



Onkar Bahu-UddeshiyaVikasSanstha's

Prof. Ravindra Nikam College of Pharmacy

Approved by: PCI; Govt. of Maharashtra; DTE; KBC NMU Jalgaon
Morane-Gondur Bypass Road, Gondur, Dhule- 424002



Syllabus: ADD-On Course

2018-2019



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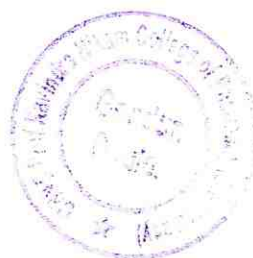
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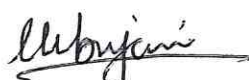


Syllabus

Soft Skill And Personality Development

1. **Topic 1:** Define Personality, Determinants of Personality Development, Perception – Definition, Perceptual Process.
2. **Topic 2:** Factors of Association – Relationship, Personality Traits, Developing Effective Habits, Emotional Intelligence.
3. **Topic 3:** Motivation, Introspection, Self-Assessment, Self-Appraisal & Self-development, Sigmund Freud Id, Ego & Super Ego.
4. **Topic 4:** Self Esteem and Maslow, Self Esteem & Erik Erikson, Mind Mapping, Competency Mapping & 360 Degree Assessment, Types of Personalities – Introvert, Extrovert & Ambivert person, Effective Communication & Its key aspects.
5. **Topic 5:** Assertiveness, Decision-making skills, Conflict: Process & Resolution, Leadership & Qualities of Successful Leader.
6. **Topic 6:** Interpersonal Relationship, Personality – Spiritual journey beyond the management of change, Good manners & Etiquities, Effective Speech, Understanding Body language, Projective Positive Body Language.
7. **Topic 7:** Attitude – Concept -Significance -Factors affecting attitudes – Positive attitude– Advantages –Negative attitude- Disadvantages -Ways to develop a positive attitude, Carl Jung 's contribution to personality development theory.
8. **Topic 8:** Stress Management: Introduction, Causes, Stress Management Techniques, Time management: Importance of time management, Techniques of time management, Time management styles.




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2019-20



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Syllabus

Tablet Manufacturing and Coating

Drug manufacturing is the process of industrial-scale synthesis of **pharmaceutical** drugs as part of the **pharmaceutical industry**. The process of **drug manufacturing** can be broken down into a series of unit operations, such as milling, granulation, coating, tablet pressing, and others.

A **tablet** is a pharmaceutical oral dosage form (Oral Solid Dosage, or OSD) or solid unit dosage form. **Tablets** may be defined as the solid unit dosage form of medicament or medicaments with suitable excipients.

These methods may be considered to consist of a series of steps (unit processes) – weighing, milling, mixing, granulation, drying, compaction, (frequently) coating and packaging.

Unit Operations in tablet manufacturing

Numerous **unit** processes are involved in making **tablets**, including

1. Particle size reduction and sizing,
2. Blending,
3. Granulation,
4. Drying,
5. Compaction,
6. and (frequently) Coating.

Various factors associated with these processes can seriously affect content uniformity, bioavailability, or stability.

Primary goals of tablet manufacturing process

1. To formulate tablets that are strong and hard to withstand mechanical shock encountered during manufacturing, packing, shipping, dispensing and use.
2. To formulate tablets that are uniform in weight and in drug content.
3. To formulate tablets that are bioavailable according to indication requirements.
4. To formulate tablets that are chemically and physically stable over a long period of time.
5. To formulate tablets that have elegant product identity which is free from any tablet defects.

Personnel requirements during manufacture of pharmaceutical tablets

- Production pharmacists/ supervisors
- Manufacturing chemist
- Quality assurance manager
- Machine operators




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Syllabus

Peoples SKILLS

Scope: This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.

Objectives:

Upon completion of the course the student shall be able to

1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. Communicate effectively (Verbal and Non Verbal)
3. Effectively manage the team as a team player
4. Develop interview skills
5. Develop Leadership qualities and essentials

Topic – I

- **Communication Skills:** Introduction, Definition, The Importance of Communication, The Communication Process – Source, Message, Encoding, Channel, Decoding, Receiver, Feedback, Context
- **Perspectives in Communication:** Introduction, Visual Perception, Language, Other factors affecting our perspective - Past Experiences, Prejudices, Feelings, Environment

Topic – II

- **Elements of Communication:** Introduction, Face to Face Communication - Tone of Voice, Body Language (Non-verbal communication), Verbal Communication, Physical Communication
- **Communication Styles:** Introduction, The Communication Styles Matrix with example for each -Direct Communication Style, Spirited Communication Style, Systematic Communication Style, Considerate Communication Style

Topic – III

- **Basic Listening Skills:** Introduction, Self-Awareness, Active Listening, Becoming an Active Listener, Listening in Difficult Situations
- **Effective Written Communication:** Introduction, When and When Not to Use Written Communication - Complexity of the Topic, Amount of Discussion' Required, Shades of Meaning,



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Formal Communication

Topic – IV

- **Interview Skills:** Purpose of an interview, Do's and Dont's of an interview
- **Giving Presentations:** Dealing with Fears, Planning your Presentation, Structuring Your Presentation, Delivering Your Presentation, Techniques of Delivery

Topic – V

- **Group Discussion:** Introduction, Communication skills in group discussion, Do's and Dont's of group discussion



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Syllabus

Add-On Courses

2020-21



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Syllabus

Interpersonal Skills

9. **Topic 1:** Define Personality, Determinants of Personality Development, Perception – Definition, Perceptual Process.
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Syllabus

Tablet Granulation And Packaging

Scope -In addition to the job-specific responsibilities of these personnel, all Students must be versed and trained in Current Good Manufacturing Practices (CGMPs) and in the appropriate Standard Operating Procedures (SOPs) governing their area.

Area required for manufacture of tablets

- Raw material warehouse
 - Receiving quarantine
 - Approved raw material section
- Dispensary
- Production room
 - Mixing, Granulation and Drying Section
 - Tablet Punching Section
 - Coating Section
- Quality control section
- Packaging Section.



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Syllabus

Analytical Instrument Handling

Introduction to chromatography

Adsorption and partition column chromatography-Methodology, advantages, disadvantages and applications.

Thin layer chromatography- Introduction, Principle, Methodology, Rf values, advantages, disadvantages and applications.

Paper chromatography-Introduction, methodology, development techniques, advantages, disadvantages and applications

Electrophoresis– Introduction, factors affecting electrophoretic mobility, Techniques of paper, gel, capillary electrophoresis, applications

Gas chromatography - Introduction, theory, instrumentation, derivatization, temperature programming, advantages, disadvantages and applications

High performance liquid chromatography (HPLC)-Introduction, theory, instrumentation, advantages and applications.




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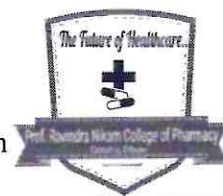
2021-22



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Syllabus

Analytical Instrumentation Handling

Scope-01 Introduction to Pharmaceutical Analysis and techniques, method development, bioanalytical method development and validation of methods.

02 Impurity profile of drugs 01 c Calibration and qualification of equipment

Topic 1- Ultraviolet and visible spectroscopy: Energy levels and selection rules, Woodward Fischer rule, Fischer Kuhn and Nelson rules. Influence of substituents, ring size and strain on spectral characteristics; solvent effects; stereochemical effects; non conjugated interactions; spectral correlation with structure. Instrumentation and pharmaceutical applications UV spectrophotometry

Topic 2- Infra-red spectroscopy (IR): Theory and instrumentation of IR spectroscopy. Characteristics regions of spectrum, influence of substituents, link size, hydrogen bonding, vibrational coupling and field effect on frequency. Determination of stereochemistry. Spectral interpretation with examples.



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Syllabus

Introduction To Research

Research:

Topic 1- Meaning, Purpose, Types, (Educational, Clinical, Experimental, Historical Descriptive, Basic Applied and Oriented Research) Objective and Need of Research

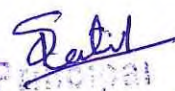
Topic 2- Literature survey Use of Library, books & journals-Medlines-Internet, gating Patients & reprints of articles as a source for Literature survey.

Topic -3 Defining the Research Problem Identification, selecting a problem & preparing a research proposal for Different Research.

Topic-4 Process of research including Research design and elements of research Design.

Topic-5 Methods & tools used in research Qualities studies, quantitative studies simple data organization descriptive data analysis, Limitations & sources of Error Inquiries in the form of Questionnaire, Opinionnaire or Interview

Topic - 6 Documentation- Introduction, Techniques of documentation Importance of documentation, Uses of Computer packages in documentation


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Syllabus

Computer Aided Drug Design

Scope: This subject is designed to provide detailed knowledge of rational drug design process and various techniques used in rational drug design process.

Objectives: Upon completion of the course, the student shall be able to understand

Design and discovery of lead molecules, The role of drug design in drug discovery process. The concept of QSAR and docking

Various strategies to develop new drug like molecules.

The design of new drug molecules using molecular modeling software

Course Content:

UNIT-I Introduction to Drug Discovery and Development Stages of drug discovery and development Lead discovery and Analog Based Drug Design Rational approaches to lead discovery based on traditional medicine, Random screening, Non-random screening, serendipitous drug discovery, lead discovery based on drug metabolism, lead discovery based on clinical observation. Analog Based Drug Design: Bioisosterism, Classification, Bioisosteric replacement. Any three case studies

UNIT-II Quantitative Structure Activity Relationship (QSAR) SAR versus QSAR, History and development of QSAR, Types of physicochemical parameters, experimental and theoretical approaches for the determination of physicochemical parameters such as Partition coefficient, Hammett's substituent constant and Taft's steric constant. Hansch analysis, Free Wilson analysis, 3D-QSAR approaches like COMFA and COMSIA.

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Syllabus

Add on Courses 2022-23



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Syllabus

Regulatory Affairs

Scope:

This course is designed to impart the fundamental knowledge on the regulatory requirements for approval of new drugs, and drug products in regulated markets of India & other countries like US, EU, Japan, Australia, UK etc. It prepares the students to learn in detail on the regulatory requirements, documentation requirements, and registration procedures for marketing the drug products.

Objectives: Upon completion of the subject student shall be able to;

1. Know about the process of drug discovery and development
2. Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
3. Know the regulatory approval process and their registration in Indian and international markets

Course content:

Unit 1-New Drug Discovery and development Stages of drug discovery, Drug development process, pre-clinical studies, non-clinical activities, clinical studies, Innovator and generics, Concept of generics, Generic drug product development.

Unit II- regulatory Approval Process Approval processes and timelines involved in Investigational New Drug (IND), New Drug Application (NDA), Abbreviated New Drug Application (ANDA). Changes to an approved NDA / ANDA. Regulatory authorities and agencies Overview of regulatory authorities of India, United States, European Union, Australia, Japan, Canada (Organization structure and types of applications)

Unit III - Registration of Indian drug product in overseas market Procedure for export of pharmaceutical products, Technical documentation, Drug Master Files (DMF), Common Technical Document (CTD), electronic Common Technical 163 Document (eCTD), ASEAN Common Technical Document (ACTD)research.




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Syllabus

Tablet Processing

Scope -Introduction to pharmaceutical product development, objectives, regulations related to preformulation, formulation development, stability assessment, manufacturing and quality control testing of Tablet forms

Content-

Unit 1- An advanced study of Pharmaceutical Excipients in pharmaceutical product development with a special reference to the following categories

- i. Tablet and capsule excipients
- ii. Directly compressible vehicles
- iii. Coat materials iv. Excipients in products
- v. Excipients for formulation of NDDS Selection and application of excipients in pharmaceutical formulations with specific industrial applications

Unit 2- Optimization techniques in pharmaceutical product development.A study of various optimization techniques for pharmaceutical product development with specific examples.Optimization by factorial designs and their applications.A study of QbD and its application in pharmaceutical product development.




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Syllabus

Medical Coding

1. Introduction to US Healthcare
2. Healthcare in India and US
3. Patient, Provider and Payers Relationship
4. Importance and significance of coding in today's world
5. Anatomy, Pathophysiology and Medical Terminologies 4 Hours
6. Terminology – Root word, suffix, prefixes, combining forms
7. Human body – Anatomical Position, Body Cavities
8. Dermatology • Ophthalmology • Otorhinolaryngology • Pulmonology • Cardiology • Gastroenterology
Genitourinary system • Gynaecology and Obstetrics • Orthopaedics • Endocrinology • Immunology,
Lymphatics, and Hematology
9. ICD-10-CM 10 Hours • History, Volumes • Conventions • General Coding Guidelines
10. Chapter Specific Guidelines • Infections and Parasitic Diseases • Neoplasms • Endocrine, Nutritional
and metabolic diseases, and immunity disorders • Diseases of blood and blood forming organs • Mental
disorders • Diseases of Nervous system • Diseases of Sense organs • Diseases of Circulatory System •
Diseases of Respiratory system • Diseases of Digestive system • Diseases of Genitourinary system •
Complications of Pregnancy, Childbirth and Puerperium • Diseases of the skin and subcutaneous tissue •
Diseases of musculoskeletal system and connective tissue • Congenital anomalies • Certain Conditions
originating in the perinatal period. • Injury and Poisoning • External causes of Injury – E-codes
11. Supplementary classification of factors influencing health status and contact with health services – V-
codes.
12. Current Procedural Terminology • Introduction to CPT • Category I to Category III • Six sections of
CPT in Detail o Evaluation and Management o Anesthesiology o Surgery o Radiology o Pathology and
Laboratory o Medicine • Significance of Parent codes • CPT Modifiers • Symbols and significance •
13. Alphanumeric codes overview of categories II and III 5. HCPCS (Healthcare Common Procedure Coding
System) • Introduction to HCPCS • Significance and Usage • Types of HCPCS • Modifiers Level II
HCPCS
14. Case Studies 6 Hours
15. practice case studies .
16. Mock Tests
17. Mock Test



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Syllabus

Advanced Instrumentation

Scope:

This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.

Objectives: Upon completion of the course the student shall be able to

- understand the advanced instruments used and its applications in drug analysis
- understand the chromatographic separation and analysis of drugs.
- understand the calibration of various analytical instruments

UNIT-I

Nuclear Magnetic Resonance spectroscopy- Principles of H-NMR and C-NMR, chemical shift, factors affecting chemical shift, coupling constant, Spin - spin coupling, relaxation, instrumentation and applications
Mass Spectrometry- Principles, Fragmentation, Ionization techniques – Electron impact, chemical ionization, MALDI, FAB, Analyzers-Time of flight and Quadrupole, instrumentation, applications

UNIT-II

Thermal Methods of Analysis: Principles, instrumentation, and applications of thermogravimetric analysis (TGA), Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC) X-ray diffraction Methods: Origin of X-rays, basic aspects of crystals, X ray Crystallography, rotating crystal technique, single crystal diffraction, powder diffraction, structural elucidation and applications.



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