

# Overview

The Biotechnology programs at the School of Bioresources and Technology are interdisciplinary and innovative international graduate programs aiming to provide students seeking comprehensive training in a variety of Biotechnology disciplines in response to the dramatic expansion of Biotechnology-oriented industries worldwide.

The curriculum is specifically designed to nurture competency, analytical skills as well as professional attributes of the students. M.Sc. and Ph.D. degrees are offered.

# Requirements

- M.Sc. program**
- Applicant with B.Sc. in life science, chemistry, B.Eng., or related fields with GPA  $\geq 2.5$
- Ph.D. program**
- Applicant with B.Sc. in life sciences, chemistry, B.Eng., or related fields with 1<sup>st</sup> or 2<sup>nd</sup> class honor
  - Applicant with M.Sc. or M.Eng in areas mentioned above with GPA  $\geq 3.5$

# Scholarships

A large number of scholarships are available to qualified students. Partial financial support is also offered by all research groups.

# M.Sc. program

Track/ (credits)	Compulsory	Electives	Seminars	Thesis/ Special project study*
Track M1.1: <b>Research</b> (36 credits)	9	13	2	12
Track M1.2: <b>Research</b> (36 credits)	9	1	2	24
Track M2: <b>Practice School</b> (39 credits)	18	15	-	6*
Track M3: <b>Biotechnopreneur</b> (40 credits)	18	15	1	6*
Track M4: <b>Pharmaceutical Biotechnology Practice Program</b> (37 credits)	12	18	1	6*

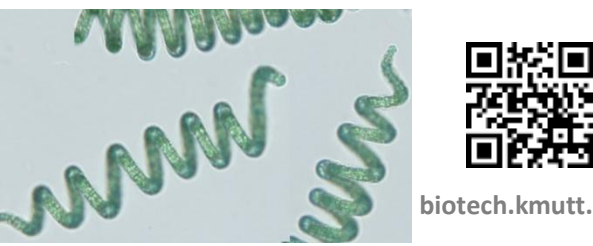
# Ph.D. program

Track/ (credits)	Compulsory	Electives	Seminars	Thesis
Track P1, for applicant with M.Sc. (50 credits)	3	9	2	36
Track P2, for applicant with B.Sc. (79 credits)	4	24	3	48

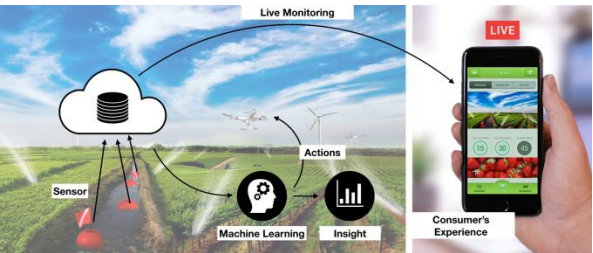
More information:  
 Assoc. Prof. Dr. Paitip Thiravetyan  
 Division of Biotechnology,  
 School of Bioresources and Technology,  
 KMUTT Bang Khun Thian  
 49 Soi Thian Thale 25, Bang Khun Thian Chai Thale Road, Tha Kham,  
 Bang Khun Thian, Bangkok 10150, Thailand  
 Tel: ++66 (0) 2470 7535  
 Fax: ++66 (0) 2452 3455  
 E-mail: paitip.thi@kmutt.ac.th

# Biotechnology

International Graduate Program



biotech.kmutt.ac.th



Biogas plant

**School of Bioresources and Technology**  
**King Mongkut's University of Technology Thonburi**

# Research areas

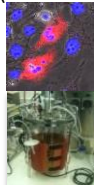
## Algal Biotechnology

(boosya.bun@kmutt.ac.th/ marasri.rue@kmutt.ac.th)

- Mass cultivation of microalgae: physiology, harvesting and collection
- High value products (e.g. biomass, phycocyanin, lipid, polysaccharides): Extraction and Scale up
- Molecular Biology
- Omics analyses, Bioinformatics, Transcriptomic, Proteomics and Metabolomics.

## Animal Cell Culture Biotechnology

(kanokwan.poo@kmutt.ac.th, yaowaluck.ros@kmutt.ac.th)



- Virus-like particle (VLP) production using Baculovirus and insect cells
- Design and development of vaccines against animal infectious diseases
- Bioprocess Technology of Animal Cell Culture for production of high values

## BICEP (Bioactive compound & Efficient platform)

(marasri.rue@kmutt.ac.th/ teeraphan.lao@kmutt.ac.th)

<http://bicep.kmutt.ac.th>

- Bioactive compound discovery/ design/ mechanisms
- Systems Biology of Photosynthesis
- Efficient platform: Computational tools & Bio-Improvement

## Biodiversity

(taweerat.vic@kmutt.ac.th)

- Polysaccharide from submerged culture of mushroom: Production, Biological activity and Characterization
- Novel bioactive compounds from endophytic fungi

## Fungal Biotechnology

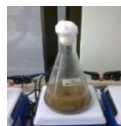
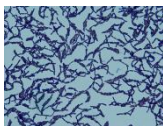
(supapon.che@kmutt.ac.th)

- Systems Biotechnology for improvement of yeast and fungal strains for production of high-value compounds
- Molecular characterization of fungal polyketide synthase for the production of biomaterials and bioactive compounds
- Physiological regulation of essential fatty acid production in fungi
- Lipidomics study of single-cell-oil producers

## Microbial Fermentation Technology

(yuwapin.dan@kmutt.ac.th)

- The collaborations research with the industry under Biotechnology Practice School program (BiPS)
- Fermentations of biological products :
  - Animal feeds for poultry , shrimp
  - Biofertilizer: Phosphate Solubilizing Bacteria
  - Environmental friendly products : H<sub>2</sub>S, NH<sub>3</sub>, nitrite and nitrate reductions using microorganism
  - Probiotics: Lactic Acid Bacteria



## Remediation

(paitip.thi@kmutt.ac.th)

<http://www.remediation.kmutt.ac.th>

Facebook: [www.facebook.com/RMTLAB/](https://www.facebook.com/RMTLAB/)

- Phytoremediation/bioremediation of water, air, soil pollutants
- Recovery of electronic waste by bioleaching
- Adsorption of gaseous pollutants by modified activated carbon/agricultural waste
- Improve crop productivity by biochars, clays, microorganisms



## Solid State Fermentation & Bioprocess Engineering

(anan.ton@kmutt.ac.th)

- Pilot scale production of the high value quality animal feed, industrial enzymes and Koji by in computer-controlled rotating drum reactors
- Scale up production of recombinant protein

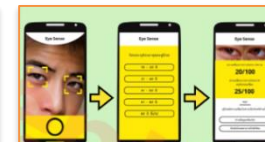
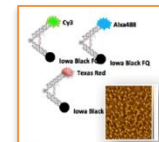
## Sensor Technology

(werasak.sur@kmutt.ac.th)

<http://www.nano.kmutt.ac.th>

<http://www.freak.kmutt.ac.th/research/biodigital>

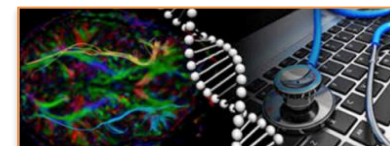
- Nucleic acid/ immuno based sensing and diagnostics
- Structural and functional nucleic acid in nanobiotechnology
- Noninvasive and personalized healthcare sensors
- Biodigital and ubiquitous computing



## Systems Biology and Bioinformatics

(asawin.mee@kmutt.ac.th/ teeraphan.lao@kmutt.ac.th)

- Cyanobacterial Systems Biology
- Plant Systems Biology
- Medical Informatics
- Metagenomics and Microbiome analysis



## Waste Utilization and Management

(pawinee.cha@kmutt.ac.th)

- Microbial & Biochemical Research
- Biogas Reactor & Process Development
- Zero Waste & Resource Use Efficiency
- Technical Service and Training Unit

