

## Trainers

**Prof. Pradeep K. Naik,**  
Coordinator RCOE-NPT  
Dept. of Biotechnology  
and Bioinformatics  
Sambalpur University



## Research Scholars

Dr. Surjeet Verma	Mr. SK Mustaq Ali
Dr. Prajna Parimita Mohanta	Mr. Bikash Chandra Behera
Dr. Pratyush Pragyandipta	Mr. Rahul Sahoo
Dr. Swaraj Kumar Babu	Ms. Sriya Pattnaik
Dr. Srichandan Rath	Ms. Archana Pradhan
Mr. Dibya Ranjan Sahoo	Ms. Baishali Basundhara Naik
Mr. Biswajit Mohanty	Ms. Pragati Prava Rath
Ms. Monika Mishra	Ms. Tanuja Sahu
Mr. Abhijit Sahu	Ms. Priyanka Gartia
Mrs. Namita Bhoi	Ms. Dibyadarshini Sahu
Mr. Tapan Kumar Behera	Mr. Sk Alam
Mrs. Mamta Naik	Ms. Neha Nayak
Ms. Ankita Agrawal	Mr. Pratyush Maharana
Ms. Eeshara Naik	Ms. Satyanshi Behera
Ms. Reshma Pradhan	Ms. Aishwarya Mishra

## LABORATORY FACILITIES



[Animal cell culture](#) [Microbial culture](#) [Parasite culture](#)



[Plant tissue culture](#) [Analytical Lab](#) [Green House](#)



## Registration and Contact Details

Interested participants must register and only selected candidates would be intimated for the National Internship Training Programme. The course fee for the National Internship Training Programme is Rs. 5000/- which includes the charges for boarding, lodging, fooding, supply of course materials and accessories for a duration of one month.

### Link for Registration:

<https://forms.gle/2RqQWJkmXaeahwmg7>

**Registration Deadline: 20<sup>th</sup> April 2025**

**Short listed candidates will be intimated by email latest by 29<sup>th</sup> April 2025.**

## Eligibility Criteria

Minimum qualification: Graduate/Postgraduate/Ph.D. Scholar/Young Faculties in Biological Sciences. (Botany, Zoology, Life Sciences, Biotechnology, Bioinformatics, Microbiology, Marine Biology, and allied subjects)

## For more Information

**Access:** <http://www.suniv.ac.in/notice-board.php>

**Email:** [nationalinternship.coenpt@gmail.com](mailto:nationalinternship.coenpt@gmail.com)  
[pknaik1973@suniv.ac.in](mailto:pknaik1973@suniv.ac.in)

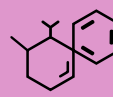
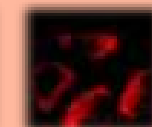
**Address:**

**Prof. Pradeep Kumar Naik,** Coordinator  
Dept. of Biotechnology and Bioinformatics  
Sambalpur University, Po: Jyoti Vihar, Burla,  
Dist: Sambalpur, State: Odisha, INDIA-768019

## One Month National Internship Training Program

### NATURAL PRODUCTS DEVELOPMENT AND PRECLINICAL TRIALS

From 12<sup>th</sup> May to 10<sup>th</sup> June 2025



**Organized by:**

**Research Centre of Excellence  
Natural Products and Therapeutics (RCOE-NPT)  
Department of Biotechnology & Bioinformatics  
Sambalpur University  
Jyoti Vihar, Sambalpur - 768019, Odisha**

## Overview of Program

RCOE-NPT welcomes participants to the National Internship Training Program on **Natural Products Development and Preclinical Trials**. Engage in interdisciplinary learning within the vibrant setting of the RCOE-NPT by exploring the traditional knowledge for developing natural products. Join us in advancing research excellence and gaining hands-on experience in the realm of natural products development and preclinical trials.

### Overview of the RCOE-NPT

Sambalpur University's "Research Centre of Excellence in Natural Products and Therapeutics (RCOE-NPT)" thrives on a Rs. 4.0 crore grant from the Department of Higher Education, Govt. of Odisha, through the World Bank. Established on September 25, 2018, it delves into interdisciplinary research on medicinal plants in the biodiversity of the Gandhamardan. Utilizing traditional healers' insights, the center aims to uncover plant chemical properties and identify bioactive molecules for developing effective natural and synthetic products against diseases. In collaboration with the Department of Biotechnology & Bioinformatics and the School of Chemistry, RCOE-NPT aspires to be a hub of knowledge and innovation, excelling in education and research. It endeavors to become a distinguished Centre of Excellence by advancing herbal products development, conducting preclinical evaluations, providing training, supporting local livelihoods, offering affordable services, contributing significantly to the field of natural products and therapeutics.

## Training Modules of Internship

### 1. Analytical Training Modules

- Introduction to Pharmacognosy and understanding the traditional method of Drug Screening.
- Basics of different extraction techniques and chromatographic techniques
- Basics of spectroscopic instruments, qualitative and quantitative analysis using UV and FTIR.
- Basics of chromatographic instruments, qualitative and quantitative analysis by TLC, HPTLC, HPLC, UPLC, GC.
- Basics of mass spectroscopy, qualitative and quantitative analysis using LC-HRMS and GC-MS.

### 2. Animal handling and research training module

- Handling of animals, care and management
- Day to day observation on body weight, water intake
- Experimental Approaches in laboratory animals
- Animal behavioural study and observation
- Animal model for different diseases and experiments
- Toxicity profiling, histopathology and animal testing

### 3. Molecular Modeling and Drug Design training module

- Protein modeling, validation and simulation
- DNA, Proteins and chemical databases,
- Representation of chemical structure, and database search
- Ligand based drug design (QSAR and Pharmacophore modeling)
- Structure based drug design (molecular docking, MD simulation, Ligplot analysis, Binding affinity calculation)
- ADME and Toxicity property analysis

### 4. Animal cell culture experiments training module

- Introduction to basics of Animal cell culture, Media and Reagent Preparation & Sterilization, Cell Counting
- Processing of cells and preparations of chemicals for evaluation of cell viability, cytotoxicity & proliferation assay, FACS analysis, Fluorescence imaging
- Preparation of Chemicals and processing of genomic DNA isolation from cancer cell lines.
- Preparation of Chemicals and processing of Reverse Transcription-PCR from cDNA.
- Preparation of Chemicals and processing of Agarose gel electrophoresis of PCR product

### 5. Microbiology training module

- Overview of basic microbiology, emphasizing laboratory practices, aseptic conditions, and SOPs.
- Media preparation, sterilization, bacterial inoculation, and culture maintenance.
- Morphological and biochemical identification,
- Antibiotic susceptibility testing, determination of antibacterial activities, and minimum inhibitory concentration calculations are explored.
- Introduction of biofilms in bacterial pathogens, highlighting their role in antibiotic resistance and techniques for detection and inhibition.
- Impact of medicinal plants on biofilm formation using assays like Congo red agar.
- Explores exopolysaccharides production and microscopic methods for biofilm detection in bacterial pathogens.

### 6. Parasite research training module

- Maintaining Sterility in Parasite Laboratory
- Preparation of Culture media and Filtration techniques
- In vitro Culture and Maintenance of parasites
- In vitro screening of antiparasitic drug agents
- In vitro toxicity screening of antiparasitic drug agents
- Gene expression analysis of marker gene
- FACS analysis and fluorescence imaging

### 7. Plant tissue culture research training module

- Introduction to basics of Plant tissue culture.
- Media and Stock Preparation & Sterilization.
- Selection of explants for formation of multiple shoots, Incubation of explants
- Selection of specific plant growth regulator for formation of multiple shoots and Preparation of soil, transfer of plantlet to for primary hardening with specific temperature and humidity.
- Transfer to Net house or field condition for secondary hardening

**After the training is over there will be Evaluation of trainees and certification.**