MBBS students must be able to :-1. Demonstrate understanding of oral solid dosage form. 2. Demonstrate understanding of oral liquid dosage form. 3. Demonstrate understanding parenteral solid dosage form. 4. Demonstrate understanding of local dosage form.	S/C	SH	Y	DOAP sessions	Skills assessment		
PH2.2	Prepare oral rehydration solution from ORS packet and explain its use	At the end of session the phase II MBBS students must be able to 1. Prepare oral rehydration solution from ORS packet correctly.2. Discuss the use of ORS.	S/C	SH	Y	DOAP sessions	Skills assessment		
PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment	At the end of session the phase II MBBS students must be able to 1. Demonstrate the correct of setting up of an i/v drip in a simulated environment.	S	SH	Y	DOAP sessions	Skills assessment		
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations	At the end of session the phase II MBBS students must be able to 1. Demonstrate the correct method of calculation of drug dosage in patients with renal failure 2. Demonstrate the correct method of calculation of drug dosage in patients with liver damage.	S	SH	Y	DOAP sessions	Skills assessment		Pediatrics, General Medicine

SKILLS: Topic: Clinical Pharmacology		Number of competencies: (08)	Number of procedures that require certification : (04)						
PH3.1	Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient	At the end of session the phase II MBBS students must be able to 1. write a rational legal generic prescription for a patient of acute attack of severe migraine. 2. Communicate the treatment of attack of severe migraine to in a simulated environment	S/C	P	Y	Skill station	Skill station	5	General Medicine
PH3.2	Perform and interpret a critical appraisal (audit) of a given prescription	At the end of session the phase II MBBS students must be able to 1. Discuss prescription auditing. 2. Perform audit of a given Prescription. 3. Interpret the same prescription	S	P	Y	Skill Lab	Maintenance of log book	3	
PH3.3	Perform a critical evaluation of the drug promotional literature	At the end of session the phase II MBBS students must be able to 1. Discuss the standard prescribed by WHO for drug promotional literature 2. Evaluate critically the given drug literature according to the standard prescribed by WHO.	S	P	Y	Skill Lab	Maintenance of log book/ Skill station	3	General Medicine
PH3.4	To recognise and report an adverse drug reaction	At the end of session the phase II MBBS students must be able to 1. Discuss Pharmacovigilance 2. Discuss the reporting of ADR's.	S	SH	Y	Skill station	Maintenance of log book/ Skill station		

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Number	COMPETENCY The student should be able to		Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P	Vertical Integration	Horizo ntal Integra tion
PH3.5	To prepare and explain a list of P-drugs for a given case/condition	At the end of session the phase II MBBS strudents must be able to 1. Discuss P drugs. 2. write the P drugs for a special condition.	P	Y	Skill station	Maintenanc e of log book	3	General Medicine	
PH3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs	At the end of session the phase II Mbbs students must be able to 1. Perform how to interact with Pharmaceutical representatives 2.Demonstate how to get authentic information on drugs	SH	N	Skill station	maintenanc e of log book			
PH3.7	Prepare a list of essential medicines for a healthcare facility	At the end of session the phase II MBBS students must be able to 1. Discuss essential medicine 2.Write the list of Essential medicine for a tertiary care teaching hospital.	SH	Y	Skill station	Maintenanc e of log book			
PH3.8	Communicate effectively with a patient on the proper use of prescribed medication	At the end of session the phase II MBBS students must be able to 1. Explain the patient about the proper use of prescribed medicine.	SH	Y	Skill Lab	Skill station			
SKILLS: Topic: Experimental Pharmacology Number of competencies: (02) Number of procedures that require certification :(NIL)									
PH4.1	Administer drugs through various routes in a simulated environment using mannequins	Demonstate administration of enleran drugs in a simulated enviornment using mannequins.2. Demonstrate administration of Parental drugs in a simulated enviornment using manniquins	SH	Y	DOAP sessions	Skills assessment			
PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers) using computer aided learning	1. Demonstrate the effect of vasopressor drugs (adrenaline , Nor adrenaline, ephedrin, Phenylepdrine) by using CAL 2. Demonstrate the effect of vasodepressors drugs ,(Propanol, Prazocin) by using CAL	SH	Y	Skill lab	Skill station			
Communication Topic: Pharmacology Number of competencies: (07) Number of procedures that require certification : (NIL)									
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use	At the end of sesssion the phase II MBBS students must be able to 1. Discuss the importance of communication with empathy.2. Discuss the importants of ethics in drug use.	SH	Y	Small group discussio n	skill station		General Medicine	
PH5.2	Communicate with the patient regarding optimal use of a) drug therapy, b) devices and c) storage of medicines	At the end of session the phase II MBBS students must be able to 1.Council the patient regarding the appropriate use of drug therapy.2. Council the patient about correct use of drug devices.3. Explain the patient how to store the medicine.	SH	Y	Small group discussio n	Skill station			
PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management by the health care provider	At the end of session the phase II MBBS student must be able to Council the patient suffering from chronic diseases to adhere to the prescribed treatment by the doctor.	SH	Y	Small group discussio n	short note/skill station			
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance	At the end of session the phase II MBBS students must be able to 1. Discuss patients compliance.2. Discuss the realioionship of patients compliance with cost of treatment.	SH	Y	Small group discussio n	short note/ viva voce		General Medicine	
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management	At the end of session the phase II MBBS students must be able to 1. Explain drug dependence. 2. List of drugs causing drugs dependence. 3. Discuss the Different Precaution taking during Prescription of drugs causing drug dependence. 4. Discuss the treatment of various drug dependence.	KH	Y	Small group discussio n	short note/ Viva voce		Psychiatry	

Number	COMPETENCY The student should be able to		Level K/KH/S H/P	Core (Y/N)	Suggeste d Teaching Learning method	Suggested Assessmen t method	Number required to certify P	Vertical Integration	Horiz ontal Integ ratio n	
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs	At the end of session the phase II MBBS students must be able to 1. Demonstrate drug dependency 2. Demonstrate OTC drug Demonstrate understanding drug dependency to the patient.3. Explain and communicate various aspects of drug dependence.4. Explain various aspects of OTC to the public.	SH	Y	Small group discussion	Skill station		Psychiatry		
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs	At the end of session the phase II MBBS students must be able to 1. Discuss the legal aspects of prescriing drugs.2. Discuss the Ethical aspects of Prescribing drugs	KH	Y	Small group discussion	short note/ Viva voce			Forensic Medicine	

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