



CSIR-INDIAN INSTITUTE OF PETROLEUM

(Council of Scientific & Industrial Research)

P.O. IIP Mohkampur, Haridwar Road,

Dehradun-248 005,Uttarakhand

Website: www.iip.res.in



Basic Skill Development Training program on 'Downstream Processing for Enzymes & Proteins'

Introduction

With experienced and qualified staff and comprehensive state-of-the-art R&D facilities the institute maintains its leading position in conducting training programs for the personnel from refining, petrochemical, automotive, power and related user industry. More than 8000 personnel from India and abroad have been trained on different requirements.

As per the initiatives taken by the institute under 'CSIR-IIP Integrated Skill Development Training Programs' applications are invited from eligible **Uttarakhand state residents only** for training program on 'Downstream Processing for Enzymes & Proteins', sponsored by **Uttarakhand State Council for Science & Technology (UCOST)**. Our laboratory is equipped with range of instruments like Protein purification system, High pressure homogenizer, 2D gel electrophoresis, Ultra centrifuge system, Continuous centrifuge system and TFF system which are commonly used for downstream processing of any protein/enzyme.

Objectives & Scope

Training is aimed at learning of a wide range of techniques used in research laboratory/ biotechnology industry engaged in development of bio-based drugs, therapeutic proteins and enzymes for pharmaceutical, agricultural and environmental applications.

Contents

Theory :

- Fundamental and principles of Downstream Processing
- Principles of different methods of protein/enzyme purification
- Principles of Tangential flow filtration and operations,
- Principles of electrophoresis, *isoelectric focusing (IEF)* and handling of instruments
- Fundamental principles of ultra centrifuge systems, continuous centrifuge systems and their handling

Practical:

- Extraction of intracellular enzymes/proteins using High Pressure homogenizer
- Preparation of cell free extract using ultracentrifugation
- Methods for enzyme/ protein purification (acetone precipitation, ammonium sulphate precipitation, tangential flow filtration, buffer exchange, chromatographic separation and analysis
- Different methods of protein estimation
- Electrophoresis (Native and SDS)
- Isoelectric focusing
- Freeze drying/ lyophilization of protein/enzymes

After successful completion

A person will be able to handle the equipments regularly used in downstream processing of protein /enzyme which includes Ultra centrifuge, High pressure homogenizer, Tangential flow filtration system (TFF system), Protein Chromatography ,Protein estimation , Protein and enzyme characterization by SDS, NATIVE gel electrophoresis, 2D gel electrophoresis and protein concentration using lyophilization.

Pre-requisites

No pre-requisites beside Educational qualification being **B.Tech/M.Tech/M.Sc (in Biotech / Life Sciences)** or **M.Pharm**
20 - 35 years of age.
(Age/qualification relaxation as per Govt. of India Rules/discretion of Director, CSIR-IIP).

Who Should join

Uttarakhand resident new to the Biotech industry, having desire to develop career in the biotech research laboratories /industries engaged in downstream processing for Enzymes and Proteins.

Salient features of the program

- Theory: Practical :: 25 : 75
- Interactive sessions for in-depth knowledge sharing.
- Evaluation of trainees will consist of both Theory & Practical component.
- Certificates will be awarded on successful completion of the training.

How to Apply & Selection

- Candidates have to apply as per the application format in the given link below along with one set of self-attested documents.
- Selection of the candidates will be based on merit & interview (if required) to meet suitability for the course.
- All documents in original to be shown at the time of interview / enrolment.

Form download (PDF) <http://www.iip.res.in/skill/form18.pdf>

Form download (MS Word) <http://www.iip.res.in/skill/form18.doc>

Please send hard copy of application and documents at following address:

Sh C D Sharma
Co-ordinator, Skill Development Training Program
CSIR-Indian Institute of Petroleum
Mohkampur, Haridwar Road
Dehradun 248005

You may also correspond, send soft copy of application at following e-mail:

e-mail: cdsharma@iip.res.in

e-mail: aniljain@iip.res.in

Contact phone nos.

Sh C D Sharma, Tel No 0135-2525778, M- 9412028789,

Dr Anil K Jain, Tel 0135- 2525751(O), M-9897119578

Training venue :

CSIR-Indian Institute Of Petroleum

P.O.: IIP Mohkampur, Haridwar Road, Dehradun-248 005, Uttarakhand (India).

No TA/DA and accommodation for interview will be provided to the candidates.

Important dates

Last date for submission of Application	:	11/07/18
Declaration of participant	:	16/07/18
Enrolment dates	:	20/07/18
Commencement of course	:	23/07/18

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