



Shri Gajanan Maharaj Shikshan Prasarak Mandal's

SHARADCHANDRA PAWAR COLLEGE OF PHARMACY

DUMBARWADI. (OTUR), TAL : JUNNAR, DIST : PUNE. 412409.

Code: SPCOP/ADM/FM/	Department : Academics	Ac. Yr. : 2021-22
Rev:00	Syllabus Of Practice School	Class: Final Yr. B.Pharm
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CONTENTS Of The MODULE - APPLIED CHEMISTRY AND QUALITY ASSURANCE (150 Hrs)

Module – I : Basic experimental techniques in chemistry (35 Hrs)

1 Introduction hazardous Chemicals (5 Hrs)

- Types of hazardous chemicals

2. Handling of hazardous Chemicals and safety requirements (6 Hrs)

- Rules for Safe Handling of Hazardous Materials
- Do's and Don'ts

3. Purification of organic solvent (8 Hrs)

- Filtration
- Crystallization
- Distillation
- Chromatography

4. Crystallization technique for purification of chemical compound (8 Hrs)

- Chemical Purity, Particle Size
- Morphology , Distribution



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5. Calibration of glassware

(8 Hrs)

- Purpose
- Scope
- Reference
- Procedure of calibration
- Procedure for Glassware Calibration

Module II : Synthetic Chemistry

(35 Hrs)

1. Development of Thin Layer Chromatography

(15 Hrs)

- Principle, Adsorbents, Activity of Adsorbents,
- Methods TLC plate preparation: i. Sample Preparation
 - ii. Choice of Mobile phase and stationary phase in TLC
 - iii. Main Operation:
 - a. Sample Application,
 - b. Chromatogram Development
 - c. Evaluation
 - d. Documentantation of Result

2. Column Chromatography:

(10 Hrs)

- Different Chromatographic techniques.
- Principle of Column Chromatography.
- Preparation of Column.
- Selection of material for Preparation of Column.
- Application of Column Chromatography.



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3. Microwave assisted synthesis: (10 Hrs)

- Essential skill sets

Module – III : In silico techniques for medicinal chemistry (35 Hrs)

1. QSAR: (15 Hrs)

- Essential steps in QSAR :
 - (i) Selection of Data set and extraction of structural/empirical descriptors
 - (ii) variable selection
 - (iii) model construction
 - (iv) validation evaluation.
- Types:
 - i) Fragment Based,
 - ii) 3D- QSAR
- Modelling:
 - i) quantum mechanics,
 - ii) molecular mechanics,
 - iii) molecular modeling.
- Evaluation Of QSAR Models
- Applications
- Other: Hansch & Free Wilson Analysis

2. a) Protein Crystallographic data and Protein Data Bank (10 Hrs)

- Study the Protein Data Bank.
- Selection of Target and Lead molecule.



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- Assessing structure .

b) Protein Modelling techniques

(10 Hrs)

- Selection of Amide containing compounds.
- Analysing the Interaction of Lead and target.

Module–IV: Analytical Techniques

(45 Hrs)

1. Introduction of Analytical techniques

(5 Hrs)

- Classification of instrumental methods of analysis
- Analytical Sample preparation Techniques- Preparing samples for analysis, sampling plans
- GMP
TQM

3. UV spectrophotometer

(10 Hrs)

- Concept,
- Beer lamberts law deviations and limitations Woodward rule concept of photometry and spectrophotometry
- Instrumentation-single beam and types of double, beam UV – Visible Spectrophotometer,
- Optimum conditions for Spectrophotometric measurements,
- Single and Multicomponent analysis Methods

4. HPLC

(10 Hrs)

- Concept,
- Instrumentation
- Trouble Shooting.



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5. FTIR

(10 Hrs)

- Concept
- Instrumentation
- Sample Handling
- Analysis and interpretation of various organic compound

6. Monograph analysis of pharmaceuticals

(5 Hrs)

- As per I.P. , B.P., U.S.P.

7. Analytical method developments and validation

(5

Hrs)

- Qualification of analytical instruments- DQ, IQ, OP,PQ of hot air oven
- Analytical method validation
- Cleaning validation
- Calibration

Dr. Dama G. Y.
Principal