

# PROFESSIONAL TRAINING PROGRAMS



**Bio**  
**Technology**



**i3L**

**cepd**

CENTER FOR EXECUTIVE & PROFESSIONAL DEVELOPMENT

## CEPD PROFESSIONAL TRAINING

i3L' Professional Training Programs (PTP) are designed to increase knowledge and skills of professionals who aspire to be among top performers in their organizations. PTP involves a various approach to learn, integrating small or large group discussion, case study, role playing, project and strategy simulation to provide new insights and give you opportunities to apply the concepts, theories or models that you learn.

A team of faculty and experts, from diverse life sciences disciplines, provide in-depth knowledge in core life sciences areas including Biotechnology, Bioinformatics, Biomedicine, Food Science, Food Technology, Bioentrepreneurship and Pharmacy. Class sessions are designed to capture the years of experience in the fields. Meanwhile, learning groups provide opportunities for exploring critical issues and collaboration promote spirited friendship that leads to deep and lasting relationship.



**Bio  
Entrepreneurship**



**Bio  
Informatics**



**Bio  
Medicine**



**Bio  
Technology**



**Food  
Science**



**Food  
Technology**



### TESTIMONIAL

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My first impression of i3L is that I feel as if I were studying abroad. i3L has highly competent faculty and staff who are helpful and open to questions and ideas as well as equipped laboratory facilities. I have been enjoying my experience so far as a participant of the biomanufacturing training program [BTP]. The BTP has a well designed curriculum as the program is sectioned to simulate the conditions in the work place which is very helpful. As I have a background in chemical engineering, I am excited to be a part of a in the biomedical industry as I feel that this is a fast growing industry worldwide. My goal is to make a positive impact locally and globally from the knowledge and experience I have gained to help create better lives.

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*Caesario Nugroho Sutyoso*  
Biomanufacturing Training Program  
Master of Science in Chemical Engineering, Arizona State University

SHORT COURSES

# BioTechnology

- › Improving life through applied biotechnology.
- › Addressing healthcare, energy, agriculture and environment.
- › Broad program content to meet industry needs.



**Bio**  
**Technology**



## Industrial Microbiology & Biotechnology

Fee: IDR 7.000.000

| Duration: 28 hours

| Course start: Jan - Aug 2017

### Course Description

This course will introduce the students to the principles and practices in the main applications of micro-organisms in the industrial production of foods, pure chemicals, proteins and other valuable products, as well as the use of genetically modified organisms. Students will have an understanding of the significance of microorganisms in the production of some valuable human products. This course will also introduce the students to microorganisms of industrial importance. The isolation and separation, identification and conditions under which microorganisms can produce several products will be discussed.

### DELIVERY METHOD



- 50% Lecture
- 50% Discussion / Group Activity

### COURSE CONTENT



- 30% Fundamentals and Concepts
- 60% Industry Application
- 10% Emerging Technologies



## Bioprocessing Technologies & Downstream Processes

Fee: IDR 11.000.000

| Duration: 42 hours

| Course start: Jan - Aug 2017

### Course Description

This course is an introduction to the various bioprocessing technologies. Process technologies and downstream unit operations are an essential part of bioprocesses, where purification of the products occurs. This course provides the basic knowledge and applications in this fields and deals with this subject and discuss about design and operations of different units used in bioprocesses for cells, macromolecules and metabolite processing including distillation, leaching and extraction, gas absorptions, recovery and purifications of cells and proteins, chromatography drying, membrane processes and crystallizations.

### DELIVERY METHOD



- 60% Lecture
- 40% Discussion / Group Activity

### COURSE CONTENT



- 60% Fundamentals and Concepts
- 30% Industry Application
- 10% Emerging Technologies



## Bioresource Technology-Industrial Biotechnology

Fee: IDR 11.000.000

| Duration: 42 hours

| Course start: Sept 2017 - Jan 2018

### Course Description

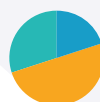
With increasing energy demand for a sustainable society, repeating energy crises in the last decades, and more debates on global warming, renewable biofuels and materials are considered as substitute to fossil fuels. Bioenergy and biomaterials are very hot research topics, and biotechnology is at the core of its development. This course deals with an overview of the current development, production process and markets for biofuels, including bioethanol, biodiesel, biogas, biohydrogen, and biobutanol. The course also discusses another major bioindustrial application, which is to produce biopolymers and biomaterials along with bio chemicals with different functions from biological sources to replace today's existing unsuitable materials and products.

### DELIVERY METHOD



- 50% Lecture
- 50% Discussion / Group Activity

### COURSE CONTENT



- 20% Fundamentals and Concepts
- 50% Industry Application
- 30% Emerging Technologies



## Environmental Biotechnology

Fee: IDR 11.000.000

| Duration: 42 hours

| Course start: Sept 2017 - Jan 2018

### Course Description

The pollutions in our environment are accelerating due to human activities. During billions of years, nature has been taking care of residuals and pollutions by itself. This course provides a comprehensive knowledge in environmental biotechnology, which highlights the applications of biotechnology to solve environmental problems in both societies and industries. The treatments of solid, liquid and gaseous pollutions by using microorganisms are discussed and the application of these microorganisms in solving industrial problems as well as treating different pollutions are considered. Our planet's sustainable development will be discussed by applying different biological system for preventative proposes.

### DELIVERY METHOD



- 50% Lecture
- 50% Discussion / Group Activity

### COURSE CONTENT



- 20% Fundamentals and Concepts
- 50% Industry Application
- 30% Emerging Technologies



## Enzymology

Fee: IDR 11.000.000

| Duration: 42 hours

| Course start: Sept 2017 - Jan 2018

### Course Description

This course is an introductory course in enzymology. The course focuses on mechanism and kinetics of enzyme catalyzed reaction, vitamins and coenzyme, and classification of enzymes. Students will understand the significance of mechanisms and kinetics of enzyme actions, generate kinetic data, analyze kinetic data and give appropriate interpretations. The course will also deal with the production, extraction, purification, characterization and application of enzymes in industrial processes. The course also contains laboratory activities to enhance the understanding of enzyme activity and kinetics.

### DELIVERY METHOD



- 60% Lecture
- 40% Discussion / Group Activity

### COURSE CONTENT



- 50% Fundamentals and Concepts
- 40% Industry Application
- 10% Emerging Technologies



## Thermodynamics for Biotechnology

Fee: IDR 7.000.000

| Duration: 28 hours

| Course start: Sept 2017 - Jan 2018

### Course Description

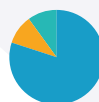
This course deals with basic understanding of thermodynamics in biological systems and engineering, and has a goal to connect principals, concepts and laws of thermodynamics, theory and applications of Gibbs energy, ideal and real solutions, activity and fugacity coefficients, equilibrium in physical phenomena and biochemical reactions and their applications. This course provides the basic knowledge about why a biochemical reaction occurs, why we should provide energy for a reaction to occur, or another reaction produces energy. The course gives the students the basic knowledge in understanding the future courses in biochemical reaction engineering and unit operations.

### DELIVERY METHOD



- 70% Lecture
- 30% Discussion / Group Activity

### COURSE CONTENT



- 80% Fundamentals and Concepts
- 10% Industry Application
- 10% Emerging Technologies



## Food & Agricultural Biotechnology

Fee: IDR 7.000.000

| Duration: 28 hours

| Course start: Feb – Aug 2018

### Course Description

A sensational trend of discovery in biotechnology is transforming food and agriculture industry worldwide. Today's food and agriculture landscape is at the initial stages of a new technological era. Many research and development efforts have provided deeper understanding of biological processes and led to fast advances in biotechnology, such as new source of food or new processing of food in order to improve its functionalities or reduce their wastes is getting more important. This course focuses on the applications of this technology on food and agriculture. Particular attention in this course will be given to food biochemistry and applications of biotechnology on food processing as well as functional food.

### DELIVERY METHOD



- 50% Lecture
- 50% Discussion / Group Activity

### COURSE CONTENT



- 20% Fundamentals and Concepts
- 50% Industry Application
- 30% Emerging Technologies



# OUR RESEARCH & INDUSTRY ENGAGEMENTS

## USAID PEER Project with UC DAVIS.

Conversion of waste to biofuels or liquid chemicals using microbes



**KALBE**

## Mapping of Marine Biodiversity with Kalbe

Establishing a national reference database of Indonesia marine biodiversity

## Waste to Value-added Product with BMJ

Conversion of pulp waste to viscose, biobricks, fertilizer, biopellet, etc.



## Biomanufacturing Training Program

BTP is a tailored program designed to cultivate advanced skills and knowledge related to the biotechnology, biomanufacturing and pharmaceutical industries. Among our customers are institutions and enterprises of different sizes from these industries that are looking to enter the area of bio-based manufacturing.

## Management Development Program

Management Development Program [MDP] is designed to meet the needs of industry for continuous talent development.

## Power Talk

We invite leaders from industry, government, academia, and community every month to share their expertise and wisdom to our students and stakeholders.



Business Family Forum

# OUR FACILITIES



THEATRE CLASSROOM



i3L SCIENCE CAMP FOR ELEMENTARY, JUNIOR HIGH, & SENIOR HIGH SCHOOL



LABORATORY



i3L-ALS: PORCINE DNA DETECTION



LEARNING RESOURCE CENTER



## OUR PARTNERS

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