

## SALIENT FEATURES OF THE PROGRAM

- Lectures and discussions followed by rigorous practical sessions
- Personal monitoring and mentoring
- Exposure to advanced techniques having relevance in higher studies/jobs

## TARGET PARTICIPANTS

Students enrolled in UG/PG Program, faculty and others.

## NUMBER OF SEATS

25 per batch

## SELECTION PROCEDURE

The candidates will be selected on first cum first serve basis. Referral letters from the concerned institute is necessary for enrolled students.

## CERTIFICATE

A certificate of participation would be issued on the successful completion of the course

## LAST DATE OF REGISTRATION

The registration form may be submitted to the office latest by **01 June 2015**.

## FEES

The fees for both Modules (Module I & II) is Rs.20,000/- till May 25, 2015 and after May 25, 2014 would be 25,000/- payable by a DD in favour of "TIFAC-CORE", Thapar University, Patiala payable at Patiala.

However candidates interested in opting only one Module will have to pay Rs. 12000/- till May 25, 2015 and Rs. 15000 after May 25, 2015.

(Course fees includes only program fees and course material. Boarding/ lodging and travel charges are to be borne by the candidates; Campus hostel accommodation can be provided on request on chargeable basis subject to availability. Fees once deposited would not be refunded)

### **For further information & registration please contact:**

**Dr. Sanjai Saxena**

**Coordinator**

**TIFAC-CORE in Agro & Industrial Biotechnology,**

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## Summer Training Course

in

## Fermentation Technology & Techniques in Drug Discovery

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June 15, 2015- July 15, 2015

at

**CENTRE OF RELEVANCE & EXCELLENCE (CORE)**  
**Agro and Industrial Biotechnology**



**Timings: 8.30 am to 1:30 pm**

**TIFAC-CORE in Agro & Industrial Biotechnology**  
**CORE Building, Thapar University,**  
**Patiala 147004**

## ABOUT THAPAR UNIVERSITY & TIFAC-CORE

Thapar University is located on a 250 acre campus in Patiala and is amongst the leading deemed universities of India offering postgraduate and undergraduate programs in Engineering, Sciences, Management and Social Sciences. Thapar Technology Campus is synonymous with diverse community that is committed to scholarship, entrepreneurship, research and development. The combination of program, facilities, and above all people have created a learning experience that is stimulating, supportive and challenging while providing a competitive edge.

TIFAC-CORE in Agro and Industrial Biotechnology was established as a national level centre during the first phase of Mission Reach 2020 program envisioned by former President and scientist Dr. A.P.J. Abdul Kalam. The major objectives of TIFAC-CORE at TU is to (a) carry out research in relevant area of Agro and Industrial Biotechnology (b) Achieve excellence in technical education in Biotechnology and allied areas like biochemical engineering, pharmaceuticals, chemical, life and environmental sciences (c) offer short term /advanced courses for industry personnel, entrepreneurs and scientific personnel involved in teaching and research programs.

Tailor-made short term and advance courses are developed and conducted by the faculty of Department of Biotechnology. The different courses offered by CORE are in the area of Microbial technology, plant biotechnology and tissue culture, molecular medicine and diagnostics, analytical techniques with focus on biotechnology, drug discovery techniques, computational biology and bioinformatics. Till date TIFAC-CORE has carried over 35 such programs including customized hand on training workshops on state biotechnology departments and trained over 700 participants across India.

The TIFAC-CORE at TU is endowed with state of the art research facilities to carry out research in the above research area(s). It constitutes a covered laboratory space of 1436 sq.m which includes a tissue culture, analytical instrumentation and a fermentation facility in addition to separate research laboratories. Apart from the covered laboratory space, a 5-acre land is available for field oriented research work. There are high end equipment's like Thermal cyclers, real time PCR's, ELISA reader, HPLC, Gas Chromatographs, GC-MS, Gel documentation system, refrigerated high speed centrifuges, *in situ* and bench top fermenters, Deep freezers, microcentrifuges, nanodrop, hybridization oven which located in different laboratories. It has tie ups with industries like Pepsico India Holdings Private Ltd., McCain Foods, Mahindra Agribusiness, Ballarpur Industries Limited, National Aluminum company Limited (NALCO) and also with entrepreneurs, small farmer groups and nurseries

## COURSE OBJECTIVE

This course is intended to provide rigorous hand-on-training to various techniques which are used in modern biotechnology and have emphasis in the industrial as well as agro biotechnology sectors. The course provides the basic principles and their in-depth understanding apart for operational conditions of production of biotechnological products. Fermentation technology is the backbone technology for the production of biopharmaceuticals, drugs, enzymes, fermented foods, chemicals as well as beverages. Further drug discovery is an ever-growing area of pharmaceutical R&D to overcome infectious as well as metabolic disorders and have a tremendous impact in the healthcare industry. The course shall reflect upon the various analytical techniques used for exploring the drugs from natural resources like plants and the microorganisms. All the course would be conducted by the experts in their respective fields. The experimentation part would be carried out in small groups under the expert supervision.

## COURSE MODULE

### Module I: Fermentation Technology

*Fermentation Technology: 15 June, 2014- 29 June, 2014*

Topics Covered: (I) Media Design, (II) Design features of Fermenter (III) Types of Fermenter (IV) Scale-up studies (V) Sterilization design and Control (VI) Downstream Processes

### Module II: Analytical Techniques in Drug Discovery

*In Vitro methods of Drug Discovery: 30 June, 2015- 15 July, 2015*

Topics Covered: (I) Sample preparation for screening natural products from Microbes as well as plants. (II) *In Vitro* Antimicrobial Susceptibility Testing (III) Expression used in Antimicrobial Susceptibility Testing (IV) Prerequisites and Preparations (V) Diffusion Methods (VI) Dilution Methods (VII) Diffusion and Dilution Method (VIII) Methods of screening, anti-metabolites and Enzyme Inhibitors (IX) Methods of screening anti-cancer agents. (X) Chromatographic methods of isolation of the bioactive compounds / drugs such as TLC, Bio- autography, Column Chromatography and HPLC.