



Institutional Distinctiveness

INSTITUTIONAL DISTINCTIVENESS VRIDDHI VALUE-RIDDEN INITIATIVES AND DEVELOPMENT OF INSTITUTION FOR DISTINCTIVE IDENTITY (VRIDDHI)

The Vision and Mission statements of Dadasaheb Balpande College of Pharmacy clearly state making the students competent by providing them with necessary exposure and skills in the area of Pharmaceutical Sciences. To fulfill the vision of the institution several activities are planned regularly. Meticulous implementation of such activities ensures noticeable outcomes. VRUDDHI is a concept developed at DBCOP to ensure the distinctiveness of the institution through value-added initiatives such as the introduction of certificate courses, start-up (entrepreneurship) initiatives, etc.

Value-Added Certificate Courses:

The curriculum of the Bachelor of Pharmacy is given by the Pharmacy Council of India, it is adopted by Rashtrasant Tukadoji Maharaj Nagpur University. Therefore it is naturally adopted by its affiliated colleges like ours. As an affiliating institute, we do not have the right to make changes to the given program. Understanding our limitations, we have initiated the introduction of short-term certificate courses to fill the gap between the needs of the industry and the present curriculum. The pharmaceutical industry is very dynamic and needs skillful manpower with updated knowledge. Short-term certificate courses aim to train students in necessary skills, which will make them industry ready.

1) Advanced Analytical Equipment Handling Certificate Course (AAEHC):

COURSE OBJECTIVES

- 1) Calibration and qualification criteria as per ICH and USFDA guidelines
- 2) Apply the concept TGA, DTA, DSC, X ray diffraction to interpret the physical characteristics of the drugs.
- 3) Interpretation of FTIR, mass and NMR spectra for identification of organic molecule
- 4) Summarize the methodology for quantitative and qualitative estimation of analyte by HPLC, GC, UV and Fluorometry is also covered in the course.
- 5) Pharmacokinetic studies by HPLC : An overview



COURSE CONTENT

Infrared Spectrometry

Theory:

- Principle of IR spectroscopy, Factors affecting vibrational frequency, Interpretation of various functional group, Sampling Techniques ATR, DRS

Practical:

- Sample preparation
- Analysis of one solid and liquid sample and its interpretation
- Calibration and qualification of FTIR instrument by USP guidelines

High Performance Liquid Chromatography

Theory:

- Principle, methodology and instrumentation of HPLC
- Strategies for development and validation of analytical & Bioanalytical method on HPLC

Practical:

- Calibration and qualification of HPLC instrument by USP & ICH guidelines
- System suitability parameter evaluation and its USP compliance
- Sampling Preparation
- Qualitative and quantitative estimation of analyte by HPLC

UV- VIS Spectrophotometer

Theory

- Principle, methodology and instrumentation of UV-Visible spectrophotometry
- Strategies for development and validation of analytical method for mixture

Practical:

- Sample preparation
- Calibration and qualification of UV-Visible spectrophotometer instrument by USP & ICH guidelines
- Acquisition of derivative spectrum
- Qualitative and quantitative estimation of analytes by UV-Visible spectrophotometry

Gas Chromatography

Theory:

- Principle, working, instrumentation of Gas Chromatography
- Derivatization in GC



- Strategies for development and validation of analytical method on Gas Chromatography

Practical:

- Sample preparation
- Calibration and qualification of Gas Chromatography instrument by USP & ICH guidelines
- Derivatization of fatty acid by Boron trifluoride method and its subsequent analysis
- Qualitative and quantitative estimation of analyte by Gas Chromatography

Microwave Synthesizer

Theory:

- Introduction, Theory, Principle, Instrumentation, Handling of instrument

Practical:

- Relative comparison of synthesis of organic moiety by conventional and microwave assisted synthesis and evaluation of synthetic product

pH meter & Analytical balance

- Introduction and Theory
- Preparation of buffers
- Calibration of pH meter and Weighing Balance

EXPECTED OUTCOME

The course will enable participants to gain practical proficiency in operating and handling sophisticated analytical instruments including FTIR, HPLC, UV-Visible spectrophotometer, Gas Chromatograph, microwave synthesizer, pH meter, and analytical balance. Learners will be capable of performing routine operational procedures, adhering to laboratory safety guidelines, following standard operating procedures, and applying good laboratory practices to ensure reliable and reproducible analytical results. Additionally, the course fosters laboratory quality awareness, documentation skills, analytical thinking, and problem-solving ability, thereby enhancing employability and industry readiness. Overall, the course bridges the gap between academic training and industrial practice, producing competent, compliance-oriented, and research-ready analytical professionals.



2) Certificate Course in Employability Skills:

COURSE OBJECTIVES

- 1) To acquire the knowledge and skills required for obtaining and keeping employment in Pharmaceutical Sciences.
- 2) To train Pharmacy students with special emphasis on individual skill assessments, interpersonal communication skills, workplace responsibilities, teamwork skills, safety issues, and personal management skills for the workplace.
- 3) To encourage Pharmacy students to learn skills for discussing and resolving problems on the work site.

COURSE CONTENT:

I. Personality Development

- A. Determine how personality, self-concept, interests, attitudes, aptitudes, abilities, and personal priorities affect career decisions
- B. Analyse how self-concept can affect job performances

II. Employability skills Development

- A. Use ads, the internet and other job search tools
- B. Resume writing

III. Interviewing Skills

- A. Prepare for an interview
- B. Describe what to do and what not to do during an interview
- C. Evaluation of a job offer
- D. Steps to follow if you do not get the job

IV. Presentation Skills

- A. Determine how to do and deliver presentation
- B. Identify expectations of employers
- C. Describe how you can do your best as an employee

V. Communication skills

- A. Methods of communication
- B. Writing business letters
- C. Nonverbal communication
- D. Communication tools

VI. Keeping Safety First

- A. Thinking and acting safely
- B. Office safety
- C. Safely using machinery, tools, and workplace items



VII. Basic Skills for Job Success

- A. The starting point—basic skills
- B. Reading skills
- C. Writing skills
- D. Good grooming

EXPECTED OUTCOME:

Upon completion of this course, it is expected that the students shall understand and develop life skills or key skills or general skills that will assist in explaining the roles of the individuals are playing in a team and in what ways they can collectively function for actualisation of the shared goals. After completion of the course, students shall be awarded with certificate.

3) Certificate Course in Elevating Ethical Practices in Pharmacy Profession:

COURSE OBJECTIVES:

1. To spread awareness about fundamentals of ethical practices in Pharmaceutical Sciences.
2. To train Pharmacy students on ethical practices in Pharmaceutical Sciences.
3. To imbibe and encourage ethical practices among Pharmacy students.

COURSE CONTENT:

- Definition and fundamentals of ethics,
- Interpretation of Pharmacist's oath,
- Publication ethics,
- Ethical practices in animal handling,
- Ethical practices in the workplace,
- Concept of research and ethical practices in Pharmaceutical Research,
- Importance of Biodiversity and Environment Protection,
- Ethical practices in healthcare and role of Pharmacist,
- Pharmacist's responsibility towards climate change,
- Ethical practices in Hazard Management



EXPECTED OUTCOME:

After completion of this certificate course, it is expected that every student shall understand the fundamentals of ethical practices in Pharmaceutical Sciences. This course shall train students on how to practice ethical practices in the workplace. This certificate course shall encourage and imbibe students on ethical practices in Pharmaceutical Sciences. After completion of the course, students shall be awarded a certificate.

4) Certificate Course In Universal Human Values

COURSE OBJECTIVES

1. To introduce value education, self-exploration, and human aspirations.
2. To develop personal harmony, self-confidence, and emotional balance.
3. To promote harmonious relationships, ethical behavior, and awareness of coexistence in nature and professional life.

COURSE CONTENTS:

- Need, Basic Guidelines, Content and Process for Value Education (Self- Exploration, Basic Human Aspirations, Right Understanding, Relationship and Physical Facilities)
- Understanding Harmony in the Human Being - Harmony in Myself (Self-confidence, peer pressure, time management, anger, stress, Personality development, self-improvement)
- Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship (Understanding Harmony in the Family, Understanding Harmony in the Society)
- Understanding Harmony in the Nature and Existence - Whole Existence as Coexistence (Understanding Harmony in the Nature, Whole Existence as Coexistence)



- Implications of the above Holistic Understanding of Harmony on Professional Ethics (Understanding of Harmony on Professional Ethics, Humanistic Education, Humanistic Constitution and Humanistic Universal Order)
- Visit to respective place

EXPECTED OUTCOMES

Upon completing the Universal Human Values course, students will acquire a clear understanding of fundamental human values and the process of self-exploration. They will learn how to develop peaceful relationships in their families, communities, and workplaces. The course will enhance awareness of harmony in nature and coexistence, promoting environmentally responsible behavior. Students will also learn to apply holistic and humanistic values in professional settings, supporting ethical decision-making, social responsibility.

5) Animal Handling & Preclinical Research Certificate Course:

COURSE OBJECTIVES:

1. **Overview of Drug Discovery and Screening Techniques:** Understand the drug discovery pipeline with a focus on various screening methods from target identification to lead optimization.
2. **Hands-on Training:** Gain practical experience with *in-silico*, *In-vitro*, *ex-vivo*, and *In-vivo* pharmacological screening models.
3. **Data Analysis:** Learn data analysis, interpretation of screening results, addressing false positives and negatives.
4. **Study Design and Optimization:** Learn best practices for designing robust, reproducible study, assays and optimizing conditions.
5. **Ethics and Regulations:** Discuss ethical considerations and regulatory standards in drug screening.
6. **Innovation in Drug Discovery:** Foster innovative thinking in applying screening methods to address challenges in drug discovery.
7. **Real-world Case Studies:** Review case studies of successful drug discovery projects utilizing screening methods.



COURSE CONTENTS:

1. Introduction to Drug Discovery and Animal Experimentation.

a) Fundamentals of Drug Discovery Principles & Regulatory Guidelines:

- Introduction to Clinical Trials and Clinical Research
- CCSEA Guidelines for the animal house facility
- Form A, Form B, Form C, Form D
- Flow of ethical approval

b) Animal Facility Management and Maintenance

- Care and Maintenance of Animal House Facility
- Standard Operating Procedure for animal House facility
- Investigators' necessities for performing animal house facility

c) Designing Experimental Protocols: Key Concepts

- 3 R Principles
- Protocols Designing
- Duration of study
- Dose calculation
- Experimental Animals and their utility
- Pre-, post- experimental set-up

***In-Vivo* Screening Methods**

a) Disease Pathophysiology

Introduction to theoretical aspect: Neurobiological Models:

Depression (Tail Suspension, Forced Swim Test, Open Field Test)

b) Disease Pathophysiology

Introduction to theoretical aspect: Neurobiological Models: Epilepsy

Neurodegenerative Models (Parkinson)

c) Disease Pathophysiology

Introduction to theoretical aspect:

Learning and Memory (Alzheimer's)

d) Disease Pathophysiology



Introduction to theoretical aspect: IBD, Arthritis Pain Models

e) Disease Pathophysiology

Introduction to theoretical aspect: Inflammation and Wound Healing Models

Ex-Vivo Screening Techniques

- a) Overview of Ex-Vivo Electrophysiology Techniques
- b) Introduction to Calcium Imaging in Neurons and Online Platforms for Accessing Drug Information

In-Vitro Screening Approaches

- a) Introduction to Cell Lines in Drug Screening
- b) Molecular Techniques: RT-PCR

In-Silico Screening and Data Analysis

- a) Fundamentals of Computer-Aided Drug Design
- b) Statistical Data Analysis in Drug Research

EXPECTED OUTCOME:

After completing this course, it will be anticipated that the students will be able to comprehend and acquire the ability to handle animals' expertise as well as ethical issues related to CCSEA guidelines that will be helpful to explain the responsibilities that various teammates participate in and how they may can work together to achieve the team's objectives. A certification of completion will be awarded to students following their completion of the course.

6) Employability Skill Enhancement Programm:

COURSE OBJECTIVE:

Improving youth's economic security through access to high-quality training and encouraging them on their employment and entrepreneurial pursuits.



COURSE CONTENT:

Training modules:

- I am Unique
- Body language & Grooming
- Goal setting & Time Management
- Money management
- Problem-solving
- Professional communication at workplace
- Resume Preparation
- Interview Q & A
- Acing a group discussion
- Presenting your project - Mini presentation

Key differentiators:

- Focused on modern learner centric pedagogy
- Encourages socio-emotional learning
- Delivered by highly qualified facilitators in face-to-face mode

Mapping the learning journey:

The learning and developmental objectives in each lesson plan are mapped, respectively, to the learning and developmental goals that form the building blocks of competency development. The learning objectives are also the performance indicators used to assess learning and development. Hence, they form the bedrock of the assessment tasks. Assessment is integral to the learning process and is ongoing. Assessment as learning, for learning, and of learning is aimed at enhancing not only student learning but also the efficacy of the program.

- Diagnostic (20 Baseline Assessment Questions)
- Endline Assessment (20 Assessment Questions)

EXPECTED OUTCOME:

- Increased confidence
- Enhanced income generation opportunities
- Self-Report: Physical & Cognitive Confidence.
- Enhanced Income Generating Opportunities Created

The most notable traits of a confident person are mapped with Abilities (acquired skills that can be developed) and Attributes (linked with personality, which can also be developed). For baseline and impact evaluation, we use a unique Competency Framework is used.



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Innovations and Start-ups:

A culture of innovation and Start-up is initiated at DBCOP. As a result, several innovative models, ideas, and products were developed by students and faculty members at DBCOP.

To promote the growth of startups and innovation, DBCOP established the section 8 company, "Balpande Innovation and Startup Foundation" on 25th February 2025. Our institute is an approved Incubation sub-center of the INCUBEIN Foundation RTMNU, which promote individuals in their initial phase to create startups focusing on creating the impact in ecosystem. It provides initial support through mentoring, prototype grant and incubation support. INCUBEIN has been funded by Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU) and Maharashtra State Innovation Society (MSINs), with funding support to scale up its activities. Various sessions on "Innovation and Ecosystem", "Early-stage Entrepreneurs", "Entrepreneurship Development", "National Start-up Day", "Lean Start-up & Minimum Viable," and "How to plan for Start-up and legal & Ethical Steps" were organized by DBCOP to promote innovation and startup culture.


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