

PLCEMENT PROGRAM HEIGH LIGHT

- **LECTURES CONDUCTED BY PHD AND POST DOC SCIENTISTS WITH EXPERIENCE OF 12+ YEARS**
- **STUDY MATERIAL WITH IN-DEPTH EXPLANATION**
- **INTERACTIVE CLASSES**
- **DOUBT SOLVING SESSIONS**
- **REGULAR MOCK TESTS**
- **COMPLETE COVERAGE OF SYLLABUS**

❖ TOPICS OFFERED FOR JOB TRAINING PROGRAM FRESHER 2024:

🚩 Herbal Drug formulation/Natural Product Research (TESTING)

In this module, passed out students will be exposed to the foundations, theoretical and practical of herbal drug formulation and the role played by discoveries and applications of herbal drug. Quality compliances - Good Laboratory Practices (GLP), guidelines and basic principles of Good Manufacturing Practices (GMP), Principle, standard operating procedure (SOP) and Calibration of Instruments, quality control (QC) and quality assurance (QA), screening of bioactive plants, preparation of crude extracts from different extraction technique, Qualitative and Quantitative plant secondary metabolites study, In this module we learn to investigate different Pharmacological activity of crude extracts at different parameters (Antimicrobial susceptibility testing -AST, Antioxidant activity-AA, Bioautography, Minimum Inhibitory concentration-MIC, Minimum bactericidal concentration-MBC), isolation of bioactive compound from crude extract through different techniques (Preparative and analytical Thin layer chromatography-TLC, Column chromatography-CC, High performance liquid chromatography-HPLC and Gas Chromatography-GC), formulation and validation of different pure herbal products (hand sanitizer, shampoo, toothpaste, hair oil, face wash etc. from different plant extracts) quality control of raw materials and many more.

🚩 Industrial Microbiology/Medical and Clinical Microbiology/ Food Microbiology/Enzymology and Fermentation technology

In this module, passed out students will be exposed to the foundations, theoretical and practical of microbiology/enzymology and the role played by discoveries and applications of Microbiology/ enzymology, Introduction and market Scenario of

microbiology, standard operating procedure (SOP) and Calibration of Instruments, quality control (QC) and quality assurance (QA), in this module we learn how to isolate and identify the bacteria from different places (air, water, soil, sewage water etc), different sterilization techniques, solid and liquid media preparation, culture maintenance, different techniques involve in the isolation of bacteria- pouring, spreading, different streaking techniques, identification of bacteria- morphological identification (shape, colour, size, margin, motility test, gram staining, endospore staining, capsule staining), biochemical identification (starch hydrolysis test, MR-VP test, nitrate test, citrate test, urease test, catalase, dextrose, sucrose, mannitol, lactose test etc.), growth kinetics at different parameters (temperature, pH, carbon and nitrogen), isolation of industrially important bacteria/fungi, Isolation and identification of human pathogenic bacteria/fungi on selective media, AST-MIC-MBC of different antibiotics against isolated pathogenic bacteria/fungi, Cell immobilization technique with sodium alginate method, basics of fermentation, types of fermentation, enzyme production through submerge fermentation and many more.

Food Industries: Quality Analysis and Control skills

In this module, passed out students will be exposed to the foundations, theoretical and practical of Food industries and the role played by discoveries and applications of Food industries. Quality compliances - Good Laboratory Practices (GLP), guidelines and basic principles of Good Manufacturing Practices (GMP), standard operating procedure (SOP) and calibration of Instruments, quality control (QC) and quality assurance (QA), FSSAI Guidelines, Job scenario in food sector, Food microbiology- Microbial contamination check on different food samples, CFU/ml counting, pH and Moisture determination of different food samples, Fat analysis of different food samples, Acid value of different oil samples, Protein and carbohydrate analysis of different food products, Citric acid analysis in different fruit juices, Ascorbic acid analysis in different fruit juices, Quality and adulteration in different brands of milk, Gluten test of different flours, Adulteration analysis in turmeric and red chili powder, Adulteration analysis in arhar dal and besan, Adulteration analysis in coriander powder and black pepper, Adulteration analysis in coffee and sweets, Measurement of Sodium/ potassium/ calcium/ lithium concentration (ppm) in different fruit juices through Flame photometer, Dairy Industry, Bakery

Industry, Beverage Industry, Probiotics development, fermentation technology and many more.

Molecular Disease Diagnostic/ Recombinant DNA Technology

Topics included in this modules- Good Laboratory Practices (GLP), guidelines and basic principles of Good Manufacturing Practices (GMP), standard operating procedure (SOP) and calibration of Instruments, quality control (QC) and quality assurance (QA), In this module we learn how to isolate the genomic DNA from different samples with standard protocols (bacteria, plants leaf, nail, blood, hair etc), Qualitative analysis of genomic DNA (Agarose gel electrophoresis), Quantitative analysis of genomic DNA (UV-VIS spectrophotometer), Polymerase chain reaction (PCR), Types of PCR and application of PCR, Competent cell preparation, Restriction digestion, Ligation, Transformation (T), Blue white colony selection (T), Blotting techniques (Southern and northern) (T), Sequencing (T), **Proteomics**- Qualitative analysis of protein from different sources, Quantitative analysis of protein by Lowry method, Protein extraction from different sources, Preparation of SDS-PAGE Buffers and reagents, SDS-PAGE , Western blotting technique, Direct Immuno enzymatic determination of thyrotropin/Hepatitis B in human serum through (ELISA) reader, RIA (T), **Disease diagnosis**- Introduction of Disease diagnosis, Detection of Plasmodium sp. Infection with PCR, Agarose gel electrophoresis of PCR product, Detection of TB infection with PCR technique, Agarose gel electrophoresis of PCR product and many more.

Pharma Quality Control and Quality Assurance









Introduction of pharmaceutical quality control, Job prospects, GLP in Pharmaceuticals, General and safety rules for working in Lab, Demonstration of instruments, Clean room concept, Micropipette handling (forward and reverse pipetting techniques, Presence of nitrogen in sample, Presence of Sulphur, Presence of halogens group, Presence of sugar, presence of non-reducing sugar, Qualitative analysis of paracetamol, Estimation of different tablet hardness through tablet hardness tester, Basic about limit test in pharma, Limit test of heavy metal (lead), limit test of sulphate, limit test of chloride, qualitative analysis of iodoform/oxalic acid/ester, Introduction about Minimum inhibitory concentration (MIC), MIC of antibiotics against pathogenic bacteria, Qualitative Assay of Acetaminophen/Acetylsalicylic Acid tablets, Principle-SOP and application of

spectrophotometer, Percentage purity of Paracetamol from different brands of through UV-VIS spectrophotometer, Overview of flame photometer, Analysis of different salts using flame photometer, Principle-SOP and application of Karl Fischer Titration, Basic concept of Moisture analysis from different tablets through Karl Fischer Titration and many more.

Animal and Stem cell culture (Optional)

Topics included in this module- Introduction of Cell culture/ Animal cell culture/Stem cell culture, Knowledge of Cell culture used for vaccine production, therapeutic proteins, pharmaceutical agents, gene therapy and cancer research, Primary Cell culture and its maintenance, Contamination in cell culture (Biological, Cross, Antibiotics), Handling different cell lines (RIN-5/MCF-7) and its Cryopreservation. Introduction to Subculture, Trypsinization, Passaging for suspension culture (Shake off and Scraping), Isolation of mononucleated cells by blood sample, Handling of mammalian cell culture and its maintenance, Cryopreservation of different cell lines and cell cultures, Development of Mesenchymal Stem Cells via dental pulp, Basics of Adherent vs Suspension Culture, Isolation of human mononucleated cells from peripheral blood., Cell count by Hemocytometer, Culturing and maintenance of isolated pluripotent and, Cytochemical staining of Osteoblasts derive from hPBSCs, Chondrogenic differentiation of stem cells using Alcian blue staining, To isolate dental pulp mesenchymal stem cells (MSCs) from non-infected human permanent teeth, Adipogenic differentiation of mesenchymal stem cells (MSCs) using Oil red O staining and many more.

Course includes all above mentioned modules + Research work+ Paper Publication (1 Review & 1 Research) in UGC Approved journal.

-  CV writing
-  Communication skills personality development
-  Introduction of Different Biotech company
-  Food technology and Biopharma industries
-  Body language
-  Mock interviews
-  Creating presentation
-  Grooming classes .etc.