



## CSIR-INDIAN INSTITUTE OF PETROLEUM

(Council of Scientific & Industrial Research)

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

Website: [www.iip.res.in](http://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 for 'CSIR-IIP Integrated Skill Development Training Programs' applications are invited from eligible Indian nationals for the program on 'Downstream Processing for Enzymes & Proteins'.

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 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 besides Educational qualification (Biological area) being B.Tech / M.Tech / M.Sc / B.Pharm / M.Pharm (those appeared in the final exam may also apply).  
**20 - 45** years of age.  
(Age/qualification relaxation as per Govt. of India rules / discretion of Director, CSIR-IIP).

#### Who Should join

**Any Indian citizen** 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 /Skill cards will be awarded on successful completion of the training.

#### Contact for Registration

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](mailto:cdsharma@iip.res.in)  
e-mail: [aniljain@iip.res.in](mailto: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

#### Course Fees / Terms and Conditions

A non-refundable course fee of Rs.15000/-(Rupees Fifteen Thousand only) for Student/unemployed candidate and Rs.75,000/-(Rupees Seventy Five Thousand only) for Company sponsored candidate to be paid at the time of admission.

Course Fee shall be paid through E-payment option.

Bank Account Details facilitating e-transfer of Payment :

Name of Bank : State Bank of India  
Name of the account holder : Director, Indian Institute of Petroleum, Dehradun.  
Bank Account No : 30266912400  
Branch : IIP Township, Mohkampur Dehradun., India  
Contact Person : Dr. Anil K Jain,  
e-mail : [aniljain@iip.res.in](mailto:aniljain@iip.res.in)

SWIFT Code : SBININBB380  
11 Digit IFS Code : SBIN0002359  
MICR No. : 248002007  
GSTIN : 05AAATC2716R2ZK

### How to Apply & Selection

- Candidates have to apply as per the application format in the given link below.
- Selection will be made based on criteria after scrutiny of applications.
- All documents in original to be shown on the interview/ selection day and one self-attested set of documents to be submitted on date of interview/selection

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

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

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	:	21/05/18
Declaration of participant	:	23/05/18
Enrolment dates	:	24/05/18
Commencement of course	:	28/05/18

CSIR-Indian Institute of Petroleum, Dehradun