

### REGISTRATION FEE

Students & Research Scholars	: Rs. 5000
Academicians	: Rs. 6000
Industry Professionals	: Rs. 7500
Group registration fee for a minimum of 5 students	: Rs. 4000/student

Participants are requested to send their details through e-mail on or before 30<sup>th</sup> April, 2016. Confirmation will be sent to the selected participants through e-mail. Only the selected participants are requested to register with registration fee in the form of Demand Draft drawn in favor of "The Principal, SVCE, Sriperumbudur" payable at Indian Bank, Sriperumbudur. Filled in registration form along with DD should be sent to the below mentioned address on or before 10<sup>th</sup> May, 2016. **The number of participants is limited to 10 only.**

### BONAFIDE CERTIFICATE (For Students only)

Mr./Ms. \_\_\_\_\_ is permitted to attend One Week Short Term Training Programme on "Recombinant Protein Production & Purification" from June 20<sup>th</sup>-24<sup>th</sup>, 2016 at Sri Venkateswara College of Engineering, Sriperumbudur Tk - 602 117.

Date: \_\_\_\_\_ Signature  
(Designation & Seal)

### MAILING ADDRESS

#### Prof. E. Nakkeeran

Professor & Placement Officer  
Department of Biotechnology  
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### One Week Short Term Training Programme on Recombinant Protein Production & Purification

JUNE 20<sup>th</sup> - 24<sup>th</sup>, 2016

### REGISTRATION FORM

1. Name :
2. Designation :
3. Age :
4. Participant Category : Student / Faculty / Industry
5. Branch & Year:
6. Name of the Institution with postal address:
  
7. E-mail ID:
8. Mobile Number:
9. Specialization:
10. Registration fee:  
Demand Draft No. & Date:

### Declaration

I agree to abide the rules and regulations of the training programme.

Place:

Date:

Signature

(Copy of this form can be used for registration)

## SRI VENKATESWARA COLLEGE OF ENGINEERING

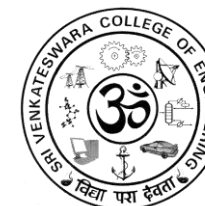
in association with

**BRAINWAVE BIOTECH (P) LTD**

Organizes

## One Week Short Term Training Programme on Recombinant Protein Production & Purification

JUNE 20<sup>th</sup> - 24<sup>th</sup>, 2016



### CONVENERS

**Prof. M. Sivanandham**  
**Prof. Sulochana Somasundaram**

### ORGANIZING SECRETARY

**Prof. E. Nakkeeran**

### COORDINATORS

**Ms. V. Sumitha**  
**Mr. S. Naga Vignesh**  
**Ms. P. Jaibiba**

Department of Biotechnology  
Sri Venkateswara College of Engineering  
Sriperumbudur Taluk-602 117, Tamilnadu, India  
<http://www.svce.ac.in>

## ABOUT THE INSTITUTION

Sri Venkateswara College of Engineering (SVCE), a premier self financing institute started in the year 1985. The college offers 10 BE/B.Tech Degree Courses and 10 ME/M.Tech courses in Engineering and Computer Applications. The courses are approved by AICTE and affiliated to Anna University, Chennai. The college is accredited by National Assessment and Accreditation Council (NAAC). Many courses are accredited by National Board of Accreditation (NBA). The college is also certified by IRQS for ISO 9001-2008. The college is spread over 95 acres of land, situated at about 37 Km from Chennai on the Chennai-Bangalore National Highway (NH-4) at Sriperumbudur Taluk. The main objective of this institution is to impart knowledge to faculty members, under graduate, post graduate and research students.

## DEPARTMENT OF BIOTECHNOLOGY

Sri Venkateswara College of Engineering noted the recent growth in Modern Industrial Biotechnology. In order to support the growth in Biotechnology, SVCE started the Department of Biotechnology in 2005 under the guidance of our Chairman Dr.A.C.Muthiah, a well known Industrialist who understands the strength of Industrial Biotechnology. The department offers B.Tech and M.Tech Biotechnology programmes under Anna University, Chennai, approved by AICTE. It is also approved as a Research Center in Biotechnology for MS (by Research) and Ph.D. programmes by Anna University, Chennai.

## PROGRAMME OBJECTIVE

Proteins that result from the expression of recombinant DNA within microorganisms are termed recombinant proteins. Syntheses of proteins from

recombinant strains are highly advantageous on the industrial perspective as the engineering of the microorganisms helps to produce a higher amount of target protein and complementing the commercial availability and usage of the protein.

Keeping in view of the industrial need, this short term training programme is focused to train the graduates and research scholars with hands-on-experience on the production and purification of recombinant proteins using various bioprocess and downstream processing techniques.

Through this training programme the participants will be able to perform different bioprocess and downstream process techniques independently for the production and purification of recombinant proteins and interact with the experts in the related field.

This training programme will impart practical knowledge on production and purification of recombinant proteins using various bioprocess and downstream processing techniques through series of hands-on-sessions as listed below.

## COURSE CONTENT & SCHEDULE

The short term training programme consists of series of hands-on-sessions on various Bioprocess and Downstream process techniques as well as industrial visit. The content and day-wise schedule is as follows.

Day	Work plan	Description of hands-on-sessions
1	Recombinant Protein production using CSTR (Bioreactor)	Culturing of Genetically Engineered Microbes (containing a vector carrying the gene of interest) in a fermentor for the production of an industrially important enzyme
2	Harvesting of Recombinant Protein	Cell Disruption Ammonium sulphate precipitation Dialysis

3	Purification techniques	Microfiltration and Ultrafiltration by Dead End and Cross Flow unit. Performance analysis: Rejection, Recovery, Productivity and Membrane cleaning. Aqueous Two Phase Extraction SDS-PAGE analysis
4	Purification techniques	Chromatographic techniques: HPLC, FPLC : Size Exclusion, Ion-Exchange and Affinity Chromatography
5	Spray Drying Freeze Drying	Microencapsulation Drying of Biomolecules

## VENUE AND DURATION

This one week training programme is organized at Sri Venkateswara College of Engineering (SVCE), Sriperumbudur Taluk - 602 117, Tamilnadu, India, during June 20<sup>th</sup> - 24<sup>th</sup>, 2016.

## TRANSPORTATION

The participants can avail the SVCE bus facility to attend this programme. For route details, please refer [www.svce.ac.in](http://www.svce.ac.in).

## ACCOMMODATION

Accommodation may be provided in the campus on prior notice, for which the participants have to bear the subsidized charges and send the request on or before 2<sup>nd</sup> June, 2016.

## DATES TO REMEMBER

Last date for e-mail registration	: 30.04.2016
Intimation of selection	: 02.05.2016
Last date for registration with DD	: 20.05.2016
Last date for accommodation	: 02.06.2016

For details please e-mail to [rppp2016@svce.ac.in](mailto:rppp2016@svce.ac.in)

## PROGRAMME SCHEDULE

Day – 1	
TIME	EVENTS
8.30 – 9.00 am	Registration
9.00 – 9.05 am	Prayer
9.05 – 9.15 am	<b>Welcome address by</b> <b>Prof. E. Nakkeeran</b> Head & Placement officer Department of Biotechnology Sri Venkateswara College of Engineering, Sriperumbudur
9.15 – 9.25 am	<b>Patron's address by</b> <b>Prof. S. Ganesh Vaidyanathan</b> Principal Sri Venkateswara College of Engineering, Sriperumbudur
9.25 – 9.35 am	<b>Inauguration by the Chief guest</b> <b>Prof. M. Sivanandham</b> Secretary Sri Venkateswara Educational and Health Trust, Chennai
9.35 – 9.45 am	<b>Introducing the Chief guest by</b> <b>Prof. E. Nakkeeran</b> Head & Placement officer Department of Biotechnology Sri Venkateswara College of Engineering, Sriperumbudur
9.45 – 10.45 am	<b>Chief Guest Address</b> <b>Prof. M. Sivanandham</b> Secretary Sri Venkateswara Educational and Health Trust, Chennai
10.45 – 11.00 am	Tea break
11.00 am – 12.30 pm	<b>Hands on Session</b> Production of Recombinant Protein using CSTR (Bioreactor)
12.30 – 1.15 pm	Lunch break
1.15 – 3.15 pm	<b>Hands on Session</b> Production of Recombinant Protein using CSTR (Bioreactor)

<b>Day – 2</b>	
<b>8.30 – 10.30 am</b>	<b>Hands on Session</b> Cell Disruption using Ultrasonication
<b>10.30 – 10.40 am</b>	<b>Tea break</b>
<b>10.40 – 11.50 am</b>	<b>Hands on Session</b> Recombinant Protein Separation by Salt Precipitation - Ammonium Sulphate Precipitation
<b>11.50 – 12.30 pm</b>	<b>Lunch break</b>
<b>12.30 – 3.15 pm</b>	<b>Hands on Session</b> Desalting using Dialysis
<b>Day – 3</b>	
<b>8.30 – 10.30 am</b>	<b>Hands on Session</b> Microfiltration of Recombinant Protein
<b>10.30 – 10.40 am</b>	<b>Tea break</b>
<b>10.40 – 11.50 am</b>	<b>Hands on Session</b> Concentration and Purification of Recombinant Protein by Ultrafiltration
<b>11.50 – 12.30 pm</b>	<b>Lunch break</b>
<b>12.30 – 3.15 pm</b>	<b>Hands on Session</b> Aqueous Two Phase Extraction of Recombinant Protein
<b>Day – 4</b>	
<b>8.30 – 10.30 am</b>	<b>Hands on Session</b> SDS-PAGE for Recombinant Protein Separation
<b>10.30 – 10.40 am</b>	<b>Tea break</b>
<b>10.40 – 11.50 am</b>	<b>Hands on Session</b> Quantification of $\beta$ -Galactosidase using High Performance Liquid Chromatography (HPLC)
<b>11.50 – 12.30 pm</b>	<b>Lunch break</b>
<b>12.30 – 1.45 pm</b>	<b>Hands on Session</b> Size Exclusion Chromatography
<b>1.45 – 3.15 pm</b>	<b>Hands on Session</b>

	Ion-Exchange Chromatography
<b>Day – 5</b>	
<b>8.30 – 10.30 am</b>	<b>Hands on Session</b> Affinity Chromatography
<b>10.30 – 10.40 am</b>	<b>Tea break</b>
<b>10.40 – 11.50 am</b>	<b>Hands on Session</b> Spray Drying of Milk Powder
<b>11.50 – 12.30 pm</b>	<b>Lunch break</b>
<b>12.30 – 2.30 pm</b>	<b>Hands on Session</b> Freeze Drying of Milk Powder
<b>2.30 – 3.15 pm</b>	<b>VALEDICTORY FUNCTION</b>

*S. S. S. S.*



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**DEPARTMENT OF BIOTECHNOLOGY**  
**SRI VENKATESWARA COLLEGE OF ENGINEERING**

**REPORT ON ONE WEEK SHORT TERM TRAINING PROGRAMME ON  
RECOMBINANT PROTEIN PRODUCTION & PURIFICATION**

**20-24<sup>th</sup> JUNE, 2016**

One week short term training programme on recombinant protein production & purification was organized during 20-24<sup>th</sup> June, 2016 by the Department of Biotechnology at Sri Venkateswara College of Engineering, Sriperumbudur in association with M/s. Brainwave Biotechnology Pvt. Ltd., Chennai. This one week STTP included series of lectures and practical hands-on-sessions by in-house faculty members. 20 registered participants were actively participated in this STTP from various colleges/Institutions across the country.

The inaugural function was started at 9.00 am with a prayer song followed by welcome address by Prof. E. Nakkeeran, Professor and Head, Department of Biotechnology. Prof. S. Ganesh Vaidyanathan, Principal, SVCE delivered the patron's address. Prof. M. Sivanandham, Secretary, SVEHT & Visiting Professor of Biotechnology, SVCE delivered the Chief Guest address. In his speech, he highlighted the importance of the STTP and addressed the significance of the topics. After his speech, he inaugurated the STTP. The inauguration was followed by his keynote address on recombinant protein production & purification: An Overview. After this, Hands on Session on Production of Recombinant Protein using CSTR (Bioreactor) was handled by Prof. E. Nakkeeran.

On day 2, Prof. E. Nakkeeran and Ms. R. Rathna delivered a lecture on various cell disruption techniques followed by Hands on Session on Cell Disruption using Ultrasonication and Recombinant Protein Separation by Salt Precipitation - Ammonium Sulphate Precipitation in the forenoon session. Ms. P. Jaibiba, Asst. Professor of Biotechnology, SVCE handled the Hands on Session on Desalting using Dialysis in the afternoon.

On day 3, Prof. E. Nakkeeran and Ms. R. Rathna delivered a lecture on membrane processing followed by Hands on Session on Microfiltration of Recombinant Protein and Concentration and Purification of Recombinant Protein by Ultrafiltration in the forenoon. Ms. P. Jaibiba and Mr. S. Naga Vignesh, Asst. Professor of Biotechnology, SVCE handled the Hands on Session on Aqueous Two Phase Extraction of Recombinant Protein in the afternoon.

On day 4, Prof. E. Nakkeeran delivered a lecture on importance of SDS-PAGE analysis for Recombinant Protein Separation followed by Hands on Session on SDS-PAGE for Recombinant Protein Separation. Mr. J. Hariharan, Asst. Professor of Biotechnology, SVCE handled the Hands on Session on Quantification of  $\beta$ -Galactosidase using High Performance Liquid Chromatography (HPLC) in the forenoon. Prof. E. Nakkeeran and Ms. P. Jaibiba handled the Hands on Session on Size Exclusion Chromatography and Ion-Exchange Chromatography.

On day 5, Ms. P. Jaibiba and Ms. R. Rathna handled the Hands on Session on Affinity Chromatography. Prof. E. Nakkeeran delivered a lecture on Spray and Freeze drying followed by Hands on Session on Spray Drying and Freeze Drying. The valedictory address was delivered to the participant by Prof. S. Ganesh Vaidyanathan, Principal, SVCE in the afternoon.

The organizing secretary, Prof. E. Nakkeeran summarized the proceedings of the STTP. The program was concluded by thanking all the contributors, the management and the participants by the organizing secretary, Prof. E. Nakkeeran. Feedback for all the sessions was obtained from the participants. On the whole the STTP was extremely informative and helpful, and enlightened the participants. The overall feedback provided by the participants for the workshop was more than satisfactory for their needs.



Prof. E. Nakkeeran  
Organizing Secretary

Approved by

Prof. E. Nakkeeran, HoD BIO

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