



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

SEMESTER-V

Subject: Medicinal Chemistry-II

Subject Code: BP501T

| Course Outcome | Description |
|-----------------------|---|
| BP501.1. | Understand and Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the Antihistaminic agents and autacoids and gastric proton pump inhibitors. |
| BP501.2. | Understand and Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the Anti-neoplastic agents. |
| BP501.3. | Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the cardiovascular Agents-Anti-anginal, Antihypertensive, Diuretics, cardiovascular Agents-Antiarrhythmic, antihyperlipidemic, anticoagulants, drugs used in Congestive Heart Failure. |
| BP501.4. | Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the Drugs acting on endocrine system-steroids, antithyroid agents. |
| BP501.5. | Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the antidiabetic agents. |
| BP501.6. | Explain design of the drugs, history, classification, nomenclature, SAR, mechanism of action, therapeutic uses, adverse effects, synthesis of drugs and recent developments in the local anaesthetics. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email: samarthiop@gmail.com, Web: iop.sreir.org

Subject: Industrial Pharmacy

Subject Code: BP502T

| Course Outcome | Description |
|----------------|---|
| BP502T.1 | Know the various preformulation parameters in pharmaceutical dosage. Forms. |
| BP502T.2 | Explain various pharmaceutical dosage forms and their manufacturing techniques. |
| BP502T.3 | Explain various considerations in development of pharmaceutical dosage forms. |
| BP502T.4 | Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality. |
| BP502T.5 | Formulate parenteral, ophthalmic, aerosol and cosmetics dosage forms and evaluate them for their quality. |

Subject: Industrial Pharmacy

Subject Code: BP506P

| Course Outcome | Description |
|----------------|---|
| BP506P.1 | Learn formulation & Evaluation of Solid dosage form like tablets & capsules |
| BP506P.2 | Learn preparation & evaluation of Parenteral. |
| BP506P.3 | Explain the use of ingredients in formulation and category of formulation. |
| BP506P.4 | Formulation & evaluation of Ophthalmic preparation and cosmetics. |
| BP506P.5. | Prepare the labels so as to suit the regulatory requirements. / To Conduct Market Survey. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

Subject: Pharmacology- II

Subject Code: BP503T

| Course Outcome | Description |
|-----------------------|--|
| BP503T.1 | Students will be able to classify and explain the pharmacology of drugs acting on cardiovascular system and their rational use. |
| BP503T.2 | Students will be able to classify and explain agent require for blood formation and drug acting on urinary system and their rational use. |
| BP503T.3 | Students will be able to classify and explain pharmacology of autacoids and related drug and their rational use. |
| BP503T.4 | Students will be able to classify and explain pharmacology of drugs acting on endocrine system and their rational use. |
| BP503T.5 | Students will be able to explain the application of bioassay, types of bioassay, bioassay of insulin, oxytocin, vasopressin, ACTH, d-tubocurarin, digitalis, histamine and 5-HT and able to perform various bioassays. |

Subject: Pharmacology- II

Subject Code: BP507P

| Course Outcome | Description |
|-----------------------|--|
| BP507P.1 | Students will be able to prepare PSS and perform experiments related to cardiovascular system and urinary system. |
| BP507P.2 | Students will able to plot DRC of agonist, antagonist and perform bioassays like matching, interpolation, three-point, four point using various drugs also calculate PA2 and PD2 values. |
| BP507P.3 | Students will able to explain effect of spasmogens, spasmolytic, anti-inflammatory, analgesic and anti-allergic drugs on various model. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

Subject: Pharmacognosy & Phytochemistry- II Subject Code: BP504T

| Course Outcome | Description |
|-----------------------|---|
| BP504T. 1 | Acquired knowledge of biosynthesis of secondary metabolites in plants & biogenetic study. |
| BP504T. 2 | Study different classes of secondary metabolites thereby understanding Pharmacognosy & Phytochemistry. |
| BP504T. 3 | To carry out isolation, identification and analysis of phytoconstituents from plant sources. |
| BP504T. 4 | Understand & inculcate knowledge of industrial production & utilization of phytoconstituents. |
| BP504T. 5 | Understand & apply modern extraction techniques, & apply the latest techniques of isolation & Identification of phytochemicals. |

Subject: Pharmacognosy & Phytochemistry- II Subject Code: BP508P

| Course Outcome | Description |
|-----------------------|--|
| BP508P. 1 | To perform morphology, histological studies, powder characteristics, extraction and detection and analysis of crude drugs. |
| BP508P. 2 | Carry out isolation and detection of active principles. |
| BP508P. 3 | Determine separation of sugars by paper chromatography and TLC studies of plant extract. |
| BP508P. 4 | Carry out distillation of volatile oils and analysis of crude drugs by chemical tests. |
| BP508P. 5 | To perform morphology, histological studies, powder characteristics, extraction and detection and analysis of crude drugs. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

Subject: Pharmaceutical Jurisprudence

Subject Code: BP505T

| Course Outcome | Description |
|-----------------------|--|
| BP505T.1 | Assess the Pharmaceutical legislation in India and rules therein. |
| BP505T.2 | Describe various regulatory procedures for drugs and cosmetics and other related acts. |
| BP505T.3 | Examine IPC & CRPC aspects along with the pricing of Pharmaceuticals. |
| BP505T.4 | Describe the process of filing Patent as per Indian Patent act. |
| BP505T.5 | Analyze drug regulatory affairs in India along with some developed countries. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I New Delhi, D.T.E., Govt. of Maharashtra &
 Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
 On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
 Email:samarthiop@gmail.com, Web: iop.sreir.org

SEMESTER-VI

Subject: Medicinal Chemistry-III

Subject Code: BP601T

| Course Outcome | Description |
|----------------|---|
| BP601.1. | Students will be able to understand historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of B-Lactam antibiotics, Amino glycosides, Tetracycline's. |
| BP601.2. | Students will be able to understand historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of Macrolide, Polypeptide antibiotics, Antimalarials. |
| BP601.3. | Students will be able to understand historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of Antimycobacterial, Antiviral agents. |
| BP601.4. | Students will be able to understand historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation, classification and important products of Antifungal agents, Antiprotozoal, Agents, Anthelmintic, Synthetic anti-infective agent. |
| BP601.5. | Students will be able to understand importance of drug design and different techniques of drug design. |

Subject: Medicinal Chemistry-III

Subject Code: BP607P

| Course Outcome | Description |
|----------------|---|
| BP607P.1 | BP607P (1) Explain principle & Synthesize various drugs/ drug intermediates along with its recrystallization with the help of Physical properties. |
| BP607P.2 | BP607P (2) Analyze the purity of various drugs as per the pharmacopeial procedure. |
| BP607P.3 | BP607P (3) Use the chemistry software for drawing the different intermediates chemical techniques and determining physicochemical properties. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

Subject: Pharmacology-III

Subject Code: BP602T

| Course Outcome | Description |
|----------------|--|
| BP602T.1 | To understand the mechanism of drug action and its relevance in the treatment of different infectious diseases |
| BP602T.2 | To comprehend the principles of toxicology and treatment of various poisonings. |
| BP602T.3 | To appreciate correlation of pharmacology with related medical sciences. |

Subject: Pharmacology-III

Subject Code: BP608P

| Course Outcome | Description |
|----------------|---|
| BP608P.1 | To understand the basic principle of bioassay and type of bioassay. |
| BP608P.2 | To demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiment. |
| BP608P.3 | To understand the effect of different drugs on the concentration response curve. |
| BP608P.4 | To demonstrate the various receptor actions using isolated tissue preparation. |
| BP608P.5. | To understand the basic principle of bioassay and type of bioassay. |

Subject: Herbal Drug Technology

Subject Code: BP603T

| Course Outcome | Description |
|----------------|--|
| BP603T.1 | To Understand raw material as a source of herbal drug from cultivation of herbal drug product. |
| BP603T.2 | To know the WHO & ICH guidelines for evaluation of herbal drug product. |
| BP603T.3 | To know the herbal Cosmetics, natural sweetener & nutraceuticals. |
| BP603T.4 | Appreciate patenting of herbal drug. |

Subject: Herbal Drug Technology

Subject Code: BP609P

| Course Outcome | Description |
|----------------|---|
| BP609P.1 | To perform phytochemical screening of crude drug & to determine alcohol content of ayurvedic formulation. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email:samarthiop@gmail.com, Web: iop.sreir.org

| | |
|----------|---|
| BP609P.2 | Perform various evaluation parameter of crude drug. |
| BP609P.3 | Prepare the various herbal formulation as well as monograph of crude drugs. |
| BP609P.4 | To perform trimetric analysis of crude drug. |

Subject: Biopharmaceutics and pharmacokinetics Subject Code: BP604T

| Course Outcome | Description |
|----------------|---|
| BP604T. 1 | Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance |
| BP604T. 2 | Use of plasma drug conc. Time data to calculate the pharmacokinetics parameters to describe the kinetic of absorption, distribution, metabolism, excretion. |
| BP604T. 3 | To understand the concept of bioavailability and bioequivalence of drug products and their significance. |
| BP604T. 4 | Understand various pharmacokinetic parameter, their significance and application |
| BP604T. 5 | Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance |

Subject: Pharmaceutical Biotechnology Subject Code: BP605T

| Course Outcome | Description |
|----------------|---|
| BP605T. 1 | Students will understand the various techniques used in modern biotechnology & can design research strategy with step -by -step instructions to address a research Problem. |
| BP605T. 2 | Students can able to provide examples of current applications of biotechnology and advances in the different areas like medical, microbial, environmental, bioremediation, agricultural, plant, animal, and forensic. |
| BP605T. 3 | Students can explain the concept and application of monoclonal antibody technology. |
| BP605T. 4 | Students can demonstrate and Provide examples on how to use microbes and mammalian cells for the production of pharmaceutical products. |
| BP605T. 5 | Students can able to explain the general principles of generating transgenic plants, animals and microbes. |



Samarth Rural Educational Institute's
SAMARTH INSTITUTE OF PHARMACY, BELHE.

Approved by P.C.I. New Delhi, D.T.E., Govt. of Maharashtra &
Affiliated to D.B.A.T.U. Lonere & M.S.B.T.E. Mumbai.
On Kalyan Nagar Highway A/P-Belhe, Tal- Junnar, Dist-Pune Pin: 412410
Email: samarthiop@gmail.com, Web: iop.sreir.org

Subject: Pharmaceutical Quality Assurance

Subject Code: BP606T

| Course Outcome | Description |
|-----------------------|--|
| BP606T. 1 | To understand the various aspects (QA, QC, GMP, TQM, ICH Guideline, QbD, ISO & NABL) of pharmaceutical legislation and implication in the development and marketing of pharmaceutical. |
| BP606T. 2 | To understand concept of GMP (Organization, Personnel, Premises, Equipment & RM etc. |
| BP606T. 3 | To understand concept of QC and GLP. |
| BP606T. 4 | To know the importance of Complaints & documentation in the pharmaceutical industry (MFR, BFR, SOP etc.) |
| BP606T. 5 | To understand concept of calibration, validation and GWP. |