M.D. PHARMACOLOGY
POST GRADUATE CURRICULUM (2026)

S.No	PHARMACOLOGY: Knowledge	1st YEAR	2nd YEAR	3rd YEAR	TOTAL
1	**Theory**				
	Lectures	yes	yes	Revision classes	**375**
	Seminars (1/week)	yes	yes	yes	**216**
	Journal Club (1/week)	yes	yes	yes	**144**
	Small group discussion (SGD)	yes	yes	yes	**400**
	Screening methods for drugs (2/month)	yes	yes	yes	**72**
	Case-based learning (CBL) (1/ month)	yes	yes	yes	**36**
	Simulation-based teaching (1/ 2 months)	yes	yes	yes	**24**
	Integrated learning (1/ 3 months)	yes	yes	yes	**36**
	Self-directed learning(SDL) (5/ week)	yes	yes	yes	**432**
	SAR-Structure Activity Relationship(5)	yes	yes	yes	**12**
	UG & AHS Classes (To attend)	yes	yes	yes	**320**
2	**Dissertation Topic and Protocol Submission** [Registration of title of thesis to be done within six months of joining the course]	To choose & IEC approval & data collection initiation	Periodic departmental review	To complete & submission	**600**
3	**Practical: Skill**				
	Experimental Pharmacology	yes	yes	yes	**72**
	Bioassay Charts	yes	yes	yes	**72**
	Toxicity tests	yes	yes	yes	**72**
	Identification of drugs by using chemicals	yes	yes	yes	**32**
	Identification of drugs by biological tests	yes	yes	yes	**32**
	Instruments: colorimeter, spectrophotometer & other advanced analytical Equipments	yes	yes	yes	**72**
3b	**Animal handling workshop**	-	To attend	-	
3c	**Clinical Pharmacology: Skill**				
	Critical evaluation of drug Promotional literature(DPL)	yes	yes	yes	**32**
	Pharmacoeconomics	yes	yes	yes	**32**
	Pharmacovigilance	yes	yes	yes	**32**
	Drug Assay	yes	yes	yes	**32**
	Protocol writing	yes	yes	yes	**32**
	Training in undergraduate teaching	yes	yes	yes	**32**
3d	**Clinical Pharmacy**				
	Dosage forms and calculations	yes	yes	yes	**32**
	Evaluation of fixed dose combinations(FDCs)	yes	yes	yes	**32**
	Rational Drug Therapy	yes	yes	yes	**32**
	Instructions for use of devices	yes	yes	yes	**32**

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3e	**Computer skills**				
	Use of audio-visual aids	yes	yes	yes	**32**
	Use of computers in biomedical research	yes	yes	yes	**32**
	Computer assisted learning (CAL)	yes	yes	yes	**72**
	Research Methodology				
	Literature search (ROL) & bibliography	yes	yes	yes	**72**
	Data management and presentation	yes	yes	yes	**32**
	GCP and GLP	yes	yes	yes	**32**
	Formulation of research topic, study design, blinding techniques	yes	yes	yes	**72**
	Ethical principles of animal & human experimentation	yes	yes	yes	**72**
	Publication ethics	yes	yes	yes	**32**
4	**Biostatistics**				
	Sampling techniques, randomization, sample size estimation	yes	yes	yes	**32**
	Measures of central tendency (mean, median, mode)	yes	yes	yes	**32**
	Dispersion of data (variance, standard deviation)	yes	yes	yes	**32**
	Selection of tests (of significance)	yes	yes	yes	**32**
	Correlation and regression analysis	yes	yes	yes	**32**
	Statistical software	yes	yes	yes	**32**
	Clinical department posting	*In 2nd year*			
	Medicine&Allied	-	2 Weeks	-	**72**
	Surgery&Allied	-	2 Weeks	-	**72**
	O & G	-	2 Weeks	-	**72**
	Pediatrics	-	2 Weeks	-	**72**
5	**Critical care Departments**				
	Medical ICU		1 week		**36**
	Surgical ICU		1 week		**36**
	Neonatal/Pediatric ICU		1 week		**36**
	Anaesthesia		1 week		**36**
6	**Outside AMCH postings**				
	District Residency Programme (DRP)		*Yes*	**90 Days**	
7	Internal Assessment				**72**
	FormativeAssessment	Every month			**72**
	SummativeAssessment	Quarterly			**35**
8	Conference/CME(At least once a year)	Yes	Yes	Yes	**40**
9	Publications(1)	Yes			**15**
10	Portfolio of microteaching, Seminars				**To Submit before final exam**
11	BCBR/ Research methodology certificate	Yes			**32**
12	Animal handling workshop	Yes			**16**
13	Oral presentation	Yes			**16**

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14	Poster presentation		**16**
15	TNMGR university e-journal publication	Yes	To Submit before final exam
16	BLS & ACLS	Yes	**32**

EVALUATION

Dissertation:

- Assessment by 2 independent assessors
- Acceptance of dissertation is a precondition for appearing at Final examination

Day to day evaluation will be based on:

- Regularity in attendance (minimum attendance 80% per term)
- Performance in Seminars, journal discussion & small group presentation
- Performance in practical exercises
- Participation in conferences, workshops
- Regular record keeping (Log book): The student will keep regular record of all activities in the form of a log book including attendance of lectures, seminars, conferences / workshops, records of paper presented and a practical record

Final (summative) evaluation:

(A) Theory:

Total 4 papers of 100 marks each. Each question paper to have 5 questions and each question to have

Paper-1: General Pharmacology, Experimental Pharmacology & Evaluation of drugs- 100 marks

Biotransport of drugs, mechanism of drug action, Pharmacokinetic principles and parameters, Factors modifying drug action, General principles in drug therapy, Pharmacogenomics, Pharmacogenetics, Chronopharmacology, ADRs, Drug dependence, Drug abuse, Toxicology, Dose response relationships, Structure-activity relationships, Physiological and biochemical basis of drug action, History of pharmacology, sources of drug information, Drug delivery systems and Fixed dose combinations, Gene therapy and Drug discovery & Drug development. Experimental methodologies involved in the discovery of drugs (in vivo, in vitro, ex vivo), Animal handling and animal care. Methods of anaesthetizing animals and methods of euthanasia. Restraining and blood collection methods. Drug screening methods.

Paper-2 systemic Pharmacology 100 marks

Pharmacology of drugs acting on autonomic, peripheral and central nervous systems; cardiovascular, endocrine, respiratory, renal, gastrointestinal and hemopoietic systems, treatment of diseasesaffecting these systems. Pharmacology of anti-microbial and anti-parasitic drugs and treatment of infective diseases; cancer chemotherapy, immunopharmacology, gene therapy, evidence based medicine, Pharmacology of Autacoids and other chemical mediators, Antibacterial drugs, Antiviral drugs, Antifungal drugs, Antimalarial drugs, Chelating agents, Nutraceuticals, Immunoglobulins and vaccines, Miscellaneous, Vitamins, minerals, antioxidants, Ocular pharmacology, Therapeutic gases, Dermatological pharmacology, Stem cell therapy, Pharmacotherapy of migraine, Neurodegenerative disease and Male sexual dysfunction.

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Paper-3 Clinical Pharmacology with Recent Advances 100 marks

Clinical pharmacokinetics and Pharmacodynamic studies, therapeutic drug monitoring, pharmacovigilance [hemovigilance, materiovigilance, cosmetovigilance,addictovigilance] (medico vigilance), ADR monitoring, therapeutic audit, essential drug concept and rational prescribing, Recent advances in understanding of mechanism of drug action and treatment of diseases; new drugs and new uses of old drugs. Scope of clinical pharmacology and its relevance to optimum use of drugs, dosage strategies, influence of hepatic, renal, hormonal, diseases and ageing on pharmacokinetics of drugs, Drug utilization studies, pharmacoeconomics, rational prescribing and concept of essential drugs, Bioavailability/ bioequivalence studies, Contract Research Organizations (CROs),Data and Safety Monitoring Board (DSMB) / Independent Data Monitoring Committee (IDMC),Drug promotion practices,Perinatal, paediatric, and geriatric pharmacology,Environmental toxicology and basic principles of management of drug poisoning,Medication adherence,Evidence-based medicine, real-world evidence studies and pragmatic clinical trials,Patient safety and medication errors,Pharmacogenomics, personalized medicine and precision medicine,Application of nanotechnology in Pharmacotherapeutics,Recent advances in the understanding of drug action and their future therapeuticrelevance.

Paper-4 Recent advances in Pharmacology, Research with Ethics & Biostatistics & Medical Education - 100 marks

Development of new drugs, protocol designing, phases, methodology and clinical trials, post marketing surveillance, Laws governing drug regulations,Preclinical data needed by regulatory authorities before undertaking clinical trial of a new drug, Clinical trials: placebos, phases of clinical trial – their purpose and methodology, ICH guidelines Ethical aspects of clinical trials and studies of drugs in human beings, ICMR Ethical Guidelines and its extension such as for children, stem cell research, Drug regulations: drug regulatory requirements for clinical trials in India, drugs and cosmetic act, drug price control order IAEC, IHEC, GCP,GLP and GMP,Drug information service &drug utilization studies, Biostatistics-Sampling techniques, randomization, sample size estimation, Measures of central tendency (mean, median, mode),Dispersion of data (variance, standard deviation),Selection of tests (of significance),Correlation and regression analysis & Statistical software. Recent advances in management diseases & drug development/Discovery. Medical education- CBME curriculum, Lesson plan, AETCOM, Miller's pyramid

***The portions mentioned for the theory papers can overlap**

Minimum requirement for pass in theory 200 marks (50%)

40 marks in each paper and total of 200 marks all together

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(B) PRACTICAL: Total – 300 marks

a) Long Experiments (160 marks):

1. Case discussion – 50 marks
2. Protocol designing for a given Scenario – 35 marks
3. Critical appraisal of a published paper – 35 marks
4. In-vivo experiment- Identification of unknown substance/ Perform experiments in small animals - 40 marks

b) Short experiments (70 marks)

1. Computer Assisted Learning/Bioassay charts/Dog BP Charts (Interpretation of results of a previous tracing) – 25 marks
2. Drug Assay (Interpretation of drug concentration levels) - 15 marks
3. Ethics charts -15 marks
4. Statistical exercise- 15 marks

C) OSPE – 50 marks (5x 10 marks) [Any five]

1. Various drug delivery systems
2. Calculating PK parameters
3. Pharmacoeconomics
4. Selecting P drug and writing rational prescription
5. Analytical instruments – Use & interpretation
6. Evaluation of DPL
7. Pharmaceutical calculation
8. ADR reporting & Causality Assessment
9. Assessment of pre-clinical toxicity data
10. Abstract writing of a published paper
11. Analysis of rational & irrational formulation

D) Dissertation/Thesis 20 marks

[A+ B + C +D = 300 marks]

Grand Viva (100 marks)

Microteaching/Pedagogy - 40 marks

Theory Viva - 40 marks

Competency Assessment -20 marks

Aggregate- (practical + Viva) – 400 marks

Minimum requirement for pass 200 marks (50%)

Principles of general and systemic pharmacology 40 marks

Recent advances in pharmacology & drug therapy 20 marks

Internal Assessment (100 marks)

Number of examiners: a minimum of 4 examiners

2 external & 2 internal. (Professor Cadre)

Passing Standard: 50% independently in theory and practical examinations

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CRITERIA FOR EVALUATION OF M.D.

1) THEORY No. of Theory Papers 4

Marks for each Theory Paper: 100

Total marks for Theory Paper: 400

Passing Minimum for Theory 200/400 (40% minimum in each paper)

2) PRACTICAL: 300

3) VIVA VOCE: 100

Passing minimum for Practical/Clinical including Viva voce 200/400

If any candidate fails even under one head, he/she has to re-appear for both Theory and Practical/Clinical and Viva voce examination.

Dissertation/ thesis should be sent to the external examiners before the practical exam through email officially.

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