

# GPAT Syllabus 2025

## GPAT Syllabus 2025: Major Subjects

All the major subjects of GPAT Syllabus 2025 are as follows.

1. Pharmacology
2. Physical Chemistry
3. Physical Pharmacy
4. Organic Chemistry
5. Dispensing and Hospital Pharmacy
6. Pharmaceutical Chemistry
7. Pharmaceutical Jurisprudence
8. Pharmaceutical Management
9. Pharmaceutics
10. Pharmaceutical Engineering
11. Pharmacognosy
12. Human Anatomy and Physiology
13. Pharmaceutical Analysis
14. Clinical Pharmacy and Therapeutics
15. Biochemistry
16. Biopharmaceutics and Pharmacokinetics
17. Biotechnology
18. Pathophysiology
19. Microbiology

## GPAT Syllabus of Pharmacology

Subjects	Topics
Pharmacology	<ul style="list-style-type: none"><li>• General Pharmacology, Principles of toxicology, Drugs acting on urinary system</li><li>• Pharmacology of peripheral nervous system</li><li>• Pharmacology of central nervous system</li><li>• Pharmacology of cardiovascular system</li><li>• Immunopharmacology Drugs acting on Respiratory system</li><li>• Pharmacology of Endocrine system</li><li>• Neurohumoral transmission in autonomic and central nervous system</li><li>• Vitamins &amp; Minerals Chemotherapy Autacoids and their Antagonists</li><li>• Pharmacology of drug acting on the gastrointestinal tract</li><li>• Chrono pharmacology</li></ul>

## GPAT Syllabus of Physical Chemistry

Subjects	Topics
Physical Chemistry	<ul style="list-style-type: none"><li>• Composition &amp; physical states of matter</li><li>• Refractive index Solutions</li><li>• Electrochemistry, Kinetics</li><li>• Colligative Properties</li><li>• Thermodynamics</li><li>• Ionic equilibrium</li></ul>

## GPAT Syllabus of Physical Pharmacy

Subjects	Topics
Physical Pharmacy	<ul style="list-style-type: none"><li>• Buffer Solubility Matter, properties of matter</li><li>• Viscosity and rheology</li><li>• Surface and interfacial phenomenon</li><li>• Dispersion systems</li><li>• Complexation</li><li>• Micromeritics and powder rheology</li></ul>

## GPAT Syllabus of Organic Chemistry

Subjects	Topics
Organic Chemistry	<ul style="list-style-type: none"><li>General principles Pericyclic reactions Aromaticity &amp; chemistry of aromatic compounds Different classes of compounds Amino acids &amp; proteins Different aromatic classes of compounds Polycyclic aromatic hydrocarbons</li><li>Stereochemistry Carbohydrates Carbonyl Chemistry Heterocyclic Chemistry Protection &amp; deprotection of groups Bridged rings Kinetic &amp; thermodynamic control</li></ul>

## GPAT Syllabus of Dispensing and Hospital Pharmacy

Subjects	Topics
Dispensing and Hospital Pharmacy	<ul style="list-style-type: none"><li>Introduction to laboratory equipment, weighing methodology, handling of prescriptions, labelling instructions for dispensed products</li><li>Posological calculations involved in the calculation of dosage for infants.</li><li>Study of current patent and proprietary products, generic products and selected brand products, indications, contraindications, adverse drug reactions, available dosage forms and packing</li><li>Compounding and dispensing of following prescriptions</li><li>Reading and counselling of prescriptions from the clinical practice Enlarging and reducing formula, displacement value</li><li>Preparations of formulations involving alligation, alcohol dilution, isotonic solution</li></ul>

## GPAT Syllabus of Pharmaceutical Chemistry

Subjects	Topics
Pharmaceutical Chemistry	<ul style="list-style-type: none"><li>Pharmaceutical Inorganic Chemistry Dentifrices, desensitizing agents, &amp; anticaries agents Pharmaceutical Impurities Isotopes Monographs</li><li>Medicinal Chemistry Various classes of therapeutic agents</li><li>Different classes of therapeutic drugs Therapeutic classes of drugs</li><li>Different classes of therapeutic drugs</li></ul>

## GPAT Syllabus of Pharmaceutical Jurisprudence

Subjects	Topics
Pharmaceutical Jurisprudence	<ul style="list-style-type: none"><li>Narcotic Drugs and Psychotropic Substances Act, and Rules thereunder Factory Act Shops and Establishment Act Introduction to Intellectual Property Rights and Indian Patent Act 1970</li><li>An Introduction to Standard Institutions and Regulatory Authorities such as BIS, ASTM, ISO, TGA, USFDA, MHRA, ICH, WHO</li><li>Minimum Wages Act 1948 Prevention of Food Adulteration Act 1954 and Rules Industrial Development and Regulation act 1951 Drugs and Magic Remedies (Objectionable Advertisements) Act 1954</li><li>Medicinal and Toilet Preparations (Excise Duties) Act 1955, Rules 1976</li><li>Historical background Drug legislation in India, Code of Ethics for Pharmacists The Pharmacy Act 1948 Drugs and Cosmetics Act 1940, Rules 1945, including New Drug applications Consumer Protection Act</li><li>Indian Pharmaceutical Industry- An Overview Medical Termination of Pregnancy Act 1970 and Rules 1975 Prevention of Cruelty to Animals Act 1960 Drug (Price Control) Order</li></ul>

## GPAT Syllabus of Pharmaceutical Management

Subjects	Topics
Pharmaceutical Management	<ul style="list-style-type: none"><li>• Introduction to management Inventory Management Communication</li><li>• Research Management Human resource and development (HRD)</li><li>• Planning and Forecasting</li><li>• Organization World trade organization (WTO) and Trade-related intellectual property rights (TRIPS)</li><li>• Standard institutions and regulatory authorities GATT</li><li>• Marketing Research Leadership and motivation</li></ul>

## GPAT Syllabus of Pharmaceutics

Subjects	Topics
Pharmaceutics	<ul style="list-style-type: none"><li>• Pharmacy Profession &amp; Introduction to Pharmaceuticals Introduction to dosage form biological products Pharmaceutical Plant, location, layout</li><li>• Ophthalmic preparations</li><li>• Preformulations</li><li>• Packaging Materials Cosmetics</li><li>• Pilot plant scale-up techniques Dosage Form Necessities and Additives</li><li>• Powders Sources of drug information Tablets Parenteral - product requiring sterile packaging Suspensions Emulsions Suppositories</li><li>• Stability of formulated products</li><li>• Prolonged Action Pharmaceuticals</li><li>• Novel Drug delivery system</li><li>• GMP and Validation Semisolids Allopathic dosage form Crude extract</li><li>• Allergenic extract Capsules Liquids (solutions, syrups, elixirs, spirits, aromatic water, liquid for external uses)</li><li>• Pharmaceutical Aerosols</li></ul>

## GPAT Syllabus of Pharmaceutical Engineering

Subjects	Topics
Pharmaceutical Engineering	<ul style="list-style-type: none"><li>• Material of constructions</li><li>• Drying Size reduction and size separation</li><li>• Extraction Mixing Crystallization Automated process control systems</li><li>• Industrial hazards &amp; safety precautions</li><li>• Evaporation Distillation Fluid flow</li><li>• Heat transfer Filtration and Centrifugation Dehumidification and humidity control</li><li>• Refrigeration and air conditioning</li></ul>

## GPAT Syllabus of Pharmacognosy

Subjects	Topics
Pharmacognosy	<ul style="list-style-type: none"><li>• Introductory Pharmacognosy Classification of crude drugs</li><li>• Plant products Principles of plant classification</li><li>• Pharmaceutical aids</li><li>• Animal products</li><li>• Traditional herbal drugs</li><li>• Plants based industries and research institutes in India Patents</li><li>• Ayurvedic system of medicine Homeopathic system of medicine</li><li>• Toxic drugs</li><li>• Enzymes Natural pesticides and insecticides</li><li>• Adulteration and evaluation of crude drugs</li><li>• Quantitative microscopy</li><li>• Factors influencing quality of crude drugs</li><li>• Techniques in microscopy</li><li>• Introduction to phytoconstituents</li><li>• Biogenetic pathways</li><li>• Carbohydrates &amp; lipids</li><li>• Tannins Volatile oils</li><li>• Resinous drugs</li><li>• Glycosides</li></ul>

	<ul style="list-style-type: none"> <li>• Alkaloids Extraction and Isolation Techniques</li> <li>• Phytopharmaceuticals Quality control and Standardization of herbal drugs</li> <li>• Herbal formulations</li> <li>• Worldwide trade of crude drugs and volatile oils</li> <li>• Herbal cosmetics</li> </ul>
--	--

### GPAT Syllabus of Human Anatomy and Physiology

Subjects	Topics
Human Anatomy and Physiology	<ul style="list-style-type: none"> <li>• Cell physiology</li> <li>• Endocrine Glands</li> <li>• Reproductive System</li> <li>• Gastrointestinal tract</li> <li>• Respiratory System</li> <li>• Autonomic nervous system</li> <li>• Cardiovascular system</li> <li>• Lymphatic system</li> <li>• The Blood Sense organs</li> <li>• Skeletal System</li> <li>• Central Nervous system</li> <li>• Urinary System</li> </ul>

## GPAT Syllabus of Pharmaceutical Analysis

Subjects	Topics
Pharmaceutical Analysis	<ul style="list-style-type: none"><li>• Importance of quality control in pharmacy</li><li>• Acid-base titrations Gravimetry</li><li>• Extraction techniques</li><li>• Potentiometry Calibration</li><li>• General principles of spectroscopy Mass spectrometry Polarography Nephelometry &amp; Turbidimetry</li><li>• Ultraviolet-visible Spectrometry</li><li>• Spectro fluorimetry</li><li>• Flame photometry &amp; atomic absorption spectrometry</li><li>• Infrared spectrometry</li><li>• Miscellaneous methods of analysis non-aqueous titrations</li><li>• Oxidation-reduction titrations</li><li>• Precipitation titrations</li><li>• Complexometric titrations</li><li>• Proton nuclear magnetic resonance spectrometry</li><li>• Chromatography</li><li>• Miscellaneous</li></ul>



## GPAT Syllabus of Clinical Pharmacy and Therapeutics

Subjects	Topics
Clinical Pharmacy and Therapeutics	<ul style="list-style-type: none"> <li>• Drug information services, Drug interactions Drug interaction in paediatric and geriatric patients, drug treatment during pregnancy, lactation and menstruation</li> <li>• Therapeutic drug monitoring, adverse drug reaction (ADR), types of ADR, Mechanism of ADR.</li> <li>• Drug interaction, Monitoring and reporting of ADR and its significance</li> <li>• Age-related drug therapy: concept of posology, drug therapy for neonates, paediatrics and geriatrics.</li> <li>• Drugs used in pregnancy and lactation</li> <li>• Drug therapy in gastrointestinal, hepatic, renal, cardiovascular and</li> <li>• Respiratory Disorders Pharmacovigilance, Therapeutic drug monitoring,</li> <li>• Nutraceuticals, essential drugs and rational drug usage</li> <li>• General Principles, preparation, maintenance, analysis of observational records in Clinical Pharmacy</li> <li>• Drug therapy in infections of respiratory system, urinary system, infective meningitis, TB, HIV, malaria and filaria</li> <li>• Drug therapy for thyroid and parathyroid disorders, diabetes mellitus, menstrual cycle disorders, menopause and male sexual dysfunction</li> <li>• Drug therapy for malignant disorders like leukaemia, lymphoma and solid tumours</li> <li>• Drug therapy for rheumatic, eye and skin disorders</li> <li>• Clinical trials, type and phases of clinical trials, placebo, ethical and regulatory issues including Good clinical practice in clinical trials</li> <li>• Drug therapy for neurological and psychological disorders</li> </ul>

## GPAT Syllabus of Biochemistry

Subjects	Topics
Biochemistry	<ul style="list-style-type: none"> <li>• Cell Lipids Enzymes Nucleic acids</li> <li>• Vitamins Biological oxidations &amp; reductions</li> <li>• Carbohydrates Proteins</li> </ul>

	<ul style="list-style-type: none"> <li>• Hereditary diseases</li> </ul>
--	---

## GPAT Syllabus of Biopharmaceutics and Pharmacokinetics GPAT Syllabus of Biotechnology

Subjects	Topics
Biotechnology	<ul style="list-style-type: none"> <li>• Plant Cell and Tissue Culture</li> <li>• Fermentation Technology and Industrial Microbiology</li> <li>• Recombinant DNA Technology Process and Applications</li> <li>• Animal Cell Culture</li> <li>• Biotechnology-Derived Products</li> </ul>
Biopharmaceutics and Pharmacokinetics	<ul style="list-style-type: none"> <li>• Bio-pharmaceutics, Bio-pharmaceutical statistics</li> <li>• Bio-availability &amp; Bio-equivalence</li> </ul>

## GPAT Syllabus of Pathophysiology

Subjects	Topics
Pathophysiology	<ul style="list-style-type: none"> <li>• Basic principles of cell injury and adaptation Neoplastic diseases</li> <li>• Pathophysiology of common diseases Laboratory tests for Liver function tests and kidney function tests Immunopathology including amyloidosis</li> <li>• Infectious diseases Basic mechanisms of inflammation and repair</li> <li>• Disorders of fluid, electrolyte and acid-base balance Disorders of homeostasis: white blood cells, lymphoid tissues, and red blood cells related diseases</li> </ul>

## GPAT Syllabus of Microbiology

Subjects	Topics
Microbiology	<ul style="list-style-type: none"><li>• Introduction to Microbiology Microscopy and staining technique Biology of Microorganisms</li><li>• Microbial spoilage Vaccines &amp; Sera Fungi and Viruses Aseptic</li><li>• Technique Sterilization &amp; Disinfection Microbial Assay</li></ul>