Course Title
Master of Science in Biotechnology (International Program)

Academic Institution: Faculty of Agro-Industry, Prince of Songkla University

Program Title: Master of Science (Biotechnology)
M.Sc. (Biotechnology)

Expected learning outcome (ELO)

- Ethics and Morality
  1) Demonstrate discipline and honesty
  2) Demonstrate a good manner and respect for other's opinion
  3) Demonstrate responsibility for own work and society
- Knowledge
  1) Explain up-to-date knowledge within the area of biotechnology
  2) Explain integrated knowledge in other related disciplines
- Cognitive skill
  1) Apply the systematic thinking
  2) Analyze causes of problem and solve the problem using biotechnology
- Interpersonal Skills and Responsibility
  1) Develop an ability to work with responsibility for individual and group assignment
  2) Develop an ability to work collaboratively with others in group and act effectively and friendly as leader and/or member
- Numerical Analysis, Communication, and Information Technology Skills
  1) Apply statistic and mathematic for analysis, interpretation and solving problem
  2) Communicate in English effectively both oral and written
  3) Employ information technology for searching the up-to-date technology, innovation and world current situation

Philosophy of the Program

This program would provide students with the principles knowledge in the area of biotechnology and skills in research for the development of innovative knowledge in biotechnology. This program also comply student to be able to apply the knowledge integration with ethics and morality.

PSU's educational philosophy (http://webagro.psu.ac.th)

PSU's educational philosophy is managed by

- Progressivism using learning process with the students as the 'center of attention' and the basis of 'Outcome Based Education' such as active learning, problem-based learning, project-based learning, service learning
- PSU aims to provide students with a lifelong learning approach
- PSU believes that these principles can be met and aided by Prince of Songkla Mahidon Adulyadej's motto "Our soul is for the benefit of mankind

Program Objectives:

1. To develop students to be able to analyze causes of problem and solve the problem using biotechnology corresponding to industrial needs
2. To produce student with ethics and morality
3. To provide students with the knowledge and theory in biotechnology including the skills in research for the development of innovative knowledge in biotechnology
4. To provide students to be able to numerical analysis and communication using information technology

Program structure:

This program offers two plans; Plan A1 (research only plan) and Plan A2 (research with course works plan) with a total credit of 36 credits.

Course	Plan A1	Plan A2
Compulsory	-	12
Elective	-	6
Thesis	36	18
Total	36	36

Study plan

Academic year	Semester	Plan A1	Plan A2
1	1	853-836 Thesis 9 credits	853-521 Biotechnology 4 credits 4(4-0-8) 853-525 Research Techniques in Biotechnology 3 credits 3(1-6-2) Group compulsory course 3 credits 3(3-0-6) 853-818 Thesis 2 credits Total 12 credits
	2	853-836 Thesis 9 credits	853-596 Seminar 1 1 credits 1(0-2-1) Elective courses 6 credits 853-818 Thesis 5 credits Total 12 credits
2	1	853-836 Thesis 9 credits	853-597 Seminar 2 1 credits 1(0-2-1) 853-818 Thesis 6 credits Total 7 credits
	2	853-836 Thesis 9 credits	853-818 Thesis 5 credits Total 5 credits
		Total 36 credits	**Total 36 credits**

Group compulsory course 3 credits

- Environmental Biotechnology Group ; 853-542 Advanced Environmental Biotechnology
- Food Biotechnology and Enzyme Technology Group;
  853-534 Enzyme Technology or 853-561 Food Biotechnology
- Marine Biotechnology Group ; 853-552 Advanced Marine Biotechnology
- Bioprocess Engineering Group; 854-511 Advanced Bioprocess Engineering

Elective courses 6 credits

Semester 1/2018

853-534 Enzyme Technology 3 (3-0-6) credits
853-542 Advanced Environmental Biotechnology 3 (3-0-6) credits
853-561 Food Biotechnology 3 (3-0-6) credits
854-531 Bioreactor Design 3 (3-0-6) credits

Semester 21/2018

853-531 Traditional Fermented Foods 3 (3-0-6) credits
853-535 Advanced Fermentation Technology 3 (3-0-6) credits
853-541 Waste Utilization and Treatment in Agro-Industry 3 (3-0-6) credits
853-543 Biodegradation and Bioremediation 3 (3-0-6) credits
853-571 Genetic Engineering Technology 3 (3-0-6) credits
854-511 Advanced Bioprocess Engineering 3 (3-0-6) credits

Duration: Two (2) years (not more than 5 year)

Graduation Requirements

1. Meet the English performance following the regulation issued by Graduate School
2. Fulfill the program requirements with a GPA of at least 3.00 (except Plan A1)
3. Satisfy the proposal examination and thesis with grade S or X
4. Plan A1 publish the academic article from thesis or a part of thesis in a journal or an academic printed matter which has a peer review

Plan A2 publish the academic article from thesis or a part of thesis in a journal or an academic printed matter which has a peer review or is presented in an academic conference which has a peer review and proceedings or is presented in an academic conference which has a peer review and proceedings.

Contact:

Assoc.Prof,Dr. Piyarat Boonsawang
Department of Industrial Biotechnology, Faculty of Agro-Industry
Prince of Songkla University, Hat Yai, Thailand, 90112
e-mail: piyarat.b@psu.ac.th
Website: http://agro.psu.ac.th