CAN THO UNIVERSITY

AUN-QA

SELF-ASSESSMENT REPORT

ASEAN University Network

ADVANCED BIOTECHNOLOGY PROGRAM

BIOTECHNOLOGY RESEARCH AND DEVELOPMENT INSTITUTE

June 2014

BIOTECHNOLOGY RESEARCH AND DEVELOPMENT INSTITUTE

Can Tho University

Campus 2, 3/2 Str. Ninh Kieu Dist. Can Tho City

http://birdi.ctu.edu.vn/

LIST OF ABBREVIATIONS

BiRDI	Biotechnology Research and Development Institute
CTU	Can Tho University
IQA	Internal Quality Assurance
LO	Learning Outcomes
LRC	Learning Resource Center
MOET	Ministry of Education and Training
QATC	Quality Assurance and Testing Center

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SELF-ASSESSMENT REPORT

THE AVANCED BIOTECHNOLOGY PROGRAM

We hereby confirm to approve this Self-Assessment Report of Biotechnology Program of Biotechnology Research and Development Institute – Can Tho University to be officially accredited with AUN standards within the framework of ASEAN-QA project.

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Rector

Can Tho University

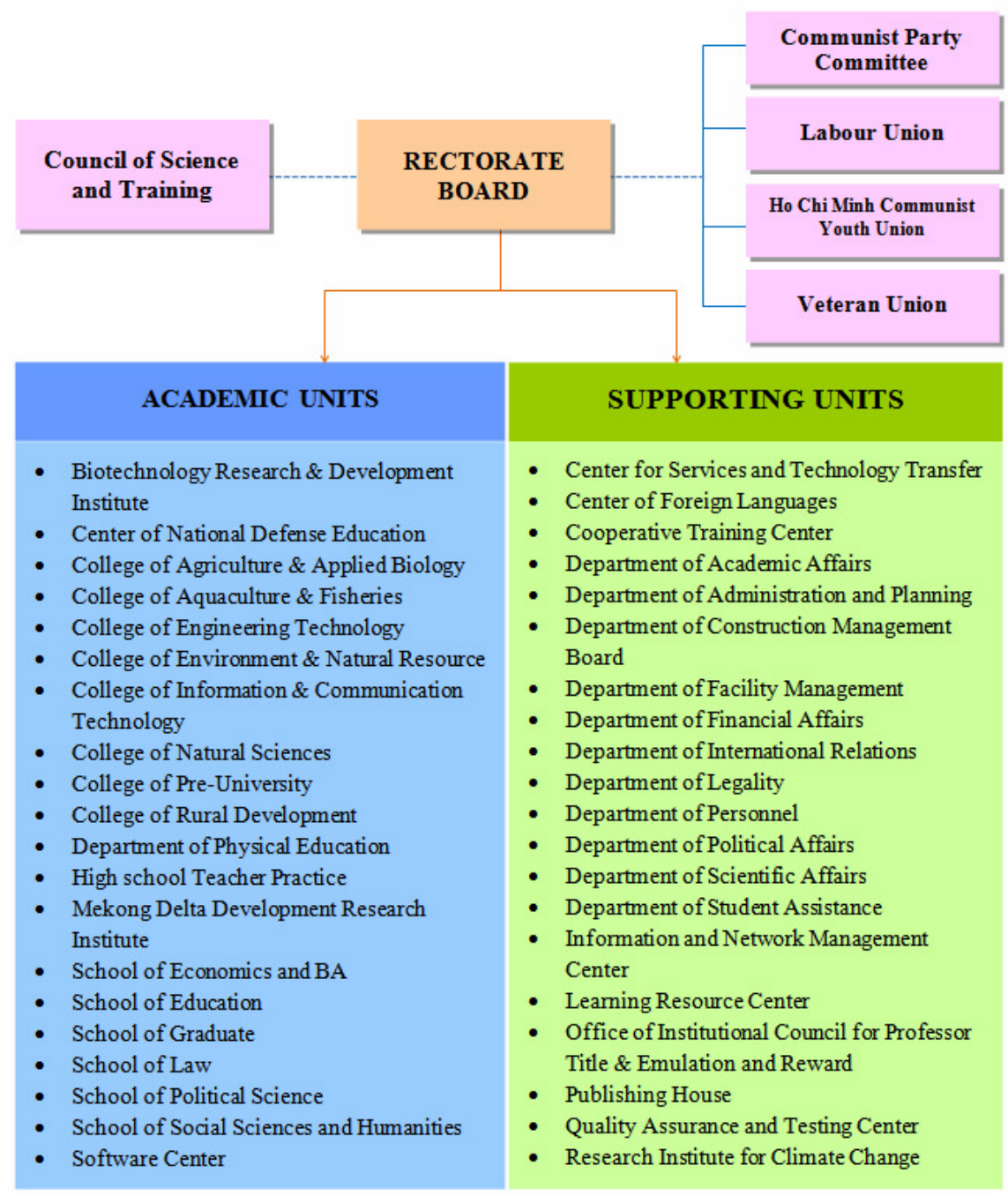
I. INTRODUCTION

1. Can Tho University (CTU) http://www.ctu.edu.vn/

Can Tho University (CTU) established in 1966. CTU is an important public higher education institution and a cultural, scientific and technical center of the Mekong Delta and Viet Nam with about 48,315 undergraduate students, 2,958 Master students, and 226 Ph.D candidates. CTU has got 2042 staff including 1,194 teaching staff and 848 supporting staff. From a university with a few fields of study at the beginning, it has developed into a multidisciplinary university. Currently, it has 92 undergraduate training programs (including 02 college programs), 31 Master and 13 Doctoral training programs. Every year CTU receives students on internship programs from the U.S, Belgium, Japan and so on, or under agreements between their universities and CTU.

(Sourse: http://websrv2.ctu.edu.vn/dept/dap/index.php?option=com_content&task=view&id=55&Itemid=98)

Figure 1: The structure of CTU and units



1.1. Vision of Can Tho University

CTU targets to be one of the leading higher education institutions in Viet Nam and recognized as one of the top universities in Asia-Pacific in training and research in 2022. (*Annual Report 2013)*

1.2. Mission of Can Tho University

CTU operates its resources to become the leading national center for training, scientific research and technology transfer, making significant contributions to the development of high quality human resources, fostering the talents and the advancement of science and technology to cater for the regional and national socio-economic development. Can Tho University is the crucial driving factor for the development of the Mekong Delta Region. (*Annual Report 2013*)

In particular, CTU takes on the duties to

i) train high quality human resources to serve the demands of society;
ii) conduct scientific researches and transfer technology to solve practical problems in the Mekong Delta region (MDR);
iii) function as the leader of the MDR in terms of international relations, global integration and applications of advance in science and technology; and
iv) operate as the center to provide scientific and technological information as well as experts and theoretical bases to the region

(Sourse: http://www.ctu.edu.vn/BCTN2013/index.html#/0)

2. Biotechnology Research and Development Institute http://birdi.ctu.edu.vn/

In 1981, Can Tho University established the Biological Nitrogen Fertilizer Research Center. The key mission of the center was to conduct researches to exploit nitrogen from bacterial sources. In addition, the center was also in charge of teaching courses including General Microbiology, Soil Microbiology, Veterinary Microbiology, and Aquaculture Microbiology as well as supervising graduation dissertations for students from other faculties and centers in the MDR.

In 1991, the Minister of the Ministry of Education and Training (MOET) signed the decision to rename the center as the Biotechnology Research and Development Center and stipulate it to operate under the authority of CTU. Then according to Decision No. 2960/GD&DT, issued on August 26th, 1995, the Minister of the MOET renamed the center as the Biotechnology Research and Development Institute (BiRDI) under the authority of CTU.

When the MOET permitted CTU to offer the Microbiology PhD program (1985), Master of Biotechnology program (1997) and Bachelor of Biotechnology program (2001), the lecturers specializing in Microbiology of BiRDI played an essential role in teaching these programs. Since 2006, BiRDI has been officially in charge of training undergraduate programs including Biotechnology Program taught in Vietnamese (2006), Advanced Program in Biotechnology taught in English (2006), and Microbiology Program taught in Vietnamese (2010).

2.1. Vision of BiRDI

In 2022, the Biotechnology Research and Development Institute will be an excellent research and technology transfer center and provide well-trained and highly qualified students majoring in Biotechnology and Microbiology for the Mekong Delta region. BiRDI will be a strong organization in human resources, with excellent and enthusiastic lecturers possessing profound academic knowledge and advanced management approaches.

2.2. Mission of BiRDI

To mainstream its mission with CTU's mission, BiRDI has to fulfill the following mission tasks:

i) train highly qualified human resources specializing in Biotechnology in order to meet the skilled labor demands of the society;
ii) conduct scientific researches and transfer technology to support optimal solutions to practical biotechnology problems in the MDR; and

iii) become the focal point linking CTU with other research centers in the MDR for efficient cooperation in Biotechnology which facilitates development in advanced technology among partners and stakeholders in the MDR and around the world

Development strategy of BiRDI from 2017 to 2022

CTU has the general strategy to develop the whole university which sets priority for the development of high-tech areas of expertise, especially Biotechnology *(Exh.1.01: Đề án Quy hoạch phát triển tổng thể Trường ĐHCT trọng điểm đến năm 2020*). BiRDI is responsible for the training and development of this major area.

Priority fields relating to Biotechnology from now to 2017-2022 will be carried out by BiRDI in cooperation with other training and research centers.

2.3. Activities

2.3.1. Training activities

BiRDI has to

i) train the Bachelor of Biotechnology program in accordance with to AUN (Asian University Network) standards in which students are able to communicate fluently in English
ii) apply effective self-financing activities for Bachelor and Master of Biotechnology programs;
iii) focus on self-evaluation training programs, especially Advanced Biotechnology program;
iv) follow the general strategy of CTU;
v) continue to improve the quality of the programs and scale up the training program;
vi) review and adjust the Bachelor and Master programs;
vii) add courses such as human and animal physiology to further support stem cell researches and other biomedicine disciplines;
viii) prepare human resources and facilities necessary for teaching Advanced Biotechnology program; and
ix) offer new majors such as Bachelor of Biological techniques, Master of Microbiology; design materials and prepare capacities to offer majors taught in English (to be named as *Advanced* or *International*)

2.3.2. Scientific research and technology transfer

i) continue to maintain and scale up the research and technology collaboration with local authorities; take advantage of collaboration to carry out national-level projects, treaties, bilateral cooperation to solve the issues related to Biotechnology disciplines in the MDR;
ii) represent for the whole MDR in response to Biotech researches; act as a focal point to receive up-to-date techniques from all around the world

2.4. Organization of BiRDI

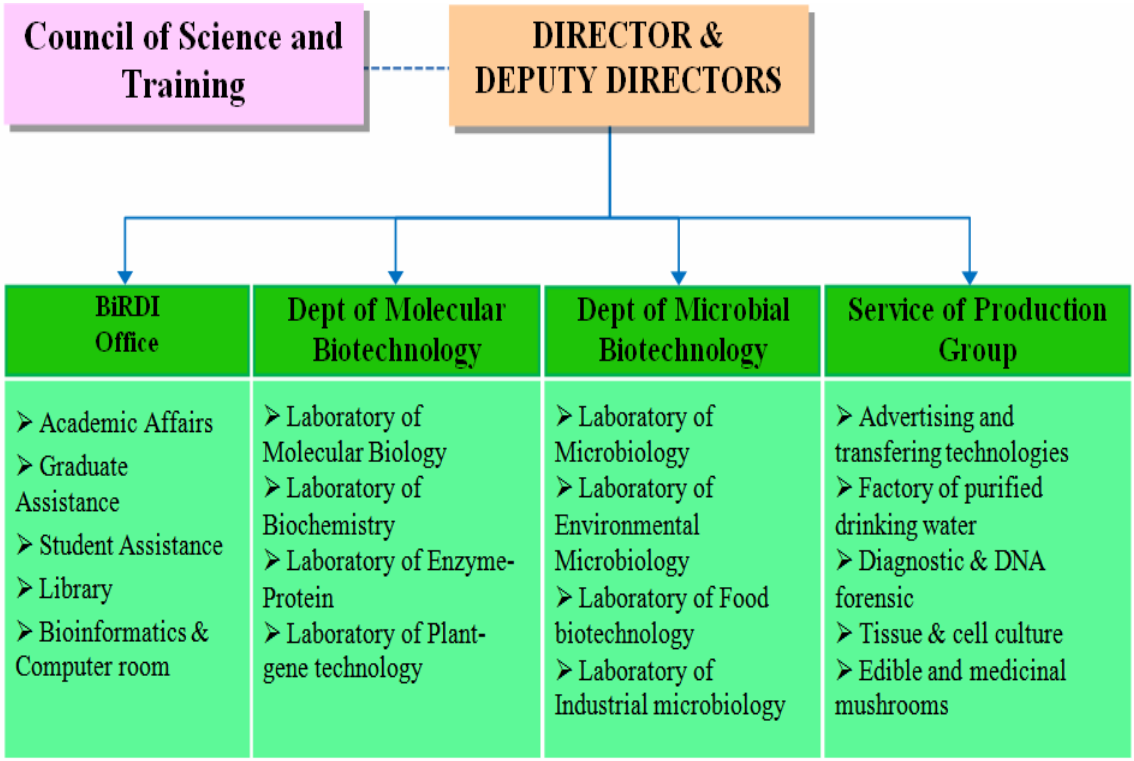


Figure 2: The structure of BiRDI and its departments

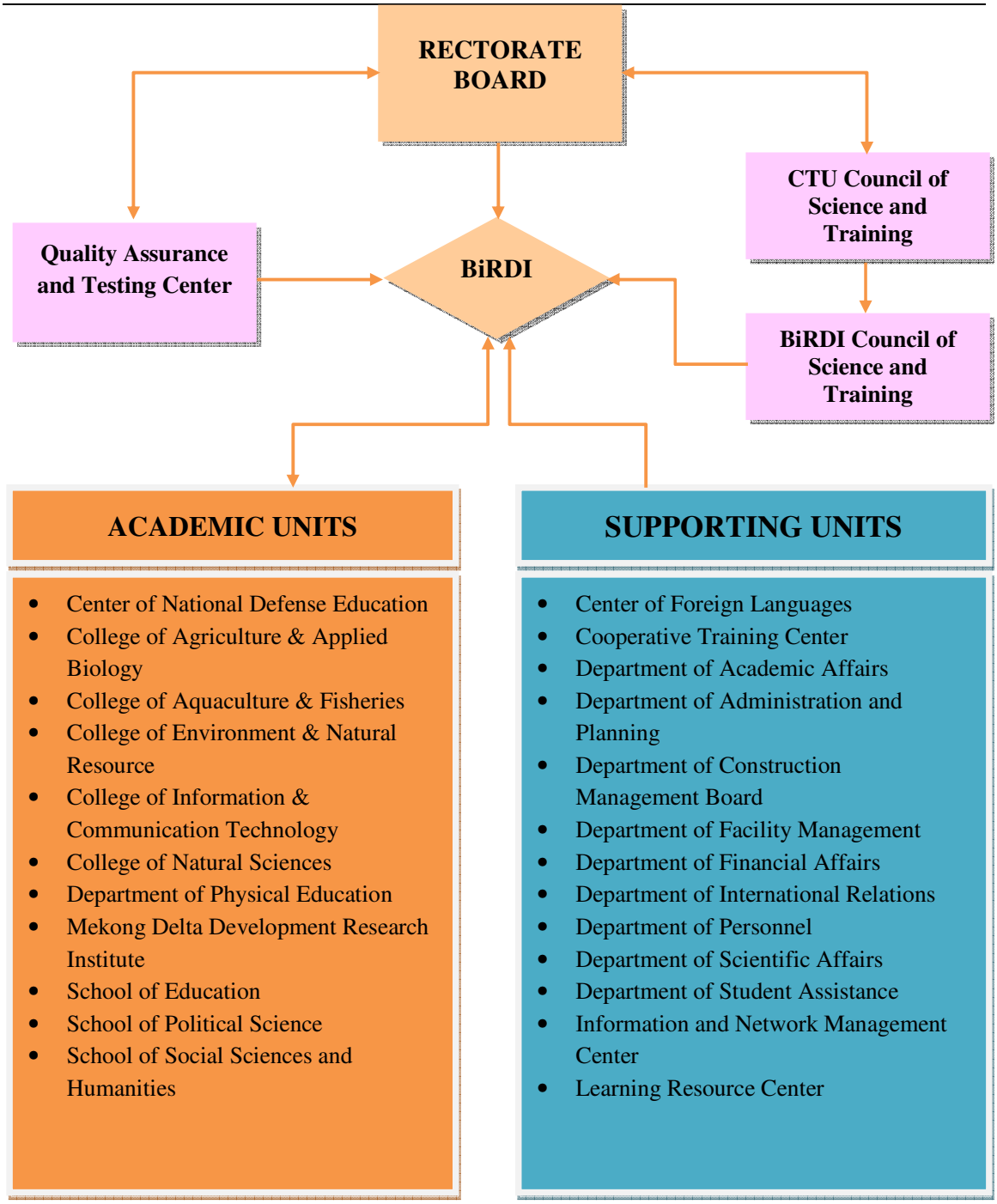


Figure 3: The relationship between BiRDI and other units in CTU in program training

3. Introduction of QA Activities in BiRDI

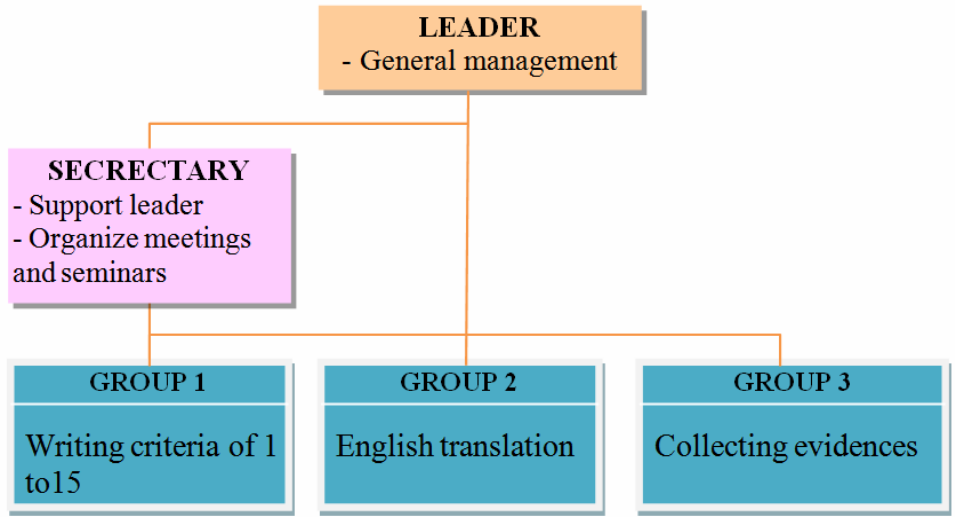


Figure 4: QA Activities in BiRDI

II. AUN-QA CRITERIA AT PROGRAM LEVEL

1. Expected Learning Outcomes

To provide training for high-quality human resources in Biotechnology that meet the labor market requirements in the MDR and Viet Nam, the Advanced Biotechnology program of CTU was built based on Decision No. 300/BGD&DT-ĐH&SDH of the MOET on January 12th 2006. The program was approved by the MOET and started to recruit students in the academic year 2006-2007 according to Decision No.6666/QD-BGD&DT on November 23rd, 2005.

The Advanced Biotechnology Program offers the curriculum based on:

1. The mission and vision of CTU and those of BiRDI
2. The requirements of the MDR labor market for biotechnologists
3. Benchmarking to the curriculum of Michigan State University (MSU)
4. Benchmarking to the curriculum of Vietnamese high-ranking universities (Ho Chi Minh City University of Science, Ha Noi University of Science)

The objectives of the Advanced Biotechnology Program:

i) Help the students construct generic and biotechnology-specialized knowledge to work effectively in state-owned and private-owned industries
ii) Root ethnical motivation among the students
iii) Formulate English capacity among the students to help them work effectively in a global biotechnology context
iv) Nurture lifelong learning among the students to help them maintain and enhance their professional knowledge and skills and be able to adapt to changes
v) Generate high quality human resources for academic and research activities in the field of biotechnology in the MDR

1.1 The expected learning outcomes have been clearly formulated and translated into the program

Biotechnology graduates work in the bioscience agriculture and industry in the areas of research development and production. The expected learning outcomes (ELOs) of the Advanced Biotechnology program reflect the demands and needs of all stakeholders (biotechnology and pharmaceutical companies, clinical laboratories in hospitals, universities, government, and independent settings) for generic skills and knowledge, specific skills and knowledge, as well as attitudes toward the profession and society.

The graduates from the Advanced Biotechnology will be able to:

1. apply the generic knowledge of social and humanity science and natural science to the professional activities to increase work performance;
2. analyze the specialized knowledge in biotechnology for effective applications in professional work to achieve better work performance;
3. select and enhance the use of techniques, skills, and up-to-date technological tools necessary for biotechnology practices in reality; design and conduct experiments to arrive at solutions to improve work performance;
4. conduct various activities to design, organize, manage and operate production facilities in biotechnology;
5. analyze the demands and mobile all resources available to design processes to help organize, manage and operate biotechnology activities (namely the production of new plant and animal varieties, new microorganisms; microbiological products, techniques…);
6. identify and compare work issues to come up with solutions to problems in biotechnology and be able to create a service business;
7. apply effective skills in communication to exchange and sharing information in collaboration to develop biotechnology; develop leadership, teamwork and soft skills for employment and promotion;
8. construct life-long learning as a personal skill and consciousness and integrate study and research in daily work to be ready for national and international research collaboration; and
9. protect and improve personal health, fulfill civic responsibility, abide by the laws, be insightful on contemporary political and social issues, and contribute to sustainable development of the biotechnology area, the environment, and the society

These ELOs are well disseminated to the lecturers, students, and other stakeholders through:

1. Orientation meeting
2. Course syllabuses
3. Websites of CTU and BiRDI
4. Student handbooks, brochures…

Obviously, these ELOs of the Advanced Biotechnology Program are in line with the mission and the vision of CTU which aim to train students with profound knowledge, high-level skills, and positive attitudes to fulfill the demand of socio-economic development of the MDR and further international collaboration. Thanks to their advanced capacities, the graduates from the program will boost research activities and transfer technology to the production in the MDR as well as participate in local and international research communities.

1.2 The program promotes life-long learning

The Advanced Biotechnology program motivates students for lifelong learning through the following factors grouped in Figure 5, focusing on the key points below.

i) The credit-based system allows students approach learning in specialized areas by making plans for diversified learning contents to meet their individual needs; the curriculum satisfies the needs of selective elective courses corresponding to specific areas.

ii) The content of the training program ensures the depth (Biotechnology professional knowledge and research orientations on plant biotechnology, food biotechnology, molecular biology and microbiology…) and breadth (providing the base for learners to study related fields: biology, ecology, agronomy, microbiology, fishery,…) to help students adapt to higher level learning in specialized biotechnology areas as well as other related majors. (See Figure 5)

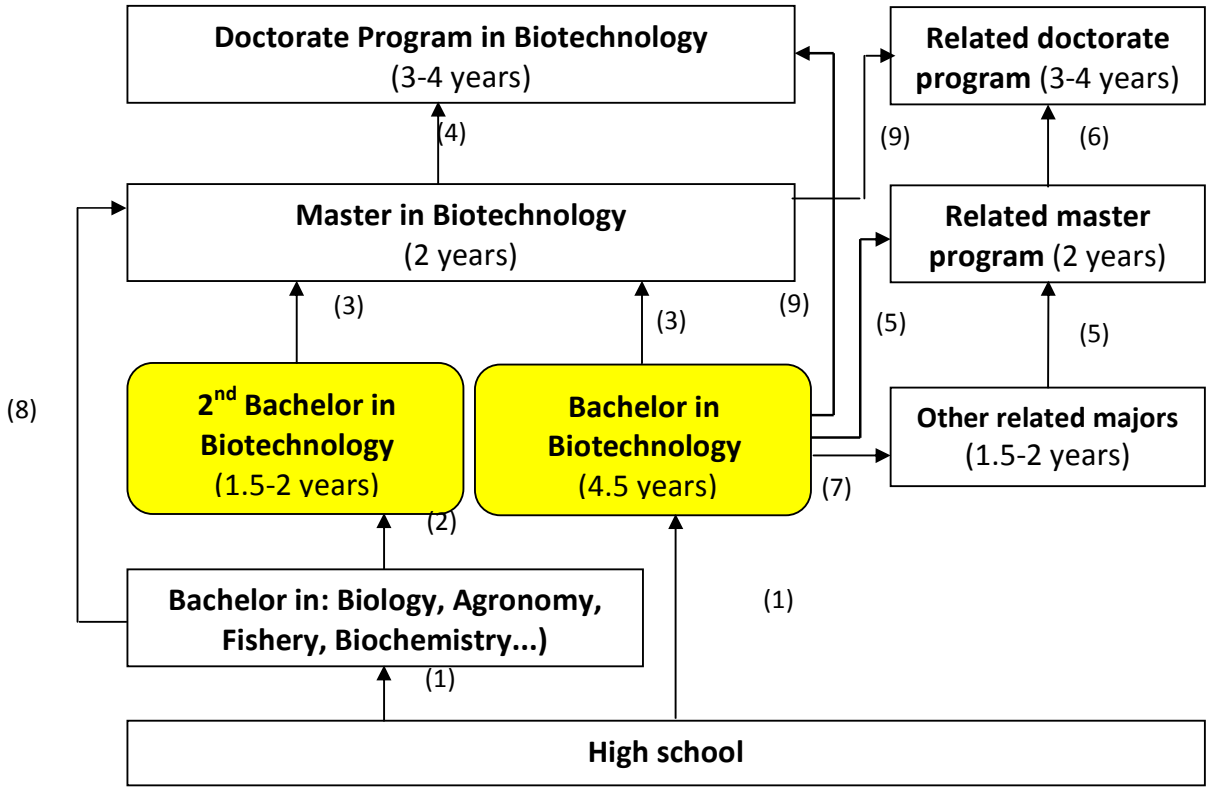


Figure 5: The life-long learning pathway in Biotechnology

To access the Advanced Biotechnology program, students apply for bachelor program through the national university entrance examination (1) or through secondary bachelor degree in biotechnology from other bachelor programs such as Biology, Biochemistry, Agronomy, and Fishery (2). After graduating from the university, students can further their education at post-graduation levels such for MA degree (3) and PhD degree in Biotechnology (4) or MA degree (5) and PhD degree in related fields (such as biology, ecology, agronomy, microbiology) (6). Besides, students can continue to learn a secondary bachelor degree (7) (other related majors) and MA degree (5) and PhD degree in related fields (6). Pathway (8) is from other BSc to MSc in Biotechnology and Pathway (9) is from MSc in

Biotechnology to related doctorate degree. In addition, the students who possess a good English base can further their learning abroad. (*Exh.1.02: Decision to promote student for international learning*).
The Advanced Biotechnology program promotes life-long learning through activities among the lecturers and students as described in Table 1.

Table 1. How to train in the lifelong learning context

Learning outcomes		Assessment criteria
The students are exposed to		The students are able to
1	Roles, responsibilities in relation to class activities	explain and identify roles and issues, key aspects, codes of practice…
2	Appropriate teaching and learning approaches	identify, explain or justify selection of teaching and learning approaches; capable of designing, doing experiments in lab, processing and analyzing data, operating devices…
3	Session planning skills	identify, explain or justify the planning, operating, maintaining, repairing, and protecting devices and systems…
4	Deliveries of inclusive sessions to motivate students	involve in learning to learn and develop personalities
5	Use of different assessment methods	identify and explain different assessment methods in different contexts

(National college Network, Program outcomes (p.37), content and structure program & Statute No 43 of MOET issued on August 15, 2007)

1.3 The expected learning outcomes cover both generic and specialized skills and knowledge:
The ELOs for graduates include generic knowledge and skills as well as specialized knowledge and skills. In addition, the program also focuses on improving professional ethics and social responsibility of the students.

Table 2: Expected learning outcomes grouped by knowledge, skills, attitudes and life-long learning skill

Knowledge, Skills, Attitudes		ELOs
Generic Knowledge	Mathematic, Scientific, and Social	1, 2, 3, 9
Generic Skills	Communicating, sense of chemical and biochemical analysis, synthesis approaches Biotechnology, critical thinking, team work, self-regulating, problem solving, self-study	3; 6; 7
Specific Knowledge	Fundamental and specialized biotechnology	2, 4, 5, 6
Specific Skills	Use of common Lab instruments and equipments Experimental design and data analysis and assessment	3; 4; 5
Attitudes	Professional and social ethnical and responsibility	8, 9
Life-long learning	Scientific knowledge and skills	1, 2, 3, 4, 5, 6
	Learning and communication skills	7
	Perception of life-long learning	9

1.4. The expected learning outcomes clearly reflect the requirements of the stakeholders.
The training programs and ELOs are based on reference results from feedbacks and comments from domestic and international experts, researchers, lecturers, students and employers. All feedbacks lay the basis for considering adjustments to improve the program to meet the needs of these stakeholders. In particular:

- Feedbacks from the international experts, lecturers and researchers require the graduates to have good subject-matter knowledge, adequate research ability and good English (*Exh.1.03: Biên bản hội thảo, hình ảnh, emails…..)*
- After having delivered the program, BiRDI conducts surveys among businesses, employers, institutes… where the graduates work, and the results are as following:
    - Requirements from the research institutes: the graduates have strong knowledge and professional skills, good language skills and research proposal development skills to support activities in implementation and reporting scientific researches.

- Requirements from the employers: The graduates have good knowledge and skills, the ability to analyze and solve problems of biotechnology; master the regulations and laws related to biotechnology; have the ability to adapt to change in the working environment and in society.
- Requirements from the companies providing biotechnology services: The graduates have qualified knowledge and skills, the ability to organize and operate production facilities and business services related to biotechnology.

These feedbacks are mainstreamed into the training objectives of the Program:

i) Help the students construct generic and biotechnology-specialized knowledge to work effectively in state-owned and private-owned industries
ii) Root ethnical motivation among the students
iii) Formulate English capacity among the students to help them work effectively in a global biotechnology context
iv) Nurture lifelong learning among the students to help them maintain and enhance their professional knowledge and skills and be able to adapt to changes
v) Generate high quality human resources for academic and research activities in the field of biotechnology in the MDR

2. Programme Specification

2.1. The university uses program specification

2.1.1. Program description:

The Advanced Biotechnology program specification is formulated and informed to stakeholders via the websites in both Vietnamese and English (http://birdi.ctu.edu.vn/birdi_cttt/ http://websrv.ctu.edu.vn/)

(1) Name of the program: Bachelor of Biotechnology (advanced program).

+ The program has been offered since 2006 based on Decision No. 6666/QD-BGD&DT of the MOET. The courses are offered in English.
+ The Program was built with contributions by MSU faculty partners, taking into consideration feedbacks from stakeholders (students, alumni, employers, CTU lecturers and partner universities).
+ The program is benchmarked to the program frame stipulated by the MOET, referring to biotechnology programs by famous national universities such as Hanoi National University and Vietnam National University – Ho Chi Minh City and well-known international universities such as the Dutch Wageningen and the University of RMIT (Australia).
+ The faculty: The program is taught fully in English by the lecturers of CTU (mainly from BiRDI and some from the College of Natural Sciences). This program is also taught by visiting lecturers from MSU and famous partner universities such as Brussels University (Belgium), Wageningen University (the Netherlands), Copenhagen University (Denmark), Cornell University (the USA), New South Wales University (Australia)...
+ Mode of study: Full time, regular
+ Training time: 4.5 years *[plus 1 semester for Intensive English (20 credits)]*

***(2) Training unit*:** Biotech Research and Development Institute (BiRDI)
(3) University's name: Can Tho University (CTU)
(4) Awards: Bachelor degree (in Vietnamese) and Certificate of partner university (in English). Certification units: CTU and certificate by MSU (USA). *(Exh.2.01: Certificates)*
(5) Criteria to choose students for Advanced Biotechnology program: The students wishing to attend the program have to fulfill 2 criteria:

– passing the national university entrance examination for Band A (Mathematics, Physics, Chemistry) or Band B (Mathematics, Chemistry, Biology); and
– passing the English institutional examination with the result equivalent to TOEFL 450 (the students must attend intensive English courses to improve English proficiency after admission)

2.1.2. The curriculum:

The curriculum is designed based on the program specification and documents from the MOET, the credit-based training system and relevant regulations. More importantly, the curriculum is mostly

based on the program offered by MSU in the USA, taking into consideration references to well-known universities such as Wageningen University, and especially the support of cooperative programs with foreign countries such as the MHO7 of the Netherlands, VLIR program of Belgium; ...

The curriculum is constructed with the participation of lecturers, managers, representatives from organizations and professional associations, employers, alumni and students. *(Exh.2.02: Bien ban hội thảo, feedbacks…).*

2.1.3. Organization of the program

Table 3: Structure of the curriculum

Knowledge Block	Number of Courses	Credits required	Block weight (%)
General Knowledge	**14**	**56**	**37.1**
Political Education	3	10	
Fundamental Core (Include 2 courses of physical training 1,2*) Defense training English proficiency	7 1 3	31 6 9	
Foundation Knowledge	**14**	**55**	**36.4**
Core: 1.Fundamental Genetics 2.Introductory Microbiology 3.Organism and Populations 4.Organic Chemistry 5.Biochemistry 6.Statistics for Biologists 7.Field trip 8.Practical Training in Industry 9.Introduction Biotechnology 10. Basic Biotechnology	10	43	
Elective (students have to select 4 courses for 12 credits) 1. Plant Tissue Culture 2. Plant Physiology 3. Animal Physiology 4. Food Fermentation 5. Food Biochemistry 6. Plant Breeding and Biotechnology 7. Biodiversity	4	12	
Professional Knowledge	**9**	**30**	**19.9**
Core: 1. Bio-Informatics 2. Research Methods 3. Biotechnology Seminar 4. Molecular Biology 5. Genomics and Its Application 6. Microbial Genomics	6	23	
Elective (students have to select 3 courses for 7 credits) 1. Food Microbiology 2. Virology 3. Aquaculture Biotechnology 4. Biotechnology in Agriculture 5. Food and Animal Toxicology 6. Social and Economical Aspects of Biotechnology 7. Plant Molecular Biology 8. Proteomics	3	7	

Thesis		**10**	**6.6**
Total*	**37**	**151**	**100**

(*) The curriculum also consists of 20 credits for Intensive English (in the 1st Semester)

Table 4: Knowledge block weights

Knowledge Blocks	Credits required	Percents (%)
General	56	**37.1**
Foundation	30	**19.8**
Core major	36	**23.8**
Optional specialized major	19	**12.6**
Thesis	10	**6.7**
Total	**151**	**100**

The program consists of **151** credits, including **132** compulsory credits (**10** credits for graduation thesis) and **19** elective credits. Such a flexible program helps students in self-learning and study planning activities.

In the training program, the general knowledge consists of **56** credits (20 courses), accounting for about 37% of the total credits; the foundation knowledge consists of **55** credits (23 courses), accounting for about 32.5% of the total credits; and the professional knowledge consists of **40** credits (13 courses and the thesis), accounting for about 30% of the total credits.

Besides, the students are trained in an intensive English course in the first semester equivalent to **20** credits. The details are illustrated *Table 4.*

The connection between knowledge blocks, from the general knowledge to foundation knowledge and the professional knowledge with detailed information about courses is clearly performed in the program diagram (*Figure 7: Flow-chat of Studying*)

The program diagram helps students to know what knowledge they will have accumulated and what courses are offered in the next semesters. From that view, it is easy for them to make their own learning plan to achieve the best results.

The teaching, learning and assessment activities follow the guidelines and principles for credit-based training system under the regulation of university training *(Exh.2.03: Statute 43/2007 of the Ministry of Education and Training).*

2.1.4. Curriculum Structure

Based on the program content as presented above, the curriculum structure is shown in Figure 6**.**

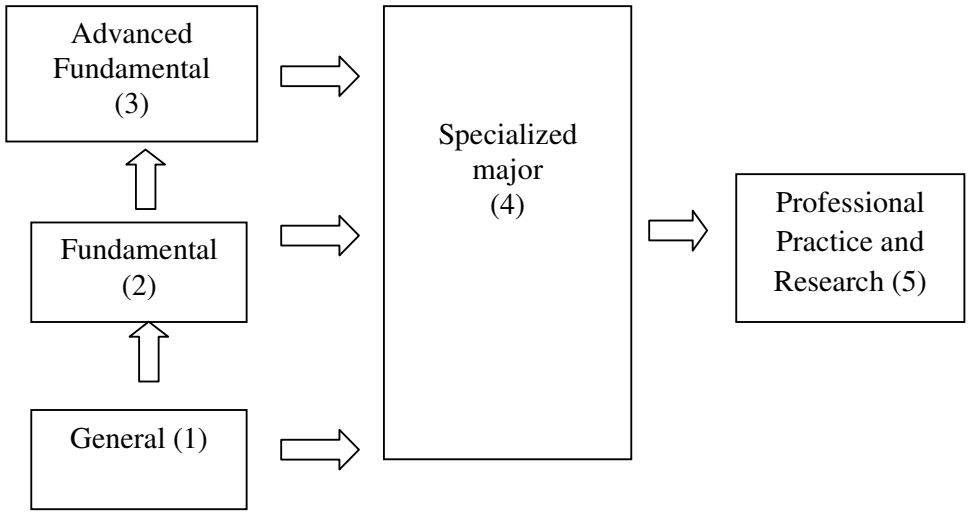


Figure 6.The mutual relationship among knowledge blocks

2.1.5. Curriculum Distribution

Table 5: General Education (56 credits)

No.	Courses	Number of credits	Code
1	Basic Principles of Marxist-Leninism I (2,0)	2	ML009
2	Basic Principles of Marxist-Leninism II (3,0)	3	ML010
3	Ho Chi Minh's Ideology (2,0)	2	ML006
4	History of Vietnamese Communist Party (3,0)	3	ML005
5	Physical training (2,0)	*2*	**TC100**
6	Defense training (6,0)	6	QP001
7	Advanced English I (3,0)	3	EN101C
8	Advanced English II (3,0)	3	EN102C
9	Writing: Sciences & Technology (3,0)	3	EN103C
10	General and Inorganic Chemistry I (3,1)	4	CH141C
11	General and Inorganic Chemistry II (3,1)	4	CH142C
12	Calculus I-II (6,0)	6	MT132C
13	Cells and Molecules I (3,1)	4	BS110C
14	Physics for Scientists and Engineers I (3,1)	4	PH183C
15	Physics for Scientists and Engineers II (3,1)	4	PH184C
16	Computer Science (2,1)	3	TN033

Table 6: Foundation Core (43 credits)

No.	Courses	Number of credits	Code
1	Biotechnology Seminar I (1,0)	1	BT199C
2	Biotechnology Seminar II (1,0)	1	BT198C
3	Biotechnology Seminar III (1,0)	1	BT197C
4	Biotechnology Seminar IV (2,0)	2	BT298C
5	Biotechnology Seminar V (2,0)	2	BT299C
6	Organism and populations II (3,1)	4	BS 111C
7	Introductory Biotechnology (2,0)	2	BT201C
8	Biochemistry I (3,2)	5	BC461C
9	Biochemistry II (3,2)	5	BC462C
10	Organic chemistry I (3,0)	3	CH251C
11	Organic chemistry II (3,2)	5	CH352C
12	Introductory Microbiology (3,1)	4	MI301C
13	Fundamental Genetics (3,1)	4	ZO341C
14	Basic Biotechnology (3,1)	4	MM445C

Table 7: Foundation Elective (Minimum 12 credits)

No.	Courses	Number of credits	Code
1	Plant physiology (2,1)	3	CS465C
2	Food Microbiology (2,1)	3	FS440
3	Virology (2,1)	3	MM413C
4	Animal physiology (2,1)	3	CS072C
5	Aquaculture Biotehnology (2,1)	3	CS443C
6	Food Fermentation (2,1)	3	BT304C

7	Food and Animal Toxicology (3,0)	3	AN407C

Table 8: Professional Core (23 credits)

No.	Courses	Number of credits	Code
1	Statistics for Biologists (3,0)	3	CS464C
2	Microbial Genomics (2,1)	3	MM433C
3	Molecular Biology (3,1)	4	BB801C
4	Research Methods (2,0)	2	BT300C
5	Field trip (1,0)	1	BT200C
6	Genomics and its application (3,1)	4	BT301C
7	Bio-Informatics (2,1)	3	BT303C
8	Practical training in industry (3,0)	3	BT480C

Table 9: Professional Elective (Minimum 7 credits)

No.	Courses	Number of credits	Code
1	Social and Economical Aspects of Biotechnology (2,0)	2	BT307
2	Biodiversity (2,0)	2	ZO892C
3	Proteomics (3,1)	4	BT306C
4	Food Biochemistry (2,1)	3	CS344C
5	Plant Breeding and Biotechnology (2,1)	3	CS441C
6	Plant and tissue culture (2,1)	3	BT305C

Table 10: Recommended Study Plan

Courses	Credits	Notes
SEMESTER 1	**12**	
Basic Principles of Marxist-Leninism (5,0)	5	
Ho Chi Minh's Ideology (2,0)	2	
History of Vietnamese Communist Party (3,0)	3	
Physical training (2,0)	2	*Elective course*
SEMESTER 2	**26**	
Intensive English (20,0)	20	***Non credit***
Defense training (6,0)	6	*1 month in Summer Semester*
SEMESTER 3	**18**	
Advanced English I (3,0)	3	
General Chemistry I (3,1)	4	
Calculus (6,0)	6	
Cells and Molecules I (3,1)	4	
Biotechnology Seminar I (1,0)	1	
SEMESTER 4	**17**	
Organism and populations (3,1)	4	
Advanced English II (3,0)	3	
General and Inorganic Chemistry (3,1)	4	
Computer Science (2,1)	3	
Introductory Biotechnology (2,0)	2	
Biotechnology Seminar II (1,0)	1	
SEMESTER 5	**19**	
Organic chemistry I (3,0)	3	
Introductory Microbiology (3,1)	4	
Physics for Scientists and Engineers I (3,1)	4	
Fundamental Genetics (3,1)	4	
Writing: Sciences & Technology (3,0)	3	

Biotechnology Seminar III (1,0)	1	
SEMESTER 6	**20**	
Organic chemistry II (3,2)	5	
Physics for Scientists and Engineers II (3,1)	4	
Biochemistry I (3,2)	5	
Selective subjects: 6 credits		
Plant physiology (2,1)	3	
Food Microbiology (2,1)	3	
Virology (2,1)	3	
SEMESTER 7	**20**	
Biochemistry II (3,2)	5	
Basic Biotechnology (3,1)	4	
Research Methods (2,0)	2	
Field trip (1,0)	1	
Biotechnology Seminar IV (1,0)	2	
Selective subjects: 6 credits		
Animal physiology (2,1)	3	
Aquaculture Biotechnology (2,1)	3	
Food Fermentation (2,1)	3	
Food and Animal Toxicology (3,0)	3	
SEMESTER 8	**16**	
Statistics for Biologists (3,0)	3	
Microbial Genomics (2,1)	3	
Molecular Biology (3,1)	4	
Biotechnology Seminar V (2,0)	2	
Selective subjects: 4 credits		
Social and Economical Aspects of Biotechnology (2,0)	2	
Biodiversity (2,0)	2	
Proteomics (3,1)	4	
SEMESTER 9	**13**	
Genomics and its application (3,1)	4	
Bio-Informatics (2,1)	3	
Practical training in industry (3,0)	3	
Selective subjects: 3 credits		
Food Biochemistry (2,1)	3	
(Plant Breeding and Biotechnology (2,1)	3	
Plant and tissue culture (2,1)	3	
SEMESTER 10	**10**	
Thesis	10	
TOTAL	**151**	

2.2. The program specification shows the expected learning outcomes and how these can be achieved

There are 9 ELOs ***(Criterion 1)*** that students of this program are expected to attain. The assessment of these ELOs and the role of the program in supporting students to attain these ELOs are presented as below:

a. ELOs 1 and 2: ***On completing the program, the students are able to apply the generic knowledge of social and humanity science and natural science to the professional activities to increase work performance; analyze the specialized knowledge in biotechnology for effective applications in professional work to achieve better work performance;***

- Assessment of student achievement of ELOs 1 and 2

+ Successful completion of core and elective courses on theory and application of general education and foundation courses as well as specialized major courses
+ Core courses impart competency in students' analytical abilities

+ Minimum acceptable grade threshold is C or 2.0 in a 4.0 scale.

- Roles of the program in helping students to achieve ELOs 1 and 2

+ Admission to the program is based on ability to succeed in core courses.
+ Design and implement examinations, assignments, and projects in each course *(Exh.2.04: Course Outlines).*
+ Complete these course requirements.
+ Conduct periodic review of student transcripts; regularly review students' progress in their respective areas of interest thanks to students' academic advisors; and provide timely feedback to the students so that appropriate action can be taken; copy of such review is given to the BiRDI Chair.
+ Evaluate teaching effectiveness of lecturers in relevant course(s); if effectiveness is below expectations, work with lecturers to improve.
+ Regularly review assessment tools; establish a continuous feedback mechanism, such as an exit survey, to ensure that program goals and processes in place to achieve them (i.e., those listed under each goal) are regularly reviewed and adjusted as needed.

b. ELOs 3 and 4: ***On completing the program, the students are able to select and enhance the use of techniques, skills, and up-to-date technological tools necessary for biotechnology practices in reality; design and conduct experiments to arrive at solutions to improve work performance; conduct various activities to design, organize, manage and operate production facilities in biotechnology;***

- Assessment of student achievement of ELOs 3 and 4

+ Successful completion of core and elective courses (theory and practical)
+ These core courses impart competency in students' analytical abilities (*Exh.2.04: Course Outlines).*.
+ Minimum acceptable grade threshold is C or 2.0 in a 4.0 scale.

- Roles of the program in helping students to achieve ELOs 3 and 4

+ Offer required core and elective courses (theory and practice)
+ Regularly review students' progress in their respective areas of interest thanks to students' academic advisors; provide timely feedback to the students so that appropriate action can be taken; copy of such review is given to the BiRDI Chair.
+ Regularly interact and advise students thanks to academic advisors and research committee members in choosing and completing the thesis.
+ Regularly review assessment tools; establish a continuous feedback mechanism such as an exit survey to ensure that program goals and processes in place to achieve them are regularly reviewed and adjusted as needed.

c. ELOs 5 and 6: ***On completing the program, the students are able to analyze the demands and mobile all resources available to design processes to help organize, manage and operate biotechnology activities (namely the production of new plant and animal varieties, new microorganisms; microbiological products, techniques…); identify and compare work issues to come up with solutions to problems in biotechnology and be able to create a service business;***

- Assessment of student achievement of ELOs 5 and 6

+ Successful completion of core courses such as field trip (1 credit), Internship-Practical training in industry (3 credits) and Biotechnology seminars (7 credits).
+ Students learn from theses from the past that were nominated for regional or national awards *(Exh.2.06 MC khen thuong SV các cấp).*
+ Students obtain various knowledge thanks to elective courses in their respective areas of interest (there is no minimum credit requirement, but a student may take 19+ elective credits and 10 credits for graduation thesis in his/her area of specialization).
+ Successful completion of undergraduate thesis in the student's area of interest. The quality of such original research is assessed through public defense of the thesis *(Exh.2.07: LVTN va BB danh gia).*

- Roles of the program in helping students to achieve ELOs 5 and 6

+ Timely determine appropriate elective courses in student's area of interest and provide advice accordingly.
+ Provide early introduction to research methods and opportunities for research to students enrolled in the program; for instance, provide students with opportunity to work with BiRDI staff on applied issues, including those funded by grants *(Exh.2.08: Nghien cuu KH SV)*
+ Partner students with BiRDI members whose areas of interest and expertise match a particular student's area of interest in scientific research for thesis guidance.
+ Provide students with opportunities to present research and receive feedback.
+ Conduct critical reading of thesis by members of the committee of BiRDI.
+ Inform assessment criteria to the students and the members of the committee of BiRDI:

  (1) Public defense of thesis by students. Such defense is assessed by the student's advisor and the thesis committee members;

  (2) Critical reading and assessment of thesis by the student's advisor and the thesis committee;

  (3) Presentation in English of research outputs in local conferences; English will be used for comments as well as Q and A session between the committee members and the student. *(Exh.2.09: Biên bản HĐ, Giấy nhận xét phản biện);*

  (4) Publication of research outputs in journals *(Exh.2.10: bai bao Khoa hoc SV)*

d. ELOs 7, 8 and 9: ***On completing the program, the students are able to apply effective skills in communication to exchange and sharing information in collaboration to develop biotechnology; develop leadership, teamwork and soft skills for employment and promotion; construct life-long learning as a personal skill and consciousness and integrate study and research in daily work to be ready for national and international research collaboration; and protect and improve personal health, fulfill civic responsibility, abide by the laws, be insightful on contemporary political and social issues, and contribute to sustainable development of the biotechnology area, the environment, and the society***

***- Assessment of student achievement of ELOs* 7, 8 and 9**

+ Students should know the standard structure of and be able to communicate effectively in different written and oral formats (research articles, research report for a client related to biotechnology, short internal memorandum, newsletter article designed for a wider audience), effective oral presentation of research or extension reports in both academic and non-academic settings (research seminars, executive briefings, and internal training).
+ Evaluation and timely feedback from instructors in courses where written requirements is compulsory (such written requirements help synthesize topics taught in class)
+ Evaluation and feedback by students' thesis and oral presentation skills by the student's thesis.
+ Successful completion of undergraduate's thesis in student's area of interest.
+ Evidence of successful presentations made in courses

- Roles of the program in helping students to achieve ELOs 7, 8 and 9

+ Instruct students to write research briefs in memorandum format as a part of written assignments in undergraduate courses.
+ Encourage and facilitate students to present their research or give training to other students (both in class and outside the classroom); lecturers provide feedback on good and weak presentation skills.
+ Encourage lecturers to use high standards of communication skills (both oral and written English).
+ Regularly review and evaluate course content to ensure courses offered and syllabi are aligned with student learning goals.
+ Organize seminars by invited lecturers from MSU and other institutions and industries so that students can update biotechnology knowledge and familiar themselves with different communication and presentation skills, and can also improve their English. (*Exh.2.11: lich làm việc của các chuyên gia mời giảng CTTT)*
+ Encourage students to attend seminars hosted by BiRDI each month/semester

+ Regularly review assessment tools through a continuous feedback mechanism, such as an exit survey, to ensure that program goals and processes in place to achieve them are regularly reviewed and adjusted as needed *(Exh.2.12:_Van ban dieu chinh CTDT).*

2.3. The specification program provides information for stakeholders (authorities, lecturers, students, employers):

To help stakeholders understand more about the Advanced Biotechnology program, and, especially, to provide students with the direction of majors choices and learning process, BiRDI has introduced the necessary information such as the target of specific training, professional skills, the general information of courses, the opportunities for future career and continuing to study at postgraduate level etc. on the website of CTU (www.ctu.edu.vn) (*Exh.2.13: websites CTU & BiRDI*).

The specification program of Advanced Biotechnology provides the information on ELOs to achieve at the end of the program. Students will be awarded the Bachelor's degree of Advanced Biotechnology and the Certificate if they fulfill these ELOs. The program specification also provides kinds of job that students can perform after graduating. Students will be able to work in government institutions related to biotechnology policy making, the institutes of biotechnology research, biotechnology enterprises or firms, commercial services related to biotechnology sector, and especially study abroad.

The purpose of the program specification is to enable students to self- study and to update themselves with current knowledge. Students are trained to work in group and propose new ideas. These skills are very necessary for them to succeed in the future jobs.

From the points discussed above, the program specification for the Advanced Biotechnology contains strengths as well as weaknesses and there are actions to be taken to improve the quality of the program. In particular:

3. Program Structure and Content

The background of the program:

The project known as "Advanced training programs at several universities in Viet Nam between 2008-2015" was developed based on Decision No. 1505/QD -TTg approved by Vietnamese Prime Minister on October 15th, 2008.

The objectives of the project are as following:

+ To implement a number of under-graduated advanced programs in order to facilitate the construction and development of a number of strong majors, faculties, and universities in accordance with qualified regional and international standards;
+ To improve the quality and implement basically and comprehensively innovative programs for under-graduated education in Vietnam;
+ By 2020, there will be some Vietnamese universities ranked among the top 200 universities in the world.

Since then, the Advanced Biotechnology program has been built based on Document No. 300/BGD&ĐT-ĐH&SĐH issued by the MOET on January 12, 2006 (to guide how to deploy advanced programs), and Document No. 6666/QD-BGD-DT issued by the MOET on November 23, 2005 (on allocating the mission to deploy advanced programs for CTU).

The program development process:

Based on the above-mentioned documents by the MOET, the Rector of CTU signed a decision to establish the Executive Committee of undergraduate biotechnology advanced program. The Committee reviewed biotechnology programs of some famous universities in the world such as RMIT (Australia), Michigan State University (the U.S.A.), and Wageningen University (the Netherlands). The Committee finally selected the Biochemistry & Molecular Biology/Biotechnology program of the MSU for benchmarking of the new program in CTU since MSU is a high ranking university (ranked 154 in the United States and ranked 171 in the world (http://www.topuniversities.com/qs-world-university-rankings); These strong partnerships with CTU offer quite a few opportunities for academic and faculty exchange. This Advanced Biotechnology program is also modified to be appropriate in the Vietnamese education system and the relevant Vietnamese labor market.

3.1. The program content shows a good balance between generic and specialized skills and knowledge

The program was constructed based on the program frame of the MOET and met the requirements by the credit-based training system. In fact, the total number of courses is 64; the total number of credits is **151** (133 credits for major courses, 18 credits for political, physical and defense education courses). **132** credits are obligatory (including **10** credits of graduation thesis), and **19** credits are elective.

This flexible program helps students in self-learning and planning their study time on their own. In the training program, the general knowledge consists of **56** credits (20 courses) taking place in the first two semesters and accounting for 37% of the program; the foundation knowledge consists of **55** credits (23 courses) accounting for 32.5% of the program, and the professional knowledge consists of **40** credits (13 courses and the graduation thesis) accounting for 30% of the program. These 2 blocks of knowledge are offered within the next 6 semesters.

The program consists of activities to formulate among the students practical and soft skills. As biotechnology requires a great deal of laboratory skills, most of the courses are offered with essential lab work. Besides, the students are additionally trained with an intensive English course for the whole first semester equivalent to **20** credits. The details of these knowledge blocks and skills are illustrated in **Table 4 (Criterion 2)**

a. Orientation Course and Personal Effectiveness

The students are required to register for the 2-credit course named as *Introduction to Biotechnology* at the beginning of the program and *Basic Biotechnology* later. These courses provide baseline information and concepts of biotechnology, relevant sciences, its history and applications in various fields, as well as potentials for career development. In addition, continual consultation is provided to the students thanks to academic seminars and Guideline for Biotechnology students *(Exh.3.01: Guideline for Biotechnology students)* for the freshmen and efforts made by academic advisors or invited lecturers in various seminars. (*See Figure 7: Flow-chat of Studying & Table 10: Recommended Study Plan in Criterion 2)*

There are a number of courses that help improve personal effectiveness and set potentials for career development such as scientific approaches (*Research Methodology*) and practical approaches (*Field trip & Practical Training* in industries). In addition, with the aim to enhance communication skills among the students, there are 5 courses related to biotechnology-related seminars by the students themselves, where lecturers play the role of supervisors to help students improve self-study capacity and potentials for career development. Moreover, the development of effective language communication skills among students is possible thanks to *Academic English* 1, 2 and 3. These skills are enhanced thanks to seminar activities or technical reports that students must complete during the courses and wrapped up in the capstone projects or graduation theses defense.

b. English, Social Sciences and Humanities Courses

- English courses: in the 1st and 2nd semester, students have to attend *Intensive English* course (20 credits) offered by invited native English lecturers. Moreover, students are required to complete 3 courses namely *Academic English 1* (3 credits), *Academic English 2* (3 credits) and *Academic English 3* (3 credits). Therefore, the graduates from the program are excellent in English in addition to very good knowledge of biotechnology, which is key strength of the program and allows the graduates to study overseas or work in international contexts.
- Social sciences and Humanities courses include *Research Methodology* (3 credits), *Writing in Science & Technology* (3 credits). In addition, skills related to oral presentations and/or writing reports are required in most of the courses, helping students develop and improve inclusive personal communication skills. Among 151 credits of the whole program, 10 credits are allocated for social-political courses (i.e. *Revolutionary approaches of the Vietnamese Communist Party*, *Ho Chi Minh's Thoughts* and *Principles of Marxism 1&2*) and 2 credits for *Physical Education.* These courses cover key social and humanities issues.

Besides, the students from BiRDI join in social activities organized by CTU such as Green Summer campaign for community development activities in remote areas, various contests, the Social Housing Building program, blood donor campaigns and teaching English for poor children. These activities attract active participation by the students. All of these extracurricular activities play an important role in developing personality, skills, spirit, morality, and lifestyle among the students. This makes sure the graduates become good citizens in terms of talent and ethical values as well.

3.2. The content reflects the vision and missions of Can Tho University:

The Advanced Biotechnology program is appropriate and linked to the mission and general objectives of the university.

The objectives of the Advanced Biotechnology Program are as following:

i) Help the students construct generic and biotechnology-specialized knowledge to work effectively in state-owned and private-owned industries
ii) Root ethnical motivation among the students
iii) Formulate English capacity among the students to help them work effectively in a global biotechnology context
iv) Nurture lifelong learning among the students to help them maintain and enhance their professional knowledge and skills and be able to adapt to changes
v) Generate high quality human resources for academic and research activities in the field of biotechnology in the MDR

As a result, the program will operate all its resources to support the students in constructing basic and professional knowledge related to biotechnology, formulate necessary blocks of knowledge and skills among the students to help them apply theory into practices, build up work skills and communiation skills, develop personalities, follow professional and social ethiccal values, and protect their health. The students are also supported by the program to perform English effectivley in communication, presentations, research and further education activities overseas. Thereby, the program clearly reflects the vision and mission of Can Tho University.

3.3. The contribution made by each course to achieving the learning outcomes is clear.

The Advanced Biotechnology program is designed on the credit-based training system which arranges courses in regular semesters and summer semesters, and offers 3 major blocks of knowledge. The prerequisite courses ensure students possess enough necessary knowledge for advanced courses; the diversified elective courses ensure the continuity and guide students to the knowledge and graduate thesis in biotechnology. The courses of military training, physical education, foreign language are regarded as the conditional courses only, which help create flexibility for the students. All of these courses have general and specific objectives, are reasonably structured and systematically designed according to the program frame of the MOET and to address practical professional needs of the labor markets. Each course is evaluated in terms of the course's quality and ELOs so that achieving the goals of each course reflects meeting the relevant ELOs. **Table 11** shows the relationships of the courses and the program outcomes of the Advanced Biotechnology program.

Table 11. Matrix courses vs. learning outcomes (Skill matrix)

Knowledge Blocks		No	Courses		# credit	1	2	3	4	5	6	7	8	9
General knowledge (compulsory) (48 credits)	**Political Education**	1	ML009	Principles of Marxist-Leninism 1	3	H	N	N	N	N	N	S	N	H
		2	ML010	Principles of Marxist-Leninism 2	3	H	N	N	N	N	N	S	N	H
		3	ML115	History of Vietnamese Communist Party	2	H	N	N	N	N	N	S	N	H
		4	ML144	Ho Chi Minh's Ideology	2	H	N	N	N	N	N	S	N	H
	English	5	EN101	Advanced English I	3	H	S	S	S	S	S	H	H	S
		6	EN102	Advanced English II	3	H	S	S	S	S	S	H	H	S
		7	EN103	Writing: Sciences & Technology	3	H	S	S	S	S	S	H	H	S
	Natural Sciences	8	CS101	Basic informatics	1	H	S	S	H	H	H	S	S	S
		9	CS201	Basic informatics	2	H	S	H	H	H	H	S	S	S

	& Maths			Lab.										
		10	BS110	Cells and Molecules	3	S	H	S	S	N	S	S	S	S
		11	BS161	Cells and Molecules Lab.I	1	N	S	S	H	S	H	S	S	S
		12	MT132	Calculus I & II	6	H	S	N	S	N	S	N	S	N
		13	PH183	Physics for Scientists and Engineers I	4	H	S	S	S	N	S	S	S	N
		14	PH184	Physics for Scientists and Engineers II	4	H	S	S	S	N	S	S	S	N
		15	CH141	General Chemistry I	3	H	S	S	S	N	S	S	S	S
		16	CH161	General Chemistry Lab I	1	H	S	H	H	S	S	H	S	N
		17	CH142	General Chemistry II	3	H	S	S	S	S	S	S	S	S
		18	CH162	General and Inorganic Chemistry Lab II	1	H	S	H	H	S	S	H	S	N
	General Education	19	QP001	Military training	6	H	N	N	N	N	N	H	N	H
		20	TC100	Physical training	2	H	N	N	N	N	S	S	S	H
Foundation knowledge	**Basic** *(compulsory) (32 credits)*	21	ZO341	Fundamental Genetic	4	H	H	S	S	N	S	S	S	N
		22	MI301	Introductory Microbiology	3	H	H	S	S	S	S	S	S	N
		23	MI302	Introductory Microbiology Lab	1	H	H	H	H	S	S	H	S	N
		24	BS111	Organism and Populations II	3	H	H	S	S	S	S	S	S	N
		25	BS162	Organism and Population Lab II	1	H	H	H	H	S	S	H	S	N
		26	CH351	Organic Chemistry I	3	H	H	S	S	S	S	S	N	N
		27	CH352	Organic Chemistry II	3	H	H	S	S	S	S	S	S	N
		28	CH355	Organic Chemistry Laboratory	2	H	H	S	S	S	S	S	N	N
		29	BC461	Biochemistry I	3	S	H	H	S	S	S	S	S	S
		30	BC471	Biochemistry Laboratory I	2	S	H	H	S	S	S	H	S	N
		31	BC462	Biochemistry II	3	S	H	H	S	N	S			
		32	BC472	Biochemistry Laboratory II	2	S	H	H	H	S	S	S	S	N
	Advanced (*Compulsory courses) (19 credits)*	33	BT100	Guideline in Biotechnology	0	S	S	S	S	H	S	S	S	S
		34	CS464	Statistics for Biologists	3	H	N	S	H	H	S	S	S	N
		35	BT300	Research Methods	2	H	H	S	S	H	H	S	S	N
		36	BT197	Biotechnology Seminar I	1	S	H	S	S	H	S	H	S	S
		37	BT198	Biotechnology Seminar II	1	S	H	S	S	H	S	H	S	S
		38	BT199	Biotechnology	1	S	H	S	S	H	S	H	S	S

				Seminar III										
		39	BT298	Biotechnology Seminar IV	2	S	H	S	S	H	S	H	S	S
		40	BT299	Biotechnology Seminar V	2	S	H	S	S	H	S	H	S	S
		41	BT303	Bio-informatics	3	H	H	S	S	S	S	H	S	S
		42	BT200	Field trip	1	H	H	S	S	H	H	S	S	S
		43	BT480	Practical training in industry/ Biotech institutions	3	H	H	H	S	H	H	H	S	S
Professional major knowledge	**Required major courses** *(17 credits)*	44	BT201	Introduction Biotechnology	2	H	H	N	S	H	S	S	S	S
		45	MM445	Basic Biotechnology	4	H	H	N	S	H	S	S	S	S
		46	BB801	Molecular Biology	4	S	H	S	S	H	S	S	S	S
		47	BT301	Genomics and its application	4	S	H	S	S	H	S	S	S	S
		48	MM433	Microbial Genomics	3	S	H	S	S	H	S	S	S	S
	Elective major courses *(19/44 credits)*	49	BT305	Plant tissue culture	3	S	H	S	S	H	H	S	S	S
		50	BT306	Proteomics	4	S	H	S	S	H	H	S	S	S
		51	BT304	Food Fermentation	3	S	H	S	S	H	S	S	S	S
		52	CS441	Plant Breeding and Biotechnology	3	S	H	S	S	H	H	S	S	S
		53	SH058	Aquaculture Biotechnology	3	S	H	S	S	H	H	S	S	S
		54	ZO892	Biodiversity	2	S	H	N	N	H	S	S	S	S
		55	TT465	Plant physiology	3	S	H	S	S	H	S	S	S	S
		56	SH072	Animal physiology	3	S	H	S	S	H	S	S	S	S
		57	CB344	Food Biochemistry	3	S	H	S	S	H	S	S	S	S
		58	FS440	Food Microbiology	3	S	H	S	S	H	S	S	S	S
		59	MM413	Virology	3	S	H	S	S	H	S	S	S	S
		60	AN407	Food and Animal Toxicology	3	S	H	S	S	H	S	S	S	S
		61	HR486	Biotechnology in Agriculture: Applications and Ethical Issues	3	S	H	N	S	H	S	S	S	S
		62	BB856	Plant Molecular Biology	3	S	H	S	S	H	S	S	S	S
		63	BT302	Social and Economical Aspects of Biotechnology	2	S	H	S	S	H	S	S	S	S
Graduation Thesis		64	BT499	Graduation thesis	10	S	H	H	H	H	S	H	S	S

Note: H = Highly Supportive
S = Supportive
N = None

Each course has a program outline and references included: Course ID, course name, course structure, course prerequisite condition(s), short description, details of chapters and methods of assessment. *(Exh.3.02: Course Outlines)*

3.4. The program is coherent and all subjects and courses have been integrated.

The program is designed reasonably in relation to compulsory and elective courses. The elective courses are designed to direct students to a narrow specialization. The courses are integrated by defining the prerequisite courses required for a number of courses, especially the courses of specialized knowledge; the relevant content is integrated to strengthen the knowledge in the previous courses in the program.

The determination of prerequisite courses in the credit-based training system is necessary for a number of courses to regulate the order of accumulation of knowledge of students appropriately and strictly. The determination of the prerequisite course is always carefully considered, and it must not exceed 2 other previous courses for a course in order to avoid excessive bounds which create difficulties for students in registration courses.

3.5. The program shows breadth and depth

All courses related to general knowledge, foundation knowledge and specialized knowledge have general and specific objectives and reasonable structures.

The program design and construction focuses on both breadth and depth as well as the specialization of knowledge:

- **Breadth:** More than half of the curriculum (69.5%) is general and foundation education which accommodates students with basic knowledge in mathematics, informatics, and sciences (biology, chemistry, biochemistry, physic, fundamental genetics) and technological, social, political, and ethical constraints of global society. Therefore, graduates from BiRDI can apply broad knowledge of biotechnology to a diverse range of careers or pursue graduate education.

- **Depth:** The curriculum has core and elective courses in biotechnology, which provides students in-depth understanding of scientific principles, analysis and design skills to achieve success in the practice or in advanced study and research of biotechnology.

- **Professionalism:** The curriculum also prepares students for professional experiences and soft skills (communicational skills, critical thinking, and ability to work on multi-disciplinary teams), professional and ethical responsibility and the commitment to life-long learning in order to succeed in any working environment.

3.6. The program clearly shows the basic courses, intermediate courses, specialized courses and the final project, thesis or dissertation

The blocks of general, foundation and professional knowledge were designed and constructed through the specific steps for developing the program by the Committee of Science and Training of BiRDI who have expertise and studied abroad, the lecturers from MSU, and feedbacks from stakeholders. The program paid high attention to the balance of blocks of knowledge and the ELOs are transferred into the relevant blocks.

(1) General education (56 credits): General education consists of social science and humanity courses (Philosophy, Principle of Marxism, Ho Chi Minh's thought, History of Vietnamese Communist Party, and Defense training), Sciences (Biology, Chemistry, Mathematics, Physics) English and cognitive skill (critical thinking course). This block aims to provide students with social and political knowledge that helps them to become a good citizen.

(2) Foundation knowledge (49 credits) Core major/fundamental requirements are the required basic knowledge of biotechnology program. These requirements include many courses in basic biotechnology such as Fundamental genetic, Microbiology, Organism and Populations, Organic Chemistry, and Biochemistry. These courses are required before students are trained with the advanced fundamental knowledge.

(3) Advanced foundation knowledge (19 credits) advanced fundamental requirements are the required basic knowledge of biotechnology program. With these requirements, students are trained with professional skills for major such as bioinformatics, statistics, and scientific research to conduct experiment. Specially the biotechnology seminars (7 credits) will train students to search, process and

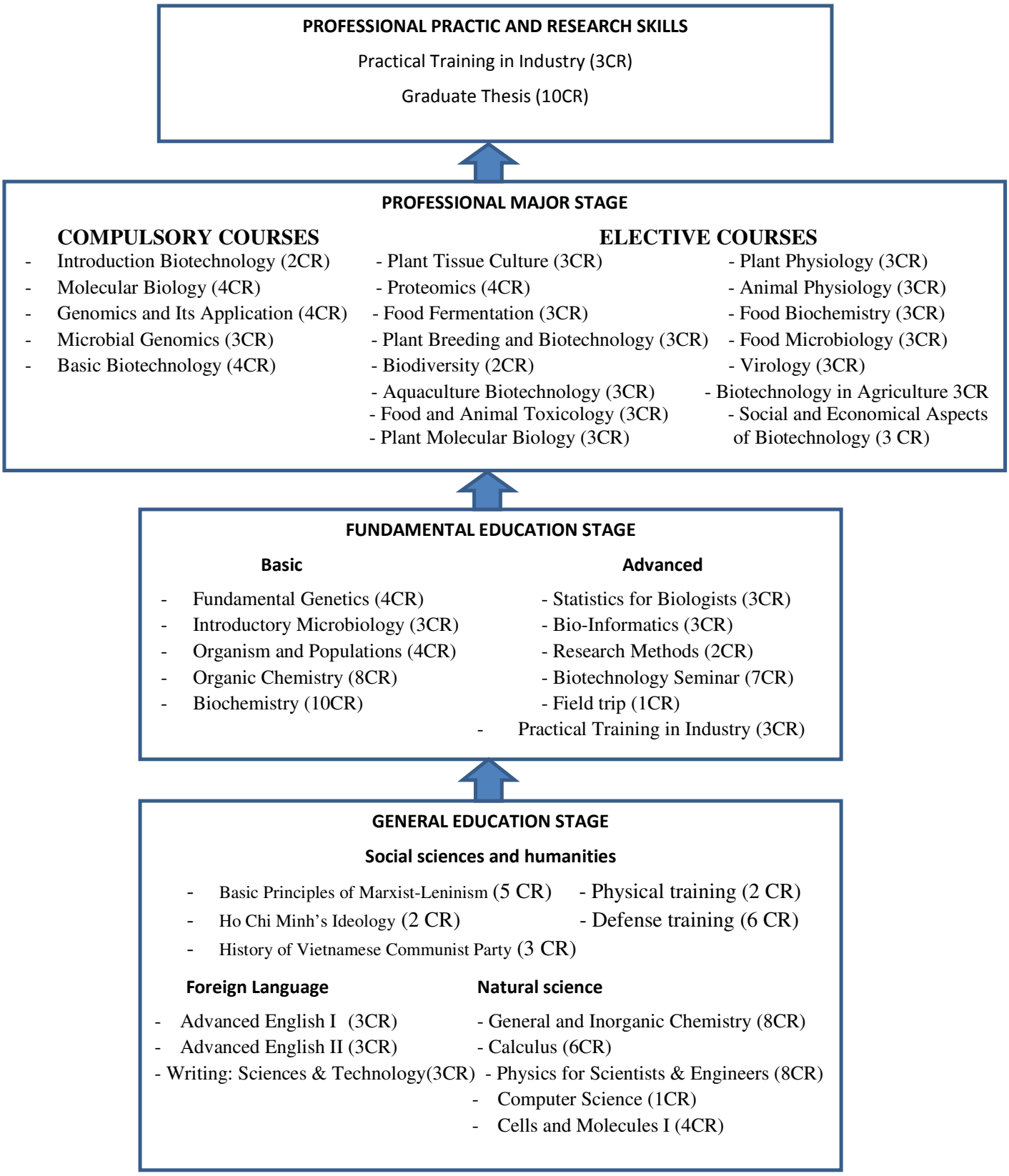
present knowledge of biotechnology which is very important for students to target their future career and plan for the thesis e.g. solving basic biotechnology problems.

(4) Professional major knowledge (36 credits): Once completed the fundamental knowledge, students will go to the professional major knowledge including 17 credits of core biotechnology**.** Specially, students have to select 19 in 44 elective credits (for intensive biotechnology, Plant Tissue Culture, Proteomic, Food Fermentation, Plant Breeding and Biotechnology, Biotechnology in Agriculture, Biodiversity, Plant Physiology, Animal Physiology, Food Biochemistry, Food Microbiology, Virology, Food and Animal Toxicology, Biotechnology in Agriculture, Plant Molecular Biology, Social and Economical Aspects of Biotechnology).

(5) Professional practice and research skills (13 credits): including Internship (Practical Training in Industry) (3 credits) and the thesis (10 credits). Internship is required before the final thesis. This is an opportunity for students to learn in professional practice and their first approach to industrial biotech institutions. Students have to work (internship) at their chosen institutions for at least 08 weeks and are supervised by the institutions. Students have to present the prefer topic of internship, letter of recommendation for student internship *(Exh.3.03: Thực tập cơ sở)*, the final result and report *(Exh.3.04: Bài báo cáo Thực tập cơ sở).* After completing the internship, students will receive comments from the institutions (*(Exh.3.05: Phiếu nhận xét của cơ sở thực tập*) and they have to present the internship results by PPT in English and answer lecturers' questions. Final marks will be combination of report presentation and the institution's comments. Besides doing the internship, students have ideas for their final thesis and intention for future career. The final thesis is required for graduation.

Furthermore, during the internship, students will form a research idea and review all related knowledge. Then, the idea will come up with solution by proved theory, software simulation or hardware implementation during the thesis. For thesis defense, some documents included are list of student attending thesis defense, decision of establishment of Students' Thesis Committee (*Exh.3.06: QĐ thành lập Hội đồng Luận văn TN*), Thesis Report, Students' thesis defense, questions and answers, and comments in English (*Exh.3.07: Biên bản Hội đồng LVTN*); there are defined Thesis procedure. Internship and the thesis occupy an important part of the whole curriculum, emphasizing an objective of Biotechnology program in encouraging and nurturing students' interest in doing research.

Figure 7: Flow-chat of Studying



3.7. The programme content is up-to-date.

a. The program development: on May 2006, an officer of BiRDI visited MSU in 2 weeks to meet with 20 professors for supporting to establish the program and invited the professors to consult and lecture advanced biotechnology program. MSU has appointed Professor Terrence Marsh as a coordinator for the Partnership Program to help CTU in building the program. Thus, CTU has launched the first version of the BA advanced Biotechnology program included 160 credits (135 credits + 25 supplement credits)

To ensure the complete program, CTU continued to hold meetings to complete the program at CTU (December, 2006) with the participation of all managers, teachers who will lecture the program, and 2 MSU professors: Prof. Terence L. Marsh and Prof. David Dewitt *(Exh.3.08: Biên bản hội thảo)*. The main content of the meeting was to discuss and collect constructive feedbacks to complete the program; presentations and discussions focused on a number of courses in the program which are more likely to be overlapped. As a result, the BA advanced biotechnology program was adjusted to 158 credits (133 credits + 25 additional supplement cresits)

The program was up-to-date during the implementation: Biotechnology program was operated from academic year 2006-2007 with 158 credits. From the academic year 2008-2009, the program was adjusted to 154 credit, since 2 political and 2 biochemistry practice credits were reduced due to long teaching time and overlapped content. The 154 credits program is showed on **Table 11. Matrix courses vs. learning outcomes.**

b. The program is evaluated by The Ministry of Education (MoET)and Training:

Biotechnology program is a target program evaluated by MoET (University Education Unit). Assessment of MoET covers all aspects of the program. The main points are: Deployment plans of advanced program; plans to implement lecturers, faculty and building for the program; Classrooms; Faculty workroom; Library; Program structure; learning material; Enrollment and teaching; training methods; assessment methods; Lecturer organization; Plan on visiting lecturers; plant to invite lecture from partner universities; plan on student scientific researchs; The training results of student courses; Difficulties, limitation, and suggestions.

The assessment results showed that Biotechnology program was deployed, operated and got good results. *(Exh.3.09: các Biên bản Kiểm tra đánh giá CT của Bộ)*

c. The updated program 2014-2015

With the purpose of evaluation and complete construction for training program that performs high-quality training as well as meet the requirements of society. Workshop is held in BiRDI to evaluate the program (01/3/2014).

The workshop have the participation and contribution of the stakeholders including training units, employers, alumni and current students of the program. All join discussions and contributions, as well as make changes to biotechnology training programs to meet the needs of society *(Exh.3.10: Biên bản Hội Thảo 2014)*. Feedbacks for the program can be listed in the following part:

Students of the program have good English abilities, strong professional skills, self-study, teamwork. However, students need to have knowledge related to: Management, Vietnamese, Documentary (optional); enhance practical knowledge. The program curriculum need to be deep and focuses on some specialized fields such as animal biotechnology, plant biotechnology, food biotechnology, in order ti adapt the requirements of the employers. The workshop invited some employers to present seminars to improve student's soft skills (employee skills), and profession orientation. Besides, the program needs to cooperate with company to select the appropriate research projects and thesis which contribute greatly to the future working companies.

Based mainly on the present biotechnology program the revised one have some changes such as adding 5 courses (10 Credits): General logictics, General document & archive, Medical biotechnology; Animal biotechnology; Food biotechnology; and adding 06 practical courses (6 credits): Physics for Scientists and Engineers Lab; Fundamental Genetic Lab; Statistics for Biologists Lab; Bio-informatic Lab; Plant tissue culture; and Proteomics Lab.

Implementation of the program

The program is implemented by the Institute of Biotechnology Research and Development (BiRDI) and monitored by the Office of Academic Affair (OAA) of CTU. Guidelines for the implementation of Biotechnology program are detailed in the Academic Regulations of the university *(Exh.3.11: Academic Regulations)*. All changes/revisions related to the program require offical approvals of the OAA, the University Committee for Education and Research and finally the Rector Board.

Basically, BiRDI is reponsible for (i) making teaching plan for each academic year, (ii) assigning teaching workload for full-time lecturers or visting lecturers, (iii) organizing schedule for lab-works, (iv) operating its laboratory system including the purchase of necessary chemicals/materials, (v) organizing exams, (vi) providing relevant academic services to students, and together with OAA ensure quality control.

The lecturers are responsible for the quality of their lectures, which should follow the approved syllabi are filed at both BiRDI and the OAA and should be make availlable on line by the responsible lecturers before the course starts. Based on the approved learning outcomes the lecturers can modife the syllabus (*Exh.3.12: Course syllabus*), but can only apply the new one with official approval of the BiRDI and the OAA.

4. Teaching and Learning Strategy

Biotechnology Research and Development Institute, Can Tho University has applied an appropriate teaching and learning strategy in order that students can absorb and apply the knowledge gained in school. Besides, students can have their own directions in studying for better results based on the vision of CTU and BiRDI (*Exh.4.01. Statute 43/2007 of the Ministry of Education and Training, Exh.4.02. Academic Regulations, Exh.4.03. Teaching plans, Exh.4.04. Lecturers's handbooks).*

4.1. The faculty or department has a clear teaching and learning strategy

Lecturers were well-trained in teaching methodology, preparing lecture notes and teaching plans before becoming teaching staff members of Advanced Biotechnology program.

BiRDI has diffused online the teaching and learning strategy including detail subject plans. All of subjects are provided to students based on the principle – learner center.

Every subject was described in detail in subject plans including theory and practical work. To evaluate the quality of students, there are mid-term exam (20-30% score), seminar (10-20% score) and final exam (60% score).

Lecturers have applied intensively the teaching methodologies. At the end of every semester, students receive an evaluation sheet of each subject learned and give their comments; and then the Quality Assurance and Testing Center analyses the information and sends the results to lecturers. Teaching and learning strategy of Advanced Program in Biotechnology meet the requirements of society and confirmed by employers's satisfying and the high ratio of students who have had jobs after graduation from BiRDI, CTU.

Lecturers have to follow the subject Teaching methodology for university program. *(Exh.4.05. Certificate on attending workshop on teaching and learning in university education).* Besides, lecturers also have attended short training on teaching methodology organized by Faculty of Education and Michigan State University (MSU) (*Exh.4.06. Certificate on attending the workshop "Developing curriculum and teaching for active and engaged learning).*

BiRDI support students good studying conditions through lecturing by professors, specialists from international universities such as Michigan, Yamaguchi, Korea *(Exh.4.07 Invitation letters for international professors and specialists)*. These professors and specialists give lectures on Biochemistry, Biology and specialized subjects such as Introductory Microbiology, Genome, and Fundamental Genetics.

The efficiency of Teaching and learning strategy is evaluated through the results of students while studying and finding jobs after graduation (*Exh.4.08. Survey of employers about the employees graduated from Advanced Biotechnology Program).*

4.2. The teaching and learning strategy enables students to acquire and use knowledge academically

Seminars and case studies in every subject help the students a lot for the knowledge and the applications later in practical work (*Exh.4.09. Seminar presentation of students, Exh.4.10. Study-case exercises).*

Information technology was applied in teaching such as lectures given by powerpoint slides, video clip. These techniques help the students understand easily especially the concepts and principles.

Every subject has the theory and practical work. The details of practical work help students understand more precisely than following the theory in class. *(Exh.4.11. powerpoint slides of lectures, Exh.4.12. video clip supporting for lectures, Exh.4.13. Decision on recognition scientific research carried out by students).*

4.3. The teaching and learning strategy is student oriented and stimulates quality learning

Teaching is carried out through solving the problems in case study and study tours to biotechnology factories, institutes…, enhance the students for opening minds in order to get high quality of studying (*Exh.4.14. List of students practising and training at working institutions)*.

One credit is needed for practical work and study tour to factories, companies, institutes. Students are provided the content of the study tour before the tour to biotechnology companies and factories such as Pharmaceutical fungi company (Linh Chi production factory), Spirulina production company (Vinh Hao). After the visiting, students have to report their activity in groups and the report is scored as a theory subject. The content of the practical work and the study tour provides practical knowledge to students that would be useful for them to manage the problem happened in real conditions *(Exh.4.13. Decision on recognition scientific research carried out by students, Exh.4.15. Student reports of the course Practical training in Industry).*

4.4. The teaching and learning strategy stimulates action learning and facilitates learning to learn

Teaching and learning strategy enhance the active learning through questions given at the end of every chapter of subject. Beside the learning program, seminars and research methodology help students increase their self-confident, presentation skill, interaction, discuss in group, increasing internet access, library. Students have had time for studying, discussing at home or at the practical in laboratory. Moreover, workshops and seminars are organized regularly for the upgrading knowledge of the students. Therefore, students of Advanced Program in Biotechnology are very active, creative and many papers were presented in English at International workshop (Workshop organized by USA Embassy and Ministry of Agriculture and Rural Development in CTU, Mekong Food workshop in CTU, Asian Core Program workshop (Ho chi Minh, 2010), Japan-Vietnam in HCM city (3/2013), "Developing a Biotechnology Industry: Preparing for the Molecular Age" organized by University of Queensland, Australia (7/2011) *(Exh.4.16. Student presentations in international workshop).*
In the program, Scientific researches are also emphasized. Final dissertations of students are supported by the Advanced Program in Biotechnology in order that their quality as good as the research funding for CTU staffs. The juniors and seniors of Advanced Program in Biotechnology are encouraged to carry out research (*Exh.4.17. List of scientific researches carried out by students*). The knowledge gained from these researches trains the students skills and experiences for their job after graduation.
Through the Scientific research, students could approach the research methodology, application of theory in practical work. Students are not only supported to do the research annually *(Exh.4.17. List of scientific researches carried out by students, Exh.4.18. Announcement on grants for students to do scientific research)* but also participate in contests organized in CTU *(Exh.4.19. Anouncement on contests organized by CTU*) or in local areas… Interestingly, Students from BiRDI always got high awards (Young biologist contest organized in HCM city 2010, High quality of Rice in An Giang 2008 and in Soc Trang 2009 (*Exh.4.20. Awards for contests).* Scientific researches help students participated confidently to the scientific contests and many students of the Advanced Program in Biotechnology got valuable national award such as KOVA prize *(Exh.4.21 KOVA prizes for students in Advanced Program in Biotechnology)* and got scholarships to USA during Summer exchange students (*Exh.4.22. Invitation letter for student exchange)*. Besides, students of Advanced Biotechnology program also had opportunities to go abroad by governmental fundings to do research or to do part of their final dissertation (*Exh.4.23. Document on funding for students to do research in international institutions)*

Sudents manage their time self-motivated in group discussion, preparation seminars, study tour reports as well as studying in library of CTU or BiRDI.

The results were evaluated in front of lecturer and friends.

Sudents have had double time for self- studying at home or in the library.

BIRDI and CTU encouraged students to do research annually. Through scientific research, specialized knowledge and lab skills of students are upgraded.

5. Students Assessment

5.1 Student assessment covers student entrance, student progress and exit tests

Student assessment is permanent activity including entrance assessment, learning progress and exit test assessment. All assessment activities is to help lecturers being aware of the quality of student learning progress. From that, under lecturer help, students will have correction for appropriate modification. The assessment process is done based on the Statute 43/2007 of Ministry of Education and Training (*Exh.05.01. Statute 43/2007 of Ministry of Education and Training about academic assessment*) as well as the Academic regulation of CTU (*Exh.05.02. Academic regulations of Can Tho University*). Test and examination are clearly assigned, criteria are applied in plan of distinct test and are consistent in whole program. All regulations are done by credit training regulations issued with Statute 43/2007 of Ministry of Education and Training dated 07/5/2007 *(Exh.05.03. Academic curriculums are shown on website:http://birdi.ctu.edu.vn/birdi_cttt/; Exh.05.04. Circular of Ministry of Education and Training about the undergraduate output standards).*

1). Students entrance assessment: Student entrance assessment is carried out through the National University Entrance Examination with the admission regulations of Ministry of Education and Training-MOET (www.ctu.edu.vn) for regular training mode, based on the *floor-grade* of the MOET and the *admission grade* of the university with suitable policies regarding various candidates. All candidates must pass block B entrance exam (Mathematics, Chemistry, Biology) or block A (Mathematics, Physics, Chemistry) and then pass the examination of English proficiency programs (TOEFL equivalent 450). The selection will be carried out according to the rules: students can reach admissions test scores and get the highest English score order from top to bottom until out of the quota *(Exh.05.05. Announcement on admission scores, Exh.05.06. Results of English test, Exh.05.07. Question booklet of English test).*

2) Student progress assessment: the progress of the students of knowledge, skills and attitudes through the learning process is evaluated regularly in many different forms such as classroom activities, group exercises, seminars, practice, practice, competition, final examination and graduation thesis. *(Exh.05.08. Course specification, Exh.05.09. Examination questions, Exh.05.10. Students' Assignments, Exh.05.11. Students' Seminar on specialized topic, Exh.05.12. Reports of practical course).*

3) Exit test: Students complete all coursework in program, they will carry out graduation thesis, defend their thesis in English in front of Scientific Committee. *(Exh.05.13. Bachelor Thesis (in Vietnamese), Exh.05.14. Detailed summary of Bachelor Thesis, Exh.05.15. Assessment of bachelor thesis, Exh.05.16. Decision on the establishment of Examination Committee to evaluate bachelor theses).*

5.2 The assessment is criterion-referenced.

1) Affirmation and dissemination of the criteria: lecturers have appropriate assessments for their respective courses based on the academic regulations and general evaluation criteria of university. All course specification will clearly state the expected learning outcomes and assessment criteria for subjects, as well as the proportion of grade. These factors are uniformly discussed in BiRDI and each lecturer will inform the students from the beginning courses, for example: mid-term exam will be 30%, case-study is 20% and final exam is 50%; and then final result is sum of all evaluation parts). *(Exh.5.08. Course specification)*

2). Postulating grade scales: In order to ensure the fidelity and evenness for students, grade scale is designed for eight levels so that it can be correctly reflected the amount and completely perceptional standard, knowledge vicinity level and skill of each student in each semester. Assessment result is expressed by 4.0-point scale corresponding to result such as A, B^+, B, C^+, C , D^+, D và F. *(Exh.5.02. Academic regulations of Can Tho University)*

Table 12: The classification of learning results based on grade scales.

Category	Reference 10-point scale	Official scales	
		Level	Grade

Excellent	From 8.5 to 10.0	Demonstrates complete understanding of course. All requirements of task are included in response.	A
Very Good	From 8.0 to below 8.5	Demonstrates considerable understanding of course. All requirements of task are included.	B+
Good	From 7.0 to below 8.0	Demonstrates considerable understanding of course. All requirements of task are included.	B
Average	From 6.5 to below 7.0	Demonstrates partial understanding of course. Most requirements of task are included.	C+
Fair	From 5.5 to below 6.5	Demonstrates partial understanding of course. Most requirements of task are included.	C
Poor	From 5.0 to below 5.5	Demonstrates little understanding of course. Many requirements of task are missing.	D+
Very poor	From 4.0 to below 5.0	Demonstrates little understanding of course. Many requirements of task are missing.	D
Fall	Below 4.0	Demonstrate no understanding of course.	F

5.3 Student assessment uses a variety of methods

(i) Assessing diligent level and knowledge development and skills of students are done through discussions, the students reports related to practical result, homework, reports after ending courses, topic reports, project reports or project group (seminar). Finally, there are mid-term and final examinations. *(Exh.05.09. Examination questions, Exh.5.10. Students' Assignments).*
(ii) Assessment of soft skills and behavioral attitudes of students is done when students participate in extracurricular activities, social work, work organization, ... and the result is the score, combined with the learning outcomes as a basis to review and provide scholarships for students. *(Exh.5.17. Decision on promulgating about extracurricular activities assessment form).*

(iii) Students' progress is expressed through the results in each semester, each academic year and whole program. This result is presented in academic transcript. *(Exh.5.18. Academic transcript).* The retribution of students also based on the results so ensuring the righteousness and following conformation of general regulation is necessary. *(Exh.5.02. Academic regulations of Can Tho University).*

c. Final training course assessment/graduation of students is done through completing courses including graduation thesis. Each student carries out one experiment for his/her thesis (equal to ten credits) being suitable for discipline that he/she follows. Doing graduation thesis involves two steps: (i) student has to defend the thesis proposal in front of scientific committee of Institute. After defending, students have to correct some defects based on the committee's contribution, and will be approved by BiRDI. *(Exh.5.08. Course specification).* (ii) students have to defend their thesis before the scientific committee. The scientific committee involves three members in which there is one member being supervisor. The result of thesis assessment is combined by all score sheet's members. Students have to submit the completed thesis (in Vietnamese) based on the comment of committee and detailed summary (in English) to Institute. Students must submit completed thesis (written in Vietnamese) and detailed summary (written in English) based on the contribution of the committee's members. *(Exh.5.03. http://birdi.ctu.edu.vn/birdi, Exh.5.13. Bachelor Thesis (in Vietnamese), Exh.5.14. Detailed summary of Bachelor Thesis, Exh.5.15. Assessment of bachelor thesis, Exh.5.16. Decision on the establishment of Examination Committee to evaluate bachelor theses, Exh.5.19. Website of academic administration system: https://htql.ctu.edu.vn/htql/login.php)*

The examinations of students are announced at the beginning of semester so that students know the forms, time and grading manner for mid-term and final exam. *(Exh.5.08. Course specification).*

Students know the result of examination through two ways: (i) getting directly from lecturer, and (ii) accessing to their online accounts. *(Exh.5.19. Website of academic administration system: https://htql.ctu.edu.vn/htql/login.php).*

The reclaimation of result is done following the reclaimation procedure issued by CTU. At the end of course, lecturer is responsible for announcing time, place for giving back examination and also resolves query of students. This task is done in week for resolving exam result of institute. (*Exh.5.20. complaints procedure of the test results; Exh.05.02. Academic regulations of Can Tho University).* Students have the right to complain or find out why his results unsolicited by direct contacting with lecturer. Student can meet and discuss with lecturer. Lecturer will explain in detail the points that student reclaim. After meeting with lecturer, most students are satisfied with their results. (*Exh.5.02. Academic regulations of Can Tho University*).

5.4 Student assessment reflects the expected learning outcomes and the content of the program

The assessment is done to ensure students achieve the minimum knowledge of curriculum as general education knowledge, fundamental knowledge and specialized knowledge to afford students work after graduation. For each course of the program, there are appropriate assessment methods. For example, midterm and a final exam questions are compiled in order to ensure that students master the basic principles of course, and case-study questions help students solve practical problems through theoretical part in class. *(Exh.05.09. Examination questions)*

5.5 The criteria for assessment are explicit and well-known

Teachers who teach the same subjects have discussed to build up the objectives of their courses based on the expected learning outcomes of the program. The objectives of each course are transferred to criteria to assess students' achievement in the courses *(Exh.5.08. Course specification*). In general, the criteria for assessment are used to assess students' level through six major categories of cognitive domains: remember, understand, apply, analyze, evaluate and create (Benjamin Bloom, 1981; Anderson & Krathwohl, 2001) (*Exh.5.09. Examination questions; Exh.5.11. Students' Seminar on specialized topic).*

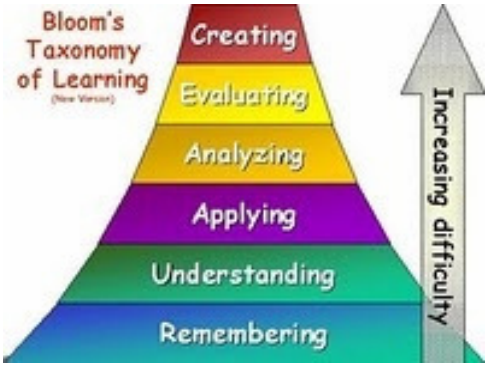


Figure 8: Categories in the cognitive domain of Bloom's Taxonomy

Students' assessment is made through classroom communication, seminar, team work, assignments, laboratories activities, exams (mid-term and final), students' project and graduation theses.

The aims of assessment are as the followings:

(i) Seminar presentation (group/individual) is to assess the knowledge, presentation skills, communication skills and discussion skills of students;

(ii) Situational questions are to help students learn how to apply the theory to solve practical problems;

(iii) Mid-term and final examinations are to assess the specialized knowledge of students after completing a course (*Exh.5.08. Course specification*). The final scores are informed to all students so that they can appeal (if any) before the data are uploaded onto the academic management system at the end of the semester.

In the first class of a course, lecturers inform the assessment methods, requirements and criteria to the students. The assessment methods, requirements and criteria are also described in the course specification. (*Exh.5.08. Course specification*).

5.6 The assessment methods cover the objectives of the curriculum

Questions in the mid-term and final examination cover the content and objectives of each course. The coverage ranges are between 80-95%, configured by the institute. All of the lecturers strictly follow this rule when designing the exam questions. (*Exh.5.09. Examination questions*).

5.7 The standards applied in the assessment are explicit and consistent

* All courses have obvious assessment criteria and assessment scale which are described in the Student Handbook and informed to students by lecturers in the first class of each course *(Exh.5.21. Student handbook, Exh.5.02. Academic regulations of Can Tho University).*
* According to CTU's academic regulations, after the final test of each course, lecturers inform in public the results. Students have the right to complain to the lecturers about their results (if any), or even complain to CTU if necessary (*Exh.5.02. Academic regulations of Can Tho University*).

6. Staff Quality

6.1. The staff are competent for their tasks

The faculty members (including visiting lecturers) have been appointed based on the following criteria:

- Possessing an MS or a higher degree in a field being relevant to the course(s), having adequate English proficiency.
- The priority is given to who study MS or higher degree in English (*Exh.6.01.Curriculum vitae of the staff members)*
- Having teaching and research experiences,
- Being able to apply high technologies used in teaching and research
- Possessing a Informatics degree at level A.

6.2. The staff are sufficient to deliver the curriculum adequately

Most of the lecturers have been teaching courses being relevant to Biotechnology for several years so they have valuable teaching experiences. The total number of the staff members is 53 in which 33 are lecturers of CTU (9 Assoc. Profs, 12 PhD, and 12 MS) and 20 are visiting lecturers (16 Profs, 1 Assoc. Prof., and 3 PhD) (Table ....). *(Exh.6.02.Teaching plan of the advanced program in Biotechnology 2006-2013, Exh.6.03.Plan of visiting lecturers invitation 2008-2014)*

Table 13: List of the CTU lecturers teaching in the Advanced program in Biotechnology

No.	Full Name	Title/Degree	Degree confered by	Age	Years of teaching	Number of publications	Position
1.	Tran Nhan Dung	Assoc. Professor	Belgium	58	20	37	Director
2.	Ngo Thi Phuong Dung	Assoc. Professor	The Netherlands	55	31	52 1 book	Deputy Director
3.	Nguyen Van Thành	Assoc. Professor	The Netherlands	49	17	10 4 books	Deputy Director
4.	Truong Trong Ngon	Assoc. Professor	Korea	57	32	15	Head of Departemnt
5.	Nguyen Huu Hiep	Assoc. Professor	Vietnam	59	36	77 2 books	Deputy Head of Departemnt
6.	Le Van Be	Assoc. Professor	Belgium	52	30	7 1 book	Lecturer
7.	Duong Ngoc Thanh	Assoc. Professor	Philippines	58	33	55 7 books, 5 textbooks	Senior Lecturer

8.	Duong Hieu Dau	Assoc. Professor	??	50	24	??	Lecturer
9.	Bui Thi Buu Hue	Assoc. Professor	Netherlands	48	25	22 2 books	Lecturer
10.	Nguyen Dac Khoa	PhD	Denmark	36	4	14	Deputy Head of Departemnt
11.	Nguyen Huu Khanh	PhD	??	??	??	??	Lecturer
12.	Le Thanh Phuoc	PhD	Australia	51	29	2	Lecturer
13.	Ngo Thanh Phong	PhD	Vietnam	??	??	??	Lecturer
14.	Chau Thien Hiep	PhD	US	??	??	??	Lecturer
15.	Bui Thi Minh Dieu	PhD	Belgium	53	31	11	Lecturer
16.	Duong Thi Huong Giang	PhD	Belgium	56	17	16	Lecturer
17.	Ly Thi Lien Khai	PhD	Japan	53	28	20	Lecturer
18.	Pham Vu Nhat	PhD	Belgium	36	13	11 1 book	Lecturer
19.	Nguyen Cong Ha	PhD	Japan	40	16	12	Lecturer
20.	Huynh Ngoc Thanh Tam	PhD	France	35	4	2	Lecturer
21.	Le Vinh Thuc	PhD	Malaysia	38	4	12 2 books	Lecturer
22.	Pham Van Hau	MS	France	34	4	3	Lecturer
23.	Nguyen Thi Pha	MS	Vietnam	40	17	7 1 book	Lecturer
24.	Vo Van Song Toan	MS	Vietnam	41	6	10	Lecturer
25.	Huynh Xuan Phong	MS	Vietnam	33	7	24 3 books	Lecturer
26.	Bui Tan Anh	MS	The Netherlands	56	32	06 2 books	Lecturer
27.	Ho Phuong Thuy	MS	Australia	42	21	3 books	Lecturer
28.	Nguyen Van Dat	MS	Vietnam	43	19	6	Lecturer
29.	Tran Thi Xuan Mai	MS	Belgium	51	24	9	Lecturer
30.	Nguyen Hai Quan	MS	??	??	??	??	Lecturer
31.	Do Tan Khang	MS	Australia	31	2	10 2 books	Lecturer
32.	Bui Minh Chau	MS	??	??	??	??	Lecturer
33.	Duong Thi Phi Oanh	MS	??	??	??	??	Lecturer

Table 14: List of the visiting lecturers

No.	Full name	Title/Degree	Institution	Country	E-mail address
1.	Barbara Sears	Professor	Michigan State University (MSU)	US	sears@msu.edu
2.	Jon R. Stoltzfus	Professor	Michigan State University	US	stoltzfu@msu.edu

			(MSU)		
3.	Helmut Bertrand	Professor	Michigan State University (MSU)	US	mhelmut@msu.edu
4.	John Merrill	Professor	Michigan State University (MSU)	US	merrill3@msu.edu
5.	Terrence L. Marsh	Professor	Department of Microbiology and Molecular Genetics Michigan State University (MSU)	US	marsht@msu.edu
6.	Yong D. Hang	Professor	Cornell University	US	ydh1@cornell.edu
7.	Graham H. Fleet	Professor	The University of New South Wales (UNSW)	Australia	g.fleet@unsw.edu.au
8.	Eddy Van Driessche	Professor	Universiteit Brussel	Belgium	edvandri@vub.ac.be
9.	Sonia Beeckmans	Professor	Vrije Universiteit Brussel (VUB)	Belgium	sbeckma@vub.ac.be
10.	Geert Dirk Joris Angenon	Professor	Vrije Universiteit Brussel (VUB)	Belgium	geert.Angenon@vub.ac.be
11.	Godelieve Gheysen	Professor	Ghent University	Belgium	godelieve.Gheysen@ugent.be
12.	Just M. Vlak	Professor	Wageningen University	The Netherlands	just.vlak@wur.nl
13.	Wolfgang Schumann	Professor	University of Bayreuth	Germany	wschumann@uni-bayreuth.de
14.	Mogens Jakobsen	Professor	University of Copenhagen	Denmark	moj@life.ku.dk
15.	Chin Ho Lin	Professor	National Chung Hsing University	Taiwan	chinho@dragon.nchu.edu.tw
16.	Kaeko Kamei	Professor	Kyoto Institute of Technology	Japan	kame@kit.ac.jp
17.	M. J. Robert Nout	Assoc. Professor	Wageningen University	The Netherlands	rob.Nout@wur.nl
18.	Suk-Ha Lee	PhD	Seoul National University	Korea	sukhalee@snu.ac.kr
19.	Michele Fluck	PhD	Michigan State University (MSU)	US	fluck@msu.edu
20.	Kathleen M. Foley	PhD	Michigan State University (MSU)	US	kathleenfoleygeiger@yahoo.com

Table 15: Number of the staff members *(Updated on 30 Mar. 2014)*

Classification	Male	Female	Total		PhD holders
			People	(FTEs)	
Assoc. Professor	7	2	9	9	(9/9) 100 %
CTU lecturers	16	9	25	25	(12/25) 48 %
Visiting lectures	16	4	20	4	(20/20) 100 %
Total	38	13	51	38	(41/51) 80%

Students studying the Advanced program in Biotechnology take the core courses taught by the lecturers from the respective units within CTU, i.e., Department of Physical Education, Center of National Defense Education, and School of Political Science.

Table 16: The ratio between students and lecturers from 2009-2013

	2009	2010	2011	2012	2013
Permanent lecturers	18	20	24	22	22
Visiting lecturers	11	8	5	6	2
Number of students	129	156	155	163	195
Students/permanent lecturers	7.2	7.8	6.5	7.4	8.7
Students/permanent and visiting lecturers	4.5	5.6	5.3	5.8	8.1

6.3. Recruitment and promotion are based on academic merit system

Choosing lecturers is based on lecturers' competence in teaching and doing research. However, research assistants and high distinct students are also considered to be appointed if they are qualified *(Exh.6.04.Job announcement of BiRDI)*. The promotion of lecturers is based on the good performance in teaching and doing research, as well as the supporting and the relationship offered toward students and colleagues *(Exh.6.05.Regulation of organization and administration on academic affairs, improvement of staff standard in CTU, Exh.6.06.Plan on judging salary increase and seniority subsidization exceeding the 2010 regulation frame, Exh.6.07.Plan on judging salary increase and seniority subsidization exceeding the 2011 regulation frame, Exh.6.08.Plan on judging salary increase and seniority subsidization exceeding the 2012 regulation frame Exh.6.09.Plan on judging salary increase and seniority subsidization exceeding the 2013 regulation frame, Exh.6.10.Minutes of Committee on judging salary increase in 2010, Exh.6.11.Minutes of Committee on judging salary increase in 2011, Exh.6.12.Minutes of Committee on judging salary increase in 2012, Exh.6.13.Minutes of Committee on judging salary increase in 2013, Exh.6.14.Decision on salary increase in 2010, Exh.6.15.Decision on salary increase in 2011, Exh.6.16.Decision on salary increase in 2012, Exh.6.17.Decision on salary increase in 2013)*

6.4. The roles and relationship of staff members are well defined and understood

Teaching and research experiences are conveyed from senior to junior staffs. Duties/responsibilities of staff members are clearly assigned by the Director to ensure that all tasks within the Institute are covered and smoothly operated. The tasks assignment is informed to all staff through the weekly meeting, the annual staff congress, and/or official documents delivered from the BiRDI leaders *(Exh.6.18.Statue of administration on specialized task of staff in CTU – 26/10/2010, Exh.6.19.Statue of administration on specialized task of staff in CTU – 31/12/2013);* thus, staff members could fulfill their duties/responsibilities with distinction. An annual report has to be made by staff members to submit to the BiRDI leaders for competent evaluation and promotion *(Exh.6.20.Emulative registration form – 2010, Exh.6.21.Emulative registration form – 2011, Exh.6.22.Emulative registration form – 2012, Exh.6.23.Emulative registration form – 2013, Exh.6.24.Emulative registration form – 2014).*
Depending on the specialization and ability of each staff member, the Director assigns the duties of member appropriately, making sure that every assignment is transparent - everyone is equally treated

so that high consensus and co-operation could be established within the Institute *(Exh.6.25.Staff Evaluation form, Exh.6.26.Plan on conducting staff evaluation and judging for emulation and sanction -2010, Exh.6.27.Plan on conducting staff evaluation and judging for emulation and sanction -2011, Exh.6.28.Plan on conducting staff evaluation and judging for emulation and sanction -2012, Exh.6.29.Plan on conducting staff evaluation and judging for emulation and sanction -2013, Exh.6.30.Minutes of Committee on judging for emulation and sanction – 2010, Exh.6.31.Minutes of Committee on judging for emulation and sanction – 2011, Exh.6.32.Minutes of Committee on judging for emulation and sanction – 2012, Exh.6.33.Minutes of Committee on judging for emulation and sanction – 2013)*.

Table 17: The responsibilities of each position within BiRDI

No.	Position	Responsibilities
1	Director and Deputy Director	Assign tasks and monitor all activities within BiRDI Plan and develop missions and visions Teach and do research Apply for grants
2	Lecturer	Teach and do research Supervise students' theses
3	Researcher	Do research Guide practical courses Supervise students' theses
4	Laboratory manager	Manage the lab and its devices Assist teaching and research activties
5	Administrative staff	Assist the BiRDI Leaders, all staffs, and students in administrative works

6.5. Duties allocated are appropriate to qualifications, experience and skill

Educational backgrounds, working experiences, and personal skills of the staff members are the major criteria for task assignment. However, consider could be taken by the BiRDI Scientific Council if a lecturer wishes to select a course which is not closely related to his/her background, the Scientific Council of BiRDI will consider and admit after lecturer pass the exam of Scientific Council with grade A *(Exh.6.30.Minutes of Committee on judging for emulation and sanction – 2010, Exh.6.31.Minutes of Committee on judging for emulation and sanction – 2011, Exh.6.32.Minutes of Committee on judging for emulation and sanction – 2012, Exh.6.33.Minutes of Committee on judging for emulation and sanction – 2013, Exh.6.34.Staff development plan for 2008-2015, Exh.6.35.Staff development plan for 2013-2022, Exh.6.36.Plan on implementation of the appointment, reappointment for the leaders in the new term, Exh.6.37. Decision on promulgating the process to appoint, reappoint the leaders at all levels within the authority of CTU)*. Each lecturer has to complete a certain obligatory working hours regulated in the "Regulations on management of professional works for lecturers of Can Tho University" *(Exh.6.18.Statue of administration on specialized task of staff in CTU – 26/10/2010, Exh.6.19.Statue of administration on specialized task of staff in CTU – 31/12/2013)*. The obligatory working hours are set upon the classification in terms of scientific title/ degree, and specification of each lecturer (Table 13). Every lecturer has to allocate time for both teaching and research activities. The higher scientific title/degree, the more obligatory working hours that lecturer has to fulfill.

Table 18: Obligatory working hours of lecturers at Can Tho University

Classification of lecturer	Obligatory working hours in teaching	Obligatory working hours in doing research	Total obligatory working hours
Professor	340	170	510
Associate Professor	320	140	460
Senior lecturer with salary index ≥ 5.76	310	130	440
Senior lecturer with salary index from	300	120	420

4.40 to 5.42 or lecturer holding a PhD degree			
Lecturer with salary index ≥ 4.32	280	100	380
Lecturer with salary index from 3.33 to 3.99 or lecturer holding an MS degree	250	80	330
Lecturer with salary index from 2.34 to 3.00	220	60	280
Probationary lecturer (85% salary)	50	10	60

Source: Regulations on the management of professional activities of lecturers at CTU

6.6. Staff workload and incentive systems are designed to support the quality of teaching and learning.

Management of lectures' activity is done through their teaching schedules, number of research projects and publications with the support of the software for academic administration system. The workload is estimated based on the number of students enrolling at the beginning of each semester and the assignment of respective staff members, ensuring that every member has enough workload to fulfill according to the Academic Regulations *(Exh.6.38.CTU administration website, Exh.6.39.Annual plan for professional activities of CTU staff and Departments)*.

6.7. Accountability of the staff members is well regulated

Tasks/responsibilities are assigned based on staff member competence, the obligatory working hours of each staff member, particularly for teaching and thesis supervision. Unequally treated and/or overloaded situations should be avoided.

6.8. There are provisions for review, consultation and redeployment

All CTU staffs are required to fulfill their obligatory working hours, thus the management through their teaching schedules, number of research projects and publications is necessary. Job promotion, particularly the shift up of employee status for increasing of salary, is based on the working seniority of each staff member. Normally, every 3 years of working, the pay ranges increase one time; however, if lecturers have excellent achievement in teaching, the pay ranges may increase although the working seniority does not reach 3 years *(Exh.6.40.Plan for staff promotion, Exh.6.41.Criteria for special case of staff promotion)*. Furthermore, lecturers who finish the Master degree or higher degrees or get higher scientific titles are also promoted.

Plan to develop human resources of the Institute for the period of 2008–2015 was approved by the Rector of CTU in 2008. This plan consists of training younger staffs for their higher degrees and/or offering new employment to ensure that a young generation of staff would be ready to take over tasks/responsibilities of retirees *(Exh.6.34.Staff development plan for 2008-2015, Exh.6.35.Staff development plan for 2013-2022)*.

6.9. Termination and retirement are planned and well implemented

Retirement, pension, and dismissal (if any) have been well-planned and implemented, making sure that every staff is well treated. *(Exh.6.42.Notice of retirement, Exh.6.43.Decision for retirement)*

6.10. There is an efficient appraisal system

Self-discipline of CTU staffs have been shown through the annual plan for professional activities of each staff at the beginning of a school year *(Exh.6.39.Annual plan for professional activities of CTU staff and Departments)* and the annual staff evaluation activity *(Exh.6.44.Self-evaluation form)*. This ensures that they fulfill their duties including completing the obligatory working hours, doing research, publishing papers, writing books, improving teaching methodology, etc.

Staff evaluation is carried out annually. Self-evaluation is done in addition to the evaluation from the Institute members. *(Exh.6.45.Minutes of the staff evaluation and reward meeting)*

7. Support Staff Quality

7.1. The library staff is competent and adequate in providing a satisfactory level of service

The Learning Resource Center (LRC) of CTU is one of the four most modern centers of Vietnam. It reaches the international standards of a learning resource center. With 4 floors, the operating area of

the center is 7,200 m^2. There are 500 computers, all are connected to the network, which could serve more than 1,000 people. The total budget to build up this center is 9 million $US, funded by the Atlantic Philanthropies within a program coordinated by RMIT University. The center has 60 staffs *(Exh.7.01.List of the Learning Resource Center staffs and their degrees)* and more than 100,000 books and journals. These resources enable the center to meet the needs in searching information as well as other teaching and learning activities of not only the CTU students and staffs but also visitors *(Exh.7.02.Website of the Learning Resource Center http://www.lrc.ctu.edu.vn/eng/)*.

Beside the LRC, BiRDI has its own library where textbooks, syllabi, journals, theses, etc. in Biotechnology and its related fields are located. There is one librarian who is responsible for all activities at the library. This library is capable of serving around 200 students.

Most of the Colleges/Institutes and other units of CTU have their own libraries. A number of them have resources relevant to Biotechnology (e.g., the College of Agriculture and Applied Biology and College of Aquaculture and Fisheries), which could be of help to our students in searching more references *(Exh.7.03.Website of the library of College of Agriculture and Applied Biology http://caab.ctu.edu.vn/thuvien/)*.

The librarians at CTU are enthusiastic and supportive.

7.2. The laboratory staff are competent and adequate in providing a satisfactory level of service

There are four technicians at BiRDI responsible for different fields and/or tasks.

Table 19: List of laboratory staff

No.	Lab	Full name	Title	Degree	Responsibility
1	Molecular Biology Lab	Tran Van Be Nam	Technician	BS	Manage the lab and its devices Assist teaching and research activities
		Nguyen Dac Khoa	Lecturer	PhD	Do research Supervise students' theses
		Do Tan Khang	Lecturer	MS	Run practical courses Do research Supervise students' theses
2	Plant Tissue Culture Lab	Nguyen Thi Lien	Lecturer	BS	Manage the lab and its devices Assist teaching and research activities Run practical courses Do research Supervise students' theses
		Tran Thi Xuan Mai	Lecturer	MS	Run practical courses Do research Supervise students' theses
		Nguyen Thi Pha	Lecturer	MS	Run practical courses Do research Supervise students' theses
3	Protein-Enzyme Lab	Vo Van Song Toan	Lecturer	MS	Manage the lab and its devices Assist teaching and research activities Run practical courses Do research Supervise students' theses
		Nguyen Duc Do	Lecturer	PhD	Run practical courses Do research Supervise students' theses
4	Molecular Genetics Lab	Bui Thi Minh Dieu	Lecturer	PhD	Run practical courses Do research Supervise students' theses
		Truong Trong Ngon	Assoc. Prof.	PhD	Run practical courses Do research

					Supervise students' theses
5	Food Microbiology Lab	Nguyen Ngoc Thanh	Technician	BS	Manage the lab and its devices Assist teaching and research activities
		Huynh Xuan Phong	Lecturer	MS	Run practical courses Do research Supervise students' theses
		Tran Vu Phuong	Lecturer	MS	Run practical courses Do research Supervise students' theses
		Huynh Ngoc Thanh Tam	Lecturer	PhD	Run practical courses Do research Supervise students' theses
		Pham Hong Quang	Lecturer	BS	Run practical courses Do research Supervise students' theses
6	Food Biochemistry Lab	Vo Van Song Toan	Lecturer	MS	Manage the lab and its devices Assist teaching and research activities Run practical courses Do research Supervise students' theses
		Nguyen Minh Chon	Assoc. Prof.	PhD	Run practical courses Do research Supervise students' theses
7	Microbiology Lab	Nguyen Thi Thuy Duy	Technician	College	Manage the lab and its devices Assist teaching and research activities
		Nguyen Huu Hiep	Assoc. Prof.	PhD	Run practical courses Do research Supervise students' theses
		Tran Tra My	Researcher	MS	Run practical courses Do research Supervise students' theses
8	Environmental Microbiology Lab	Tran Thi Giang	Researcher	MS	Run practical courses Do research Supervise students' theses
		Cao Ngọc Diep	Prof.	PhD	Run practical courses Do research Supervise students' theses

The labs and their devices are maintained carefully. CTU has its professional unit to manage status of the labs and devices. There are 10 staffs working in this unit. Five of these are responsible for direct management, development, usage, maintainance, protection, purchase, consultancy, and fixing of the devices, equipments, machines, etc at CTU. These staffs are furthermore responsible for institutional fire regulations. The rest is responsbile for direct management, development, usage, maintainace, protection, fixing, and consultancy of infrastructures, electricity and telephone operation, and water supply. These staffs are also connected to the fire regulations task at CTU *(Exh.7.04.Website of Department of Facility Management: http://websrv2.ctu.edu.vn/dept/dfm/).*
BiRD assigns 2 staffs responsible for the above tasks.

7.3. The computer facility staff is competent and adequate in providing a satisfactory level of service

There are 2 staffs responsible for IT tasks at BiRDI. One of them has a BS degree in Computer Science and the other one finished his College in the same field. The BiRDI website is taken care by these staffs, in addition to the 2 computer rooms with 30 computers in each room. All of the computers

are connected to the network, which could be used by our students *(Exh.7.05.Degree of computer facility staff)* .
CTU has its own IT staffs to operate all IT activities and to take care of 1,000 computers on campus. IT staffs of the LRC manage 500 computers which could be used by all students of CTU *(Exh.7.02. Website of the Learning Resource Center: http://www.lrc.ctu.edu.vn/eng/)*.

7.4. The student services staff is competent and adequate in providing a satisfactory level of service

There are 12 administrative staffs. The Head of Administrative Office is responsible for all the activities of this office while the Deputy Head is responsible for academic affairs. One staff is in-charge of students' affairs, 2 are for IT services, 1 secretary concurrently the librarian, and 6 holding their odd jobs.

Table 20 : List of administrative staff

No.	Full name	Title	Degree	Responsibility
1.	Tran Vu Phuong	Leturer	MS	Head of Administrative Office
2.	Ly Thi Bich Thuy	Specialist	BS	Deputy Head of Administrative Office Academic affairs
3.	Tran Nguyen Tuan	Specialist	BS	Students' affairs
4.	Do Phuc Thai	Specialist	BS	IT
5.	Nguyen Toan Thang	Specialist	College	IT
6.	Nguyen Thi Thao	Specialist	BS	Treasurer Social insurance
7.	Tra Phan Hoa Lan	Specialist	BS	Accounting
8.	Nguyen Thi Kim Loan			Secretary Librarian
9.	Phan Thi Minh			Classroom management Odd jobs
10.	Nguyen Ngoc Tho			Odd jobs
11.	Huynh Cong ly			Security guard
12.	Le Chien Thang			Security guard

BiRDI assigns one experienced staff to be in-charge of students' affairs *(Exh.7.06.Decision on task appointment of student's affairs)*.
The staffs have performed well and fulfill their duties *(Exh.7.07.Annual staff evaluation form)*.

8. Student Quality

The Advanced Program in Biotechnology at Can Tho University was approved according to the Decision No. 7738/QD-BGDDT of Ministry of Education and Training (MOET), on December 28th 2006 and performed from the academic year 2006-2007.

8.1. There is a clear student intake policy

There are 30-40 students selected annually upon their scores following the top-down basis. The source of candidates is from students who have passed the national entrance examination in test group B (Mathematics, Chemistry, Biology) and test group A (Mathematics, Physics, Chemistry) that is organized and managed by the Ministry of Education and Training (MOET) in July every year and an English entry examination *(Exh.8.01.Anouncement for recruitment from Department of Academic Affairs, Exh.8.02.List of candidates for Biotechnology Program 2013, Exh.8.03.Selecting result for Biotechnology Program 2013)*. With this recruitment scale, qualified students can acquire all necessary skills for their major, English communication, and research.
The form of training of this program is full-time and regular, lasting for 4.5 years with a first semester for the Intensive English Program (20 credits) in order to ensure the possibility of learning in English then *(Exh.8.04. Schedule for Intensive English Course, Semester I- 2013 – 2014 –Biotechnology 2013)*. The study plan is delivered to entering students at the beginning of the semester. Students are also carefully advised about the study program, the aims and the requirements of this program so that

they can decide to follow it or not *(Exh.8.05.Announcement on the studying plan of Biotechnology class 2013)*.

With the aims of improving the student quality, ensuring the number of new intake and attracting students' application, BiRDI has been carrying out a variety of broadcasting methods by posters, leaflets *(Exh.8.06.Posters, leaflet about Advanced Program in Biotechnology)*, announcements on institute's and university's websites *(Exh.8.07.Website of Advanced Biotechnology Program: http://birdi.ctu.edu.vn/birdi_cttt/)*, recruitment and admissions counseling in order to give more information about the program. Besides, the extracurricular activities of current undergraduate students also help attracting the interest of candidates. The free Intensive English Program in the first semester for entering students is also one of the policies to increase the intake of students.

Overall, this recruitment policy will be sustained so that the student quality can be guaranteed.

8.2. The student admission process is adequate

To be a student of Advanced Program in Biotechnology, all candidates must have passed the national entrance examination in which the passing score must at least be at the floor standard set up by the MOET and an English entry examination administered by CTU in which the level must at least be equivalent to Low Intermediate or A2 level (scores of the Common European Framework of Reference for Languages using in CTU (CEFR) (See Table 1) *(Exh.8.08.Documents of English Examination 2003)*.

Based on the admission score, the number of students enrolling the Biotechnology program is presented in Figure 8. The intake of students annually is stabilized in general. However, since students have had a tendency to choose the economics or business administration in year 2009, 2010, the annual intake of biotechnology students is partly affected in those years. From the year 2010, with the good results from the first graduated students who had transferred oversea for master courses successfully or finding suitable jobs in their major, the number of candidates have been increased, showing the strong attraction of this program and the need of Biotechnology in society.{Table: Survey data from students graduated from Advanced Biotechnology Program_(criteria 13)}

8.3. The actual study load is in line with the prescribed load

CTU use a credit-based system and all details about teaching and studying are in document "Academic Regulation under Credit System" published by CTU on August 2010 *(Exh.8.09.Academic Regulations)*. The program with 151 credits is estimated to be taught in 4 years (not including the Intensive English Program for the first semester). There are two main semesters (I, II) and one summer semester. Study load is divided equally over and within academic years with about 15 – 20 credits per semester. There are elective courses in each semester that students can choose to study under the academic advisor. Moreover, depending on the ability, good students can finish their studying earlier than expected *(Exh.8.10.Studying plan of Biotechnology class 2012)*.

The Intensive English Program is designed for the first semester of the program (*free tuition*). It is developed with a total number of 300 hours which are divided into Listening/ Speaking (75 hours), Grammar (45 hours), Reading (45 hours), Writing (60 hours), Pronunciation(45 hours) and Presentation Skills (30 hours). Students are taught many necessary and basic skills, which help systematizing their English basis. At the end of this semester, students can reach the English standard of Intermediate level and be ready for comprehending professional knowledge in English *(Exh.8.11.Final result of Intensive English Foundation Course)*. English is continuing to be trained by students themselves and the competence will be shown in the English graduation thesis at the end of the program.

Table 8.4 shows the time intake to graduate in batch 2006, 2007, 2008 and 2009. It is obvious that four batches with 124 students of the total 127 students graduated on time (accounting for 97,6%), indicating that the undergraduate program is suitable for students 'competence, institute facilities and services, and highly satisfied by lecturers and students.

In addition, the number of students who received scholarships for master and doctoral training program after graduating (16 students transfer to the countries such as the United States of America, Australia, Austria, Poland, Japan, Korea…..) also shows the students 'competence to transfer oversea in training program *(Exh.8.12.Letters for approving the scholarships)*.

Figure 9:The number of applicants and students passing the exam for Biotechnology Program vs. years

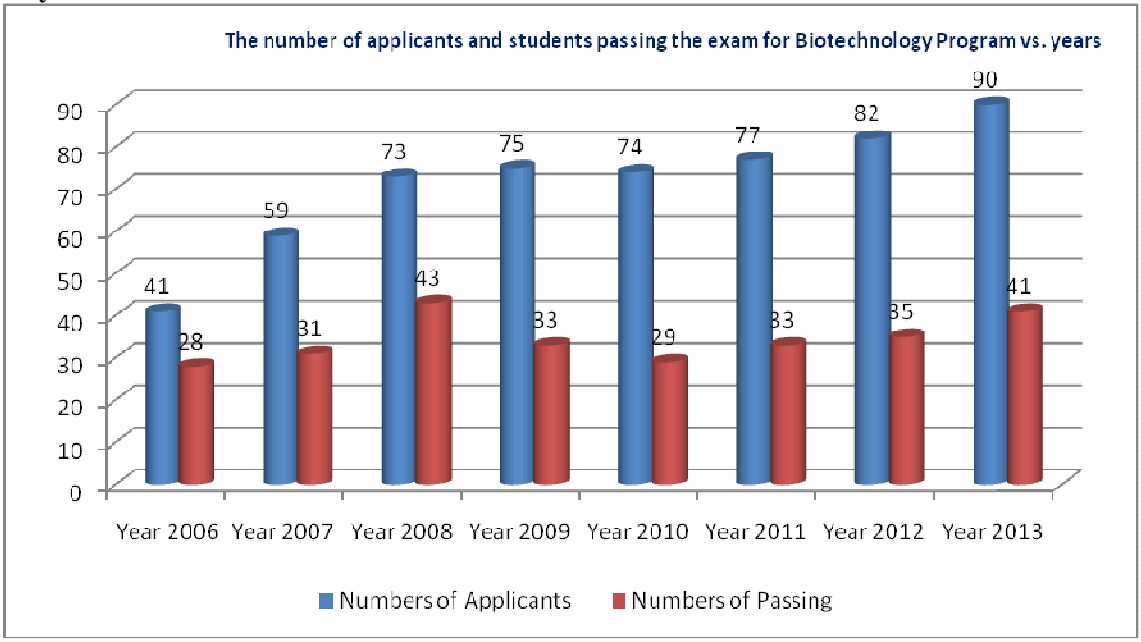


Table 21: Passing grade and base grade for entry of Biotechnology Program

Year / Grade	2006	2007	2008	2009	2010	2011	2012	2013
Pass grade in National Entrance University Examination (for Advanced Biotechnology Program)	14	17	17	17	16	16	17	18
Pass Base grade for National Entrance University Examination (set by MoET)	Group A: 13 Group B: 14	Group A: 15 Group B: 15	Group A: 10 Group B: 15	Group A: 13 Group B: 14	Group A: 13 Group B: 14	Group A: 13 Group B: 14	Group A: 13 Group B: 14	Group A: 13 Group B: 14

Table 22: Intake of first- year students

	Full-time			**Part-time**		
Academic year	Male	Female	Total	Male	Female	Total
2012-2013	18	17	35	0	0	0
2013-2014	13	26	39	0	0	0

(Data updated up to Semester II - 2013 – 2014)

Table 23: Total number of students (last 5 academic years)

	Full-time			**Part-time**		
Academic year	Male	Female	Total	Male	Female	Total
2008-2009	45	52	97	0	0	0
2009-2010	59	68	127	0	0	0
2010-2011	71	81	152	0	0	0

2011-2012	84	99	183	0	0	0
2012-2013	100	115	215	0	0	0
2013-2014	113	141	254	0	0	0

(Data updated up to Semester II - 2013 – 2014)

Table 24: Number of graduated students in time

Intake year/ Number of intake students	Number of student	Drop out		On-time graduation		Delayed graduation	
		Number	Rate (%)	Number	Rate (%)	Number	Rate (%)
2006 (27 students)	27	00	0%	27	100%	00	0%
2007 (27 students)	27	00	0%	25	92.5%	02	7.4%
2008 (43 students)	43	00	0%	43	100%	00	0%
2009 (30 students)	30	00	0%	29	96.6%	02	6.67%

9. Student Advice and Support

9.1. There is an adequate student progress monitoring system

The learning progress of students is systematically monitored, counseled and supported.

1. The academic advisor:
Each academic advisor is responsible to monitor, counsel and correct the learning progress of 40 students (*Exh.09.01 Decision no. 2067/QĐ-ĐHCT in 2007_decision of appointment for academic advisor*). The academic advisor has at least 3 meetings with the assigned class at the beginning, the middle and the end of every semester, in order to guide students in planning the individual study schedule, to counsel and give the timely support for improving study qualification, especially for students who face problem in learning progress (*Exh.09.02 Minutes of class meeting).* Besides, the academic advisor also keeps frequent contact with students via email system, mobile phone as well as appointed meeting at office for any necessary advice and information.

2. Software and facilities for academic administration:
The university has software and modern facilities that are available to provide adequate information on learning schedule for students and to record the complete learning outcomes of students for each semester (including academic results, social work, reward, penalization, number of credits accumulated…) (*Exh.09.03 Website of academic administration system: https://htql.ctu.edu.vn/htql/login.php, Exh.09.04 Document on wifi system of Can Tho University, Exh.09.05 Document on computer room of the Can Tho University*). With this system, students can easily and quickly access online to get necessary information for their own learning progress, actively plan their study schedule for each semester and the whole curriculum, as well as timely adjust their study plan to be appropriate to their learning capacity.

In addition, thanks to this system the leaders of university and institute as well as academic advisors can monitor and review the training process of students in order to give the appropriate adjustment. Moreover, it helps to timely detect and warn students about their problematic circumstances such as poor marks, insufficient enrollment credits, exceeding of study time, so that to have the appropriate actions and treatments on this, such as academic warning, notifications of student learning outcomes for parents , dismissal, etc... List of students having trouble in learning process is colligated after each semester, then the Institute organizes meetings among the leaders of the institute, the academic advisors and the students' families to discuss the solutions or to give notices of dismissal. The activities of monitoring, warning and prevention are frequently carried out in parallel with the training activities in the university, in which academic advisors and academic assistants play a key role. (*Exh.09.06 Decision on Regulations of educational affairs for regular undergraduate students, Exh.09.07 Announcement for students who had poor results*)

9.2. Students get adequate academic advice, support and feedback on their performance

Students directly get adequate academic advice, support and feedback on their learning performance from academic advisors, division of student assistance, and other supporting systems, such as department of student assistance, department of dormitory management, health service, center of student support,…(*Exh.09.08. Decision on the establishment of Department of Student Assistance, Exh.09.09. Decision on the establishment of Dormitory Management Board, Exh.09.10. Decision on the establishment of Health Department, Exh.09.11. Decision on the establishment of Student Service Center).* All of activities belonged to these systems aim to provide the best conditions for students to follow the programs at the university, helping students qualify the learning outcomes and the training program objectives.

Specifically, students can receive the following support:

1/ Academic support:

At the beginning of the course, each student is provided with all necessary information for the learning process, such as: academic regulation, curriculum framework, module specification, the policy documents, rights and duties of students during the study period in Can Tho university. All new enrolled students take the short training of how to use for the Learning Resource Center. Every school year the university organizes a week of meetings between the university leaders and the first-year to fourth-year students, as well as the information about activities and regulations of the university is also disseminated to students through academic advisors, the university website and the electronic mailbox of each student. In addition, the students who are recruited in the Advanced Program in Biotechnology are also provided the information of this specific program and the concrete learning schedule. (*Exh.09.12. Announcement about Starting course meetings)*. Librarians guide students how to look up the list of references. Academic advisors and the officers assigned to follow up the learning progress of students are responsible for counseling students on academic issues, such as: making learning schedule, selecting appropriate subjects for each semester, using the facilities, and provides information on student regulations. Lecturers inform the contents and the requirements of their own subject to students, and notify the learning outcomes as well as upload those data on the academic administration system. Students can look up their results of all subjects through online system. Besides, students can also ask for individual academic transcript at any time in their learning progress. At the end of the training program, the Department of Academic Affairs provides the full academic transcript for graduated students. (*Exh.09.06. Decision on Regulations of educational affairs for regular undergraduate students, Exh.09.13. Regulations on using equipment and devices, Exh.09.14. Instruction on course registration)*. For doing the graduation thesis, each student is directly conducted by one scientific supervisor. The academic advisor can help to recommend the appropriate scientific supervisor for students. (*Exh.09.15. Document about Recommendation of Scientific advisor for students*). The staff at each laboratory guides students how to use the equipment and facilities serving for their experimental work. The thesis proposal of student is evaluated by the Scientific Committee, then is revised based on the Committee's comments before implementation. The complete thesis is evaluated and marked by the Scientific Committee. (*Exh.09.16 List of Bachelor Theses and Scientific advisors, Exh.09.17. Decision on the establishment of Examination Committee to evaluate proposals of bachelor theses, Exh.09.18. Decision on the establishment of Examination Committee to evaluate bachelor theses)*. During the implementation of graduation thesis, if any difficulties happen, the students can discuss directly with the scientific supervisor for finding solutions.

2/ Financial and Scholarship support:

The university offers the grants to the top 15% of excellent students based on the learning results and extracurricular activities in semesters. (*Exh.09.19. List of students receiving promotion scholarships of the university)*. The proposals of scientific research made by students are qualified and approved by the Scientific Committee of Institute and University with concrete scientific criteria. (*Exh.09.20. Assessment of bachelor thesis, Exh.09.21. Minutes of bachelor thesis assessment, Exh.09.22. List of scientific research conducted by students*). The approved scientific research are funded by university for the implementation. (*Exh.09.23. Contract of students' implementation for a scientific research*). For research belonged to the graduation thesis in this Advanced program, CTU also supports a part of fund (10,000,000 VND, equal approx. 500 USD) (*Exh.09.24. Document of receiving grants from the university for Bachelor theses in the Advanced Biotechnology Program*). In addition, the Institute has some certain supporting fund to encourage the poor and excellent students in the Institute (*Exh.09.25. List of students receiving scholarships of BiRDI*).

3/ Career & Employment support:

The counsel on career and employment for students is considered and performed by organizing career festival, meeting with business companies and alumni. (*Exh.09.26. Announcement about the contest "Job interview"; Exh.09.27. Announcement about the festival "Dell Day Job"*). In the last year of the program, students take the subject titled "Field trip" which provides practical knowledge to students about careers related to the curriculum. (*Exh.09.28. Syllabus of the course "Field trip").*

4/ Student voice:

Besides of the support from the university, institute and academic advisor, students also receive the support from the department of student assistance on the issues arose during their learning period and life.

The Department of Student Assistance is the unit which gives recommendations to the Board of Rector to implement student policies on social issues, scholarship and tuition fee, reward and discipline, consultation on studying, life, accommodation, employment, health service, and management of on- and out-campus students (*Exh.09.29. Website of Department of Student Assistance: http://websrv2.ctu.edu.vn/dept/dsa/*).

The Youth Union organizes extra-curricular activities to improve the competence of students in life, the morality, and the social responsibility of student. Such activities are art performance, sport, outdoor trip, humanitarian blood donation, green summer event, charitable work,…The university support 50% of funding for these activities.

The Youth Union also colligates students' opinions and suggestions presented during the meetings between students and the Leaders of BiRDI, the Youth Union, student association, academic advisor, and then reports them to the Rectorate Board of the University. The concrete responses will be given in regularly two times meeting of Rectorate Board and the leaders of BiRDI. (*Exh.09.30. Plan for meeting with BiRDI leaders, Exh.09.31. Minutes of meeting with BiRDI leaders*).

5/ Dormitory:

The university's dormitory can offer about 5,000 accommodations for students (*Exh.09.32. Regulations of the Dormitory, Exh.09.33. Announcement No.39/TB-CTSV: Announcement on Dormitory reservation enrollment*). In addition, the Department of Student Assistance can help to find and recommend the out-campus rooms that can offer accommodation with the same standard and price to compare with the university's dormitory for students who are not able to book a place in the in-campus dormitory due to the limited capacity.

6/ Medical and psychological care:

In the University, there are recently established Student Service Center, the counsel psychology, health services and vocation-related issues for students (*Exh.09.11. Decision on the establishment of Student Service Center*). There is also a medical station in the university to take care for student health, as required.
All the first-year students are offered a general medical check-up at the beginning of the school year. The check-up is to provide information on the health status of the students and then, to give consultation to students to take care of themselves so that they are in good conditions for following the training programs at the university. All students are requested to purchase health care insurance to guarantee the out-of-pocket expenditures on health care in cases of illness (*Exh.09.34. Announcement on paying compulsory health insurance*). In addition, the Department of Student Assistance frequently provides information on epidemic diseases (if any) and consults significant protection methods (*Exh.09.35. Announcement No.85/TB-CTSV: Announcement on Eczema (Paederus fuscipes Curtis) warning*).

9.3. Mentoring for students is adequate

Students can get adequately the mentoring support from the Rectorate Board of University, the Leaders of Institute, lecturers, health services…, but the most important one is the supporting of the academic advisors and the academic assistants. These staff are in charge of advising students on learning, helping them set up learning plans for the whole training program, selecting appropriate learning subjects for each semester, using the facilities, and getting to know the academic regulations so that they will be soon accustomed to the new learning environment of the university.

(*Exh.09.01. Decision no. 2067/QĐ-ĐHCT in 2007_decision of appointment for academic advisor; Exh.09.36. List of academic advisors*). At the beginning of the school year, the academic advisor organizes meeting with class and manage students to vote for the monitor board of class. Members of the monitor board keep frequent contact with the academic advisor to ask advice and to report unusual problem/case in order to have solutions adequately and timely. The Rectorate Board of University and the Leaders of Institute also organize regular meetings annually with academic advisors and students to answer timely and reasonably the inquiries presented from students and adjust the policies appropriately (*Exh.09.31. Minutes of meeting with BiRDI leaders*). In addition, the university has the mailbox and postbox supporting students in contact with the staff members of university and institute.
Students individually receive the specific advice from the academic advisor about selecting appropriate subjects to study, making and adjusting the study schedule.
The Youth Union also plays a key role in mentoring and counseling students. Most of the students are members of the Youth Union and so mutually benefit from activities of the Union. (*Exh.09.37. Announcement about the contest "Writing a tribute", Exh.09.38. Announcement about the contest "Talent photographer").*

9.4. The physical, social and psychological environment for the student is satisfactory

The university has invested in building more dormitories with 10,000 accommodations satisfying about 25% of student's demand and modern-standardized canteen to serve students. (*Exh.09.32. Regulations of the Dormitory, Exh.09.33. Announcement No.39/TB-CTSV: Announcement on Dormitory reservation enrollment, Exh.09.39. Regulations of the canteen*).
In terms of entertainment and sports, beside the versatile stadium, soccer field, volleyball court and badminton court of the university, the Institute also builds an extra volleyball court, badminton court and table-tennis table for students.
Many activities about career and scientific research are organized by the Youth Union to enhance students' skills and knowledge in finding a job or doing a research (*Exh.09.40, Exh.09.26. Announcement about the contest "Job interview", Exh.09.27. Announcement about the festival "Dell Day Job"*). Students can also participate in many competitions about preventing social evils, creative ideas for a better society, good rice for Vietnamese brand, young biotechnologist, etc… organized by the University and other organizations and achieved the high evaluation results. (*Exh.09.41. Award of the contest "Vietnamese Rice", Exh.09.42. Award of the contest "Young Biotechnologist*").

10. Facilities and Infrastructure

Biotechnology Program is the advanced program, so it is wholly invested from the Ministry of Education and Training (MOET). Besides, the BiRDI has the strength of scientific research and international cooperation, so learning resources and facilities should regularly be updated and replenished to follow the rapid development of science and technology and to well meet the demand of scientific research and training for teachers and students.

10.1. The lecture facilities (lecture halls, small course rooms) are adequate

CTU and BiRDI have 217 classrooms with an area of 43389.70 m^2 fully equipped with the best equipments in service learning activities of 39,338 students. Currently, BiRDI has 7 classrooms with an area of 496 m^2. In particular, four air-conditioned classrooms are permanently arranged during the course for the Advanced Program in Biotechnology. The classrooms are prepared facilities for teaching and learning, and each classroom has one computer and one projector. The entire area of BiRDI has been covered by wireless network to support teaching and learning activities (*Exh.10.01. Document on wifi system of Can Tho University*). In addition to the official school, the classrooms are also used to organize class activities and academic activities for students. Moreover, CTU has also arranged 30 classrooms in the self-study building, especially in the self-study hall in the dormitory, so students can use them for learning any time.

As this is an advanced program, modern and effective learning facilities such as e-learning and i-clicker are equipped to create an effective interaction. In addition, teachers can easily evaluate and access the progress in understanding of students during the course (*Exh.10.02. Website e-learning system https://lms.ctu.edu.vn/dokeos/index.php; Exh.10.03. Pictures of i-clicker system*).

There are two 160-seat lecture halls fully equipped with necessary facilities for organizing seminars as well as academic activities. Furthermore, the Learning Resource Center also has halls set up with modern equipment so that students can register for organizing academic activities (*Exh.10.04.*

Regulations of using meeting room in Learning Resource Center, Exh.10.05. Documents on students' activities in BiRDI's Hall).

Figure 10: Lecture hall and laboratory area at BiRDI

Annually, the learning facilities are newly purchased and maintained using a portion of the fund from CTU and Minister (*Exh.10.06. Allocation of CTU fund for BiRDI and Advanced Program in Biotechnology*).

10.2. The library is adequate and up-to-date

1. The modern Learning Resource Center – Asian Standard

The LRC was designed and funded with the grant of 9 million USD by the Atlantic Philanthropies and monitered by RMIT University Vietnam. CTU has really been interested in establishing an electronic library for teaching activities for many years at the LRC. More than 500 computers has been set up for student service (*Exh.10.07. Regulations of computer room),* supporting effectively for course registration and study plan management (*Exh.10.08. Announcement on course registration*). The LRC is also linked to other falculty libraries for the client's convenient purpose (*Exh.10.09. Website of the Learning Resource Center http://www.lrc.ctu.edu.vn/eng*/). The electronic materials and lectures have been uploaded and managed through online system (*Exh.*10.10. *Website of digital collections http://digital.lrc.ctu.edu.vn*/). The electronic resources are abundant and diverse, including undergraduate theses, research reports, national and international journals, databases consisting of Wiley, Spingerlink, ScienceDirect, WHO, FAO, HINARI, AGRORA,... (*Exh.10.11. List of documents of national and international journals on LRC website*).

Figure 11: Learning Resource Center and a typical computer room

BiRDI's library has an area of 60m^2 with 70 seats, and there is over 1000 books, journals, and electronic resources. The library is regularly upgraded with new learning materials recorded in CDs which highly support for students and teachers (*Exh.10.12. List of ducuments in BiRDI librar*y). The reading which has sufficient light, computers with internet is spacious, airy and tidy. This is a nice space for study. Students and lecturers can either read or borrow learning materials for a week, so it is really convenient for studying, referencing, composing and upgrading lectures. All learning materials including books, journals, articles, CDs are sorted in catalogue for searching convenience (*Exh.10.13. Regulations of BiRDI Library*). The librarian is very supportive regarding of effectively assisting in database search. Additionally, each laboratory possesses a book shelf with more scientific materials in

service for students and staff (*Exh.10.14. List of documents in Laboratory*). Moreover, students can also access learning resources in other faculty libraries.

In addition, scientific research papers reported by lecturers are often published in the Scientific Journal of CTU (1 issues/two months) which was authorized for publishing by Decision No. 1090/GP.BTTT from Minister of Information and Communication on 22/7/2008 (*Exh.10.15. Decision No. 1090/GP.BTTT from Minister of Information and Communication on 22/7/2008 about publishing license for Scientific Journal of Can Tho University*). It is easy to find and use these scientific articles as well as electronic materials from BiRDI's website and CTU's website. Both the CTU Publishing House and the House of Newspaper of CTU were established in 2009 based on the decision No. 1508/QĐ-ĐHCT and decision No. 4061/QĐ-ĐHCT (*Exh.10.16. Decision No. 1508/QĐ-ĐHCT about establishment of CTU Publishing House, Exh.10.17. Decision No. 4061/QĐ-ĐHCT about establishment of House of Newspaper of CTU*). The Publishing House has highly contributed in printing and delivering course books to students.

10.3. The computer facilities are adequate and up-to-date

All infrastructure including laboratories, classrooms, seminar rooms, lecture halls and offices are located in an area of 4543.2 m^2. One third of the area (1326.8 m^2) has been used for seven laboratories equipped with modern instruments and machines to fulfil the missions of researching, training and practising in biotechnology including:

- Molecular Biology Lab: teaching and implementing research of molecular biology, genome and genomic applications, microbial genomes, plant molecular biology, biotechnology and aquatic breeding, and pathology of aquaculture and animals, ...
- Plant genetic engineering Lab: teaching and implementing research of tissue culture, transgenic plants, biotechnology and plant breeding, plant pathology, ...
- Food biochemical technology Lab: teaching and implementing research of biochemical and food biochemistry
- Protein - Enzyme Technology Lab: responsible for the implementation of teaching and research of protein, enzyme isolation from bacteria, mould,...
- Microbial Biotechnology Lab: teaching and implementing research of soil microorganisms, nitrogen-fixing bacteria, microbial metabolism of organic compounds,...
- Food Biotechnology Lab: teaching and implementing research in food microbiology, food fermentation technology, ...
- Environmental Microbiology Lab: teaching and implementing research of microorganisms in environmental remediation, microbial processing environment in aquaculture and livestock.

Figure 12: Laboratory and practical class

All laboratories are equipped with modern facilities sufficiently adapting educational requirement, scientific research and conducting undergraduate theses (*Exh.10.18. List of primary devices and equipment in BiRDI labs*). A majority of laboratories and instruments were established and supported by international cooperation projects from European Universities including Netherlands and Belgium (*Exh.10.19. MHO and VLIR Projects*). Biotechnology plays a crucial role in the plan of national development strategy (*Exh.10.20. Project on improving research competence of BiRDI by the government*). Therefore, national projects also invested facilities for research and training services in BiRDI, especially the fund from MOET thank to the participation of the Advanced Program in Biotechnology (*Exh.10.21. Document on investigation for Advanced Program by MOET*). The strength in research and international cooperation created many opportunities for BiRDI to receive

investments from international research project. An illustration of this is the CARD project from Australia (*Exh.10.33. Documents on CARD project*). Annually, the learning facilities are newly purchased and maintained using a portion of the fund from CTU and MOET (*Exh.10.06. Allocation of CTU fund for BiRDI and Advanced Program in Biotechnology*).

Actually, students can use other laboratories including College of Agriculture & Applied Biology and College of Natural Sciences for their practical class and theses (*Exh.10.22 List of laboratories at Colleges in CTU*).

10.4. The computer facilities are adequate and up-to date

Information technology system has been implemented, instructed and encouraged to users. This system was tested for convenience and effectiveness, and it was highly evaluated in both the CTU and BiRDI area. Each student is provided an account for free of charge in using computer systems and wireless network in the whole university. The Learning Resource Center is equipped with 500 computers and many other modern facilities such as LCD, projectors, live stream TVs, broadcasting systems, etc.) (*Exh.10.23. Documents on regulations and quantity of computer in Learning Resource Center*), and 1000 public computers are equally set up in other locations inner the university for student services (*Exh.10.24. Document on 1000 public computers*). The school also spent about 3,500 USD on Learning Resource Center for additional resources to purchase new learning materials annually.

The BiRDI also equipped two computer rooms with a total 50 computers for students to use in learning activities, course registration, information searching, and so on. In the laboratories there are also 70 computers for student and staff to easily find reference materials, store data, and print experimental results. In addition, most students of the Advanced Program in Biotechnology have their own laptops, so they are more active in learning and reporting assignment.

CTU has implemented wireless network in all area, thereby online educational management and training service have worked very well in recent years due to its convenience under the control of Information and Network Management Center (*Exh.10.01. Document on wifi system of Can Tho University*). Each staff or student has been provided an e - mail account through the LAN network of CTU to effectively facilitate the communication and exchange of learning materials, especially the files sent by attachment. As a result, the information is quickly and widely disseminated to students so that they are very active in self-studying, group working and submitting reports for teachers (*Exh.10.25. Anouncement on providing email account for students).*

10.5. Environmental health and safety standards meet the local requirements in all aspects

All labs were installed the water and waste treatment system to ensure the environmental protection standards of the country. The laboratories have regular documents to ensure safe operation of the laboratory (*Exh.10.26. Regulations of BiRDI Lab*). Each lab is arranged the first aid kit and medicines to immediately support when any accidents occurred. Students always organize labour hygiene in the lab every weekend as well as in BiRDI and CTU regularly to keep clear, green and safe environment (*Exh.10.27. Announcement on environment cleaning of the Youth Union*). Many public recycle bins has also arranged inside BiRDI's building. The plants and the grass area in front of the BiRDI are often taken care to create clean beautiful scenery. Labour hygiene and safety and fire-explosion prevention has been performed regularly and achieved good efficiency in CTU and BiRDI area. There are also well trained and highly qualified teams of fire-explosion prevention (*Exh.10.30. Decision on establishment of teams of fire-explosion prevention*). Signs on fire safety have been placed in common areas of the campus and laboratories.

In addition, security issues of CTU are assured by both campus security team and youth volunteer team formed by the Ho Chi Minh Communist Youth Union of BiRDI (*Exh.10.28. Decision on establishment of youth volunteer team*). To create a healthy environment for students after class, a volleyball court was built, and students have to strictly follow the regulations when playing there (*Exh.10.29. Regulations of using BiRDI volleyball court*). Fire prevention is always paid attention. Fire extinguishers are sufficiently equipped in the area of BiRDI, which are checked and supplemented periodically (*Exh.10.31. Fire safety Regulations, Exh.10.32. Map of fire extinguisher location in BiRDI*).

11. Quality Assurance of Teaching and Learning Process

The Advanced Program in Biotechnology has been based on the original program of ***Biochemistry & Molecular Biology/Biotechnology Major*** **of Michigan State University, the** United States (MSU)

and designed according to the condition of Vietnamese educational system. The curriculum is developed by all teaching staff members in the meetings to build the curriculum and syllabi (*Exh.11.01 Contracts of syllabus design*). It is also developed through the workshop on December 12, 2006 at Learning Resources Center, CTU with the representatives of two experts from MSU, supporting units, and professors, lecturers who are involved in the program in order to complete the curriculum (*Exh.11.02. Minutes of the Conference on Assessment of Advanced Program in Biotechnology*). The curriculum follows obligatory regulation of Ministry of Education and Training as well as is adjusted to requirements of labor market and employers (*Exh.11.03 Minutes of the Conference on Assessment of Advanced Program in Biotechnology*).

The curriculum was designed by Scientific Committee, Faculty Quality Committee including experienced staffs with professional knowledge of the university. The curriculum was accepted by Ministry of Education and Training by Decision No. 7738/QĐ-BGDĐT on 28th March, 2006 (*Exh.11.04 Decision No. 7738/QĐ-BGDĐT on 28th March, 2006, Exh.11.05 Decision No.495/QĐ-ĐHCT on May 18, 2006*).

11.2 The curriculum development involves graduates and students

Students join in the curriculum development through Course Evaluation Form and Curriculum Evaluation Form. The results are processed and sent to colleges/institutes and lecturers by Quality Assurance and Testing Center in order to review for the continuous improvement of the content and quality of the courses; and appropriate adjustments for the entire curriculum will be made after reasonable time periods (*Exh.11.06 Course Evaluation Form, Exh.11.07. Curriculum Evaluation Form*).

11.3 The curriculum development involves the labor market

The labour market and employers involve in the curriculum development by giving their opinions through Program Evaluation Form of Employers (*Exh.11.08 Results of surveying employers about graduates from Advanced Program in Biotechnology*). The employer's points of view and suggestion about the curriculum has been received through the scientific workshops of BiRDI.

11.4. The curriculum is regularly evaluated at reasonable time periods

The curriculum of the Advanced Program in Biotechnology has been annually evaluated by the staff of Ministry of Education and Training (MOET). The team examine on the teaching and learning quality, and interview lecturers and students about the study load, teaching methods, advantages of the curriculum, and other plans for its performance (*Exh.11.09 Working schedules for Advanced Program in Biotechnology*).

Since the Quality Assurance and Testing Center was established in 2006, the quality assurance of CTU has been more coherent. CTU has progressed the curriculum evaluation at the following levels:

- Undergraduate evaluation about courses at the end of each semester (*Exh.11.06. Course Evaluation Form*)
- Graduate evaluation about curriculum at the end of each batch (*Exh.11.07. Curriculum Evaluation Form)*
- Program evaluation of employers (*Exh.11.08. Results of surveying employers about graduates from Advanced Program in Biotechnology)*

11.5 Courses and curriculum are subjects to structured student evaluation

Student-centered teaching and learning is considered an approach to education focusing on the interests of the students, therefore, student evaluation about course content, teaching and learning process, assessment methods and curriculum is carried out regularly by BiRDI and Quality Assurance and Testing Center at the end of each semester and yearly (*Exh.11.10. Course Feedback form*). In addition, the leaders get student feedback from meetings with students which organized yearly and used this contributing for program improvements.

11.6 Feedback from various stakeholders is used for improvement

Evaluation results after every semester have been collected, processed by Quality Assurance and Testing Center and then sent to lecturers. Lecturers are the first to use the results for the adjustment and improvement in teaching process of different courses. The feedback from students and employers is also useful for updating the content of the courses and regularly reviewing the curriculum (*Exh.11.11. Documents of adjustments of courses).*

11.7 The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement.

BiRDI, along with the Quality Assurance & Testing Center and supporting units in CTU, always concentrates in the teaching quality improvement of the university. The improvements of teaching methods, assessment scheme, and assessment methods are strongly implemented by the teaching staff in their teaching activities. To the Advanced Program in Biotechnology, the quality assessment activities have been begun from the first batch of the program 2006 under the BiRDI Quality Assurance Group through the course and curriculum evaluation of undergraduates and graduates; teaching agenda; seminars, workshops about sharing and improving teaching and assessment. They are step and step accepted by students, academic staff as a main duty in teaching and learning process (*Exh.11.07. Curriculum Evaluation Form).* Until now, the internal and external evaluations are continuously and regularly carried out through the assurance system of CTU http://qat.ctu.edu.vn/qace/.

12. Staff Development Activities

Staff development is one of the major focuses of BiRD. This helps improve the quality of teaching and services of the Institute. There is an annual plan for staff recruitment as well as promotion, trainings and administrative staffs so that they could have more opportunities to contribute to the development of this Institute.

12.1 There is a clear plan on the needs for training and development of both academic and support staff

In the plan of operating the Advanced Program, CTU prepared and sent staff members to Michigan State University (US) for training during the peroid of 2006-2010 (Proposal of the Advanced Program). BiRDI also got a plan for staff recruitment as well as promotion and training for the administrative staffs for the period of 2008-2015 (*Exh.12.01. Staff development plan for 2008-2015).* In 2013, the Institute evaluated the implementation of this plan and updated it for the period of 2013-2022 *(Exh.12.02. Staff development plan for 2013-2022*). BiRDI offers favourable conditions supporting for the improvement of young lecturers in specialized knowlegde and English to prepare human resources for substituting the tasks of retired lecturers in a near future.
Staff recruitment is very competitive due to its high criteria. The priority is normally given to the research assistants/researchers of the Institute, who have had experiences and well attitude in their work as well as good background and practical skills in the field that they would be assigned to handle. BiRDI offers great opportunities to staff members so that they could improve specialized knowledge to qualify all the requirements of the University.
Thanks to a good plan for the development of staff, BiRDI now possesses a high quality staff resource. (*List of lecturers, see criteria 6; Exh.12.03. Curriculum Vitae of the staff members, Exh.12.04. Degrees/certificates of the staff members, Exh.12.05. Projects of the staff members, Exh.12.06. Publication of the staff members)*
BiRD evaluates and updates the plan annually, focusing on degreed and short training courses for all the staffs to ensure that they are able to work smoothly in the Advanced Program. (*Exh.12.07. Annual plan for staff trainings 2008, 2009, ...2014)*

12.2 The training and development activities for both academic and support staff are adequate to the identified needs

The lecturers are knowledgeable and skillful to handle courses in the Advanced Program, to use their teaching experiences effectively to convey knowledge and active learning process to students.
There are 9 lecturers and 1 administrative staff granted to take short training courses on "Teaching Methodology" and "Management of Curriculum and Students", respectively, at MSU from 2007-2010. (*Exh.12.08. Annual Report of the Program, Exh.12.09. Decision on nomation of lecturers to go to MSU*)

BiRDI has organized training course on "Teaching and developing curriculum for active and engaged learning" and "Teaching through consultation method" for 56 lecturers of CTU, including those teaching in the Biotechnology Program. The course is given by Profs. John M. Dirkx and Julie L.

Brockman from MSU (*Exh.12.10. Reports of "Teaching Skills and Curriculum Development for Active Learning" course*)

BiRD offers good opportunities and facilitates staff members to take their higher education degrees, particularly studying in developed countries. Indeed, there were 18 staffs already taking their higher study within 2007-2015, a number of them have graduated with high distinction. (table...)

Table 25: List of staffs taking higher educational degrees within 2007-2015

No.	Full name	Title	Field of study	Institution Country	Degree	Year obtained
1.	Tran Nhan Dung	Senior Lecturer	Biotechnology	Belgium	PhD	2007
2.	Bui Thi Minh Dieu	Lecturer	Biotechnology	Wageningen University – Netherlands	PhD	2010
3.	Nguyen Dac Khoa	Lecturer	Plant Pathology	University of Copenhagen, Denmark	PhD	2011
4.	Tran Vu Phuong	Lecturer	Biotechnology	CTU	MS	2011
5.	Huynh Xuan Phong	Lecturer	Biotechnology	CTU	MS	2011
6.	Duong Thi Huong Giang	Lecturer	Bio-engineering	Belgium	PhD	2012
7.	Nguyen Duc Do	Lecturer	Agriculture	Tokyo University of Agriculture and Technology, Japan	PhD	2012
8.	Do Tan Khang	Lecturer	Food Technology	Victoria University, Australia	MS	2012
9.	Huynh Ngoc Thanh Tam	Lecturer	Biotechnology	Nantes University, France	PhD	2014
10.	Nguyen Ngoc Thanh	Technician	Information Technology	University of Information Technology Ho Chi Minh City	BS	2011
11.	Tran Van Be Nam	Technician	Veterinary Medicince	Trà Vinh University	BS	2014
12.	Pham Van Hau	Lecturer	Biotechnology	Canada	PhD	(2015)
13.	Truong Thi Bich Van	Lecturer	Biotechnology	Japan	PhD	(2015)
14.	Nguyen Thi Pha	Lecturer	Microbiology	CTU	PhD	(2015)
15.	Vo Van Song Toan	Lecturer	Microbiology	CTU	PhD	(2015)
16.	Tran Thi Xuan Mai	Lecturer	Biotechnology	CTU	PhD	(2015)
17.	Nguyen Thi Lien	Lecturer	Biotechnology	CTU	MS	(2015)

**(Updated on 28 Mar. 2014)*

Based on the demands of the Advanced Program, BiRDI has annually offered different opportunities for staff members to take short training courses on their specialized fields (*Exh.12.11. List of staffs taking short training courses during 2007-2014*)

Table 26: Number of staff members taking short training courses during 2007-2014

Year	2007	2008	2009	2010	2011	2012	2013	2014
Number of staffs	10	8	2	12	3	10	2	1

13. Stakeholders Feedback

13.1 There is adequate structured feedback from the labor market

The Advanced Program in Biotechnology has been started since 2006. Up to the academic year 2011-2012, there have been 2 batches of students graduated from the Advanced Program in Biotechnology. BiRDI frequently keep contact with graduates, institutions where students attend practical training, and employers to collect feedback through 3 different forms, including:
- Printed survey questionnaires for institutions accepting practical training students (performed annually since 2010) and for employers and alumni (performed annually since 2013).
- Online survey: performed simultaneously with the printed survey forms since January 2014
- Direct discussion with institutions, employers and alumni.

The results from surveys indicated that
- One hundred percent of institutions felt satisfied with the working quality, manners and morality of students.
- 95% of employers appreciated students for their knowledge and professional skills which meet almost all of their requirements. They remarked the benefits of students studying Advanced Program in Biotechnology were ability in carry out scientific researching, professional skills, informatics skills and especially English skills.

Besides, many conferences organized by companies in the field of biotechnology show that there is a certain demand for students graduated from Biotechnology field to develop the human resources of many places.

13.2 There is adequate structured feedback from the students, graduates and alumni

BiRDI always keeps contact to graduated students. Progress of job seeking or studying at postgraduate levels of students is recorded and updated regularly.

Table 27: Survey on decisions (seeking jobs/persuading postgraduate education) of students graduated from Advanced Program in Biotechnology.
(Analyzed by sessions… - Up to April 2013)
Major: Biotechnology – Advanced Program

	Level of postgraduate persuading / Working institution	Graduated in 2011: 27 students	Graduated in 2012: 25 students	Graduated in 2013: 43 students
1	Master degree in Vietnam	8	1	3
2	Master degree abroad (*)	8		5
3	Doctorate degree in Vietnam			
4	Doctorate degree abroad	3		
5	Lecturer at Universities/Colleges			
	- Public:	2		1
	- Private:			1
6	Research Institutes	1	1	5
7	Others			
	- Public	2	3	1
	- Cooperated with international institution	4	6	4
	- Private	6	10	5

8	Seeking jobs		4	18

Feedback of graduates on the curriculum showed that they felt satisfied with the knowledge they had been provided and confident to apply for a job or participate in researching. (*Exh.13.01 Results of graduate survey*). There are also positive comments and suggestions for the curriculum from alumni, and all of these ideas are carefully considered by BiRDI to adjust and improve the content of curriculum for a better education qualification, facilitating students to well adapt with the real working environment after they graduate (*Exh.13.02. Curriculum evaluation form of the alumni*).

13.3 There is adequate structured feedback from the (teaching and support) staff

At the beginning of each semester, BiRDI always organizes a meeting for supporting all freshmen as well as receiving comments and suggestions from students and giving feedback to all aspect related to their study (*Exh.13.03. Minutes of the meeting between BiRDI leaders and students*). During these activities, students are also asked to evaluate or give comments for the curriculum. Besides, this work is also carried out through many workshops and meeting held by the Youth Union and the Student Association (*Exh.13.04. Minutes of the meeting between Youth Union/Student Association and students*). The information from the meetings is not only important for BiRDI to adjust the curriculum and teaching plan but also useful for Rectorate Board and Supporting Units of Can Tho university. All ideas, questions or comments from students will be considered and answered first by lecturers, then by the leaders of BiRDI or CTU Rectorate Board (if necessary).The satisfaction level of students is always recorded efficiently and betimes (*Exh.13.05. Course Evaluation form, Exh.13.06. Lecturer Evaluation form*).

In order to make the process of collecting feedback more convenient, BiRDI has uploaded all the survey forms onto the website and reserved the tab "Feedback from stakeholders" for all stakeholders to give comments online.

14. Output

14.1 The pass rate is satisfactory and dropout rate is of acceptable level

With two batches graduated in 2011 and 2012, the overall quality of graduated students meets the requirements of BiRDI with high proportion in good grade. There were no students at average grade.

Table 28: Academic result of students in batches 32 and 33

No	Batch	Total students	Excellent (3.60-4.00)		Good (3.20-3.59)		Fair (2.50-3.19)		Average (2.00-2.49)	
			Number of students	Proportion	Number of students	Proportion	Number of students	Proportion	Number of students	Proportion
1	Batch 32 (the first batch)	27	3	11.0%	19	70.5%	5	18.5%	0	0.0
2	Batch 33 (The second batch)	26	11	42.3%	11	42.3%	4	15.4%	0	0

14.2 Average time to graduate is satisfactory

The average time of Advanced Program in Biotechnology is 4.5 years (including one semester for Intensive English Program). Students can shorten the graduate rate to 4 years if they have a direction for thesis soon (from the third year) to complete the bachelor thesis simultaneously with other courses of the program.

14.3 Employability of graduates is satisfactory

The result from the survey of studying and employment of graduates from Advanced Program in Biotechnology shows that employability of graduates is satisfactory. In the total 52 graduates from two batches 32 and 33, there are only 4 graduates who have not found a job yet, accounting for 7.6%; however, these jobless graduates are in the process of applying for scholarships to study abroad. The number of students who persuade higher education is quite considerable, at 13 students, accounting for 25%.

14.4 The level of research activities by academic staff and students is satisfactory

1. Scientific research of lecturers

With the strength in scientific research and technology transfer, all lecture staff in BiRDI pay much attention on doing scientific research. From 2010, the lecture staffs have carried out 58 researches, including 2 national projects, 2 researches at protocol level, 13 researches at Ministerial level, 24 researches at University level, 10 researches at Provincial level, and 10 international projects (*Exh.14.01. List of scientific researches carried out by BiRDI staff*).

Table 29:Number of researches done by BiRDI staff in 2010-2014

Sources of fund	Number of researches					Total
	2010	2011	2012	2013	2014	
CTU	3	4	6	6	5	**24**
Department of Science and Technology and Department of Agriculture and Rural Development (Provincial)	4	3	1	2	-	**10**
Ministry of Education and Training and Ministry of Science and Technology (Central)	6	2	2	3	0	**13**
National project	0	2	1	0	1	**4**
International project (VLIR, MACBETH, ACP, CCP,…)	2	2	2	0	1	**7**
Total	**15**	**13**	**12**	**11**	**7**	**58**

(See details in Exh 14.01)

Through these researches, the lecture staff can not only enhance their research competence but also provide opportunities for students to take part in research activities. The lecture staff can also access and share their research results through national and international seminars or workshops organized in CTU and other universities (*Exh.14.02. Documents on seminars and workshops that BiRDI staff have participated*). This activity is an opportunity for lecturers to exchange teaching and researching experiences, and establish collaboration with other specialists and organizations. One of the important activities of doing research is to regularly publish research results in both national and international scientific journals (*Exh.14.03. List of BiRDI staff 's publications*). Since 2009, lecture staff in BiRDI have achieved 178 scientific publications, including books, textbooks, scientific articles, proceedings, etc…

Table 30: Number of BiRDI staff's publications in 2009-2013

Publisher	Number of publications					Total
	2009	2010	2011	2012	2013	
National publishers	31	39	23	24	29	**146**
International publisher	6	9	5	7	5	**32**
Total	**37**	**48**	**28**	**31**	**34**	**178**

(See details in Exh.14.03 List of BiRDI staff 's publications)

All researches are funded by national and international organizations in fields of technology improvement in fermented food production, diagnostic development for diseases caused by microorganisms on aquatic animals and plants, biofertilizers production alternative to chemical

fertilizers, gene conservation for crop resource, plant disease control by biological methods,... Many researches have been carried out followed the orders from localities in the Mekong Delta. Scientific activities of BiRDI have increasingly being developed in both quantity and quality, expanding partnerships with national and international organizations. With scientific researches, BiRDI could achieve more technology transfer contracts to serve the community, especially the products for the development of the Mekong Delta (*Exh.14.04. Contracts on technology transfer*).

2. Scientific research of students

Students are encouraged by CTU as well as BiRDI staff to propose scientific research, and a high proportion of those researches from BiRDI students are usually approved to perform in almost every call of CTU's funding. In particular, CTU and BiRDI have always paid much attention on scientific research activities of students, showing through the annual increase in research funding annual year and many supports from the Youth Union and other supporting units (*Exh.14.05. Announcement on Workshop about Scientifc Research for Students)*. All students of third and fourth year start to work in laboratory and take part in scientific research of BiRDI staff. Moreover, students also take the initiative in proposing their own scientific research and compete to win the fund from CTU to do their research (Table 14.5).

Table 31: Number of research done by Advanced Biotechnology Students

	C32	C33	C34	C35	C36
Number of research	11	5	4	6	5
Number of student participating	21/27	17/27	18/43	22/30	9/24
Percentage (%)	77.8	63.0	41.9	73.3	37.5

(See details in Exh.14.06. List of scientific researches carried out by students from Advanced Program in Biotechnology)

Through training program and scientific research at university, students improve the competence of specialized research, work independently and work in team. Students also have an opportunity to submit their scientific writing paper to national and international scientific conferences (*Exh.14.07. List of writing paper of students from Advanced Program in Biotechnology submitted for scientific conferences*) as well as participate confidentially in the workshop report (*Exh.14.08. List of workshops that students from Advanced Program in Biotechnology have participated*). Thanks to the guidance of scientific supervisor, students also actively publish research results in domestic and foreign magazines (*Exh.14.09. Publications of students from Advanced Program in Biotechnology)*. It is such an importance premise for students to access to practical research and publish the research results under the guidance of the academic staff.

Thanks to the strength of scientific research activities, students studying the Advanced program in Biotechnology have many advantages to achieve the high prizes in scholarships and prestige awards related to scientific research (*Exh.14.10. Scholarships and awards for students from Advanced Program in Biotechnology*).

Through the skills obtaining from solving the problems during thesis research, students will mature, be confident and well-prepared after graduating from university. This also leads to the establishment of the working style of graduated student in arranging work more scientifically, solving problem quickly and communicating more effectively and confidentially. Good scientific research and thesis are one of the strength help students to apply job as well as be appointed to a suitable position and get a chance to get scholarships for pursuing higher education.

15. Stakeholders Satisfaction

Survey system of stakeholders:

The surveys are taken on the following subjects:

- Current students, graduates, and alumni.
- Employers: goverment institutions, joint stock companies, private enterprises, foreign investment companies.
- Foreign lecturers and national scientists.

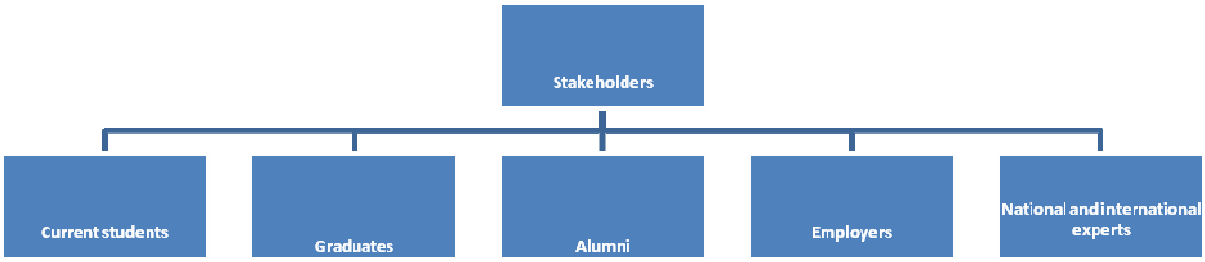


Figure 13: Survey System of Stakeholder

Collecting and measuring the level of satisfaction of stakeholders are carried out periodically. Students are interviewed after finishing every course (*Exh.15.01. Course evaluation of students*) as well as after graduated (*Exh.15.02. Curriculum evaluation of the alumni*). Besides, CTU always keeps contact with the employers to receive feedback in order to improve the training programs (*Exh.15.03. Program evaluation of the employers*).

2.15.1. Students Satisfaction

Students highly appreciate the Advanced Program in Biotechnology. Their opion is that the courses in this program provides fundamental as well as specialized knowledge, giving an overview and details about Biotechnology and related fields (*Exh.15.01. Course evaluation of students*). With this program, students can widen knowledge about the science and technologies for potential applications in real life.

Students are satisfied with teaching methods in which lecturers instruct and orientate students in self-studying and document searching. This helps students develop their active and independent attitude to learning as well as improve their time management skills.

Students also have opportunities to carry out researches to apply their knowledge into practice (*Exh.15.04. List of Scientific research carried out by students*). Their learning outcomes are highly compatible with their capacity due to strict assessment with qualified questions.

In the beginning of each school year, a meeting between the CTU leaders and students is organized so that the students can give their comments and suggestions to the leaders and receive feedbacks from them. In addition, students can also receive supports from BiRDI Student Service, BiRDI Academic Assistant and other supporting units in CTU whenever they have difficulties in their learning progress.

Table 32: Satisfaction of students about the Advanced Program in Biotechnology

Evaluation criteria	Number of students		Proportion	
	Agree	Disagree	Agree	Disagree
I. EXPECTED LEARNING OUTCOMES				
1. Students are satisfied with their learning outcomes.	40/40	0/40	100	0
2. The program meets the labor market.	37/40	3/40	92.5	7.5
II. STRUCTURE OF THE PROGRAM				

There are four blocks: General knowledge (18 credits), Fundamental knowledge (72-81 credits), Specialized knowledge (21-30 credits) and Industrial Practice (15 credits). Students are satisfied with the balance of those knowledge blocks.	36/40	4/40	90	10

2.15.2. Alumni Satisfaction

Information about sastisfaction level of 30/30 alumni studied Advanced Program in Biotechnology is presented in the Survey of alumni about the training program (*Exh.15.02. Curriculum evaluation of the alumni*). It is showed that 76.67% (23/3) alumni are satisfied with the program quality. The percentages of alumni who could be employed for a job in 6 months and 12 months after graduating are 50% and 16.6%, respectively.

The satisfaction level for academic documents and laboratory equipment makes up 50%. Research ability and Policy-Law compliance share similar level in satisfaction, at 53.33% each.

Most feedbacks from the alumni show satisfaction with the quality of the training program. They agree that the program highly supports their competence in working and solving problems relating to their professional, improve their adaptation for different actual working-environments and enhance their responsibilities in work. A small number of students work in closely-related fields of Biotechnology also reveal their satisfaction with the knowledge and skills they have learned.

However, the system of supporting students in applying for jobs or scholarships for studying postgraduate is still limited.

(See details in Exh.15.02. Curriculum evaluation of the alumni)

2.15.3. Employers Satisfaction

Results from employer surveys show that most of employers highly appreciate the outcomes of students studying Advanced Program in Biotechnology (*Exh.15.03. Program evaluation of the employers*).

Sixty percent of employers are satisfied with team-work skills and practice ability of the students, and the same percentage are very satisfied with their informatics skills.

In addition, there is also high appreciation from postgraduate training organizations for the learning capabilities of those students.

However, there are still some comments on the limitation in the width and depth of knowledge necessary for particular work of employees in some companies.

(See details in Exh.15.03. Program evaluation of the employers)

III. STRENGTHS AND WEAKNESS ANALYSIS

The analysis in this chapter covers the whole range of strategic issues in the report. It allows the items appearing in all of the previous parts.

1. Strengths and weaknesses

1.1. Expected Learning Outcomes (ELOs)

◆ **Strengths**
- The ELOs of the program are clearly formulated and reflect the needs of stakeholders.
- The ELOs of the program are disseminated to all stakeholders.
- The ELOs are translated into the program courses and are transmitted to the students thanks to active learning methods, scientific research activities, and the nurture for life-long learning.
- The program is benchmarked against the qualified national and international programs

◆ **Weakness**

The number of graduates is small (about 130 graduates), and the amount of feedbacks from stakeholders on program ELOs is limited.

◆ **Acts**
- The program will continue to be assessed every year and to be improved periodically.
- It is required CTU and BiRDI strengthen the relationship with stakeholders and apply a set of online tools to get more feedbacks from alumni and employers about the output standards and the training program-related activities.

1.2. Program Specification

◆ **Strengths**
- The program specification shows the ELOs & useful information about the program.
- The program specification is communicated to stakeholders.

◆ **Weaknesses**
- BiRDI has not evaluated the relation between the ELOs and the program specification and how to achieve them all.
- The communication of program specification to stakeholders is limited

◆ **Acts**
- BiRDI evaluates the relation between the ELOs and program specification Since 2014, the communication of program specification will be applied to all stakeholders

1.3. Program structure and content

◆ **Strengths**
- The Program Specification shows ELOs & useful information about the program.
- There is the Program Specification that is communicated to stakeholders.

◆ **Weaknesses**
- BiRDI doesn't evaluate relation between ELOs and Program Specification and how to achieve yet.
- Communication of Program Specification to stakeholders is limited.

◆ **Acts**
- BiRDI evaluates relation between ELOs and Program Specification
- From January 2014, The communication of Program Specification will be opened to all stakeholders.

1.4. Teaching and Learning Strategy

◆ **Strengths**

- Students follow the learning program based on the program of MSU. Then they could approach active teaching methodology of foreign professors and their English was improved.
- BIRDI always encourage lecturers and providing modern equipments for both theory and practical work. Students were more active in learning. The program was checked annually by Ministry of Education and Training. By interviewing students, lecturers gained more experiences in teaching.
- The number of scientific research of Advanced Biotechnology program is higher than those of other faculties in CTU. These researches received many national awards and from CTU. This result proves that students from Advanced Biotechnology program were very creative.

◆ **Weakness**

English proficiency of some students is not good enough when they first enter the program and they needed to upgrade continuously during their program.

◆ **Act**

Lecturers pay more attention to students and help them to study English and introduced them to followed English courses in Center for foreign language of CTU. Students were required to write and defend their final dissertation successfully in English.

1.5. Student Assessment

◆ **Strengths**

- The system of assessment regulations are completely established, consistently applied, constantly updated and adjusted to suit the current situation.
- Lecturers implement the assessment by using the variety of assessment methods, leading to the high efficiency in assessment, reflecting the true quality of students, assuring the impartiality, fair and consistence of training methods.

◆ **Weakness**

Although the bank of exam questionnaire has been set up since 2014, it is presently still not complete and not widespread yet.

◆ **Act**

Keep going on to set up the bank of exam questionnaire for all courses, estimated to complete by August 2015.

1.6. Academic Staff Quality

◆ **Strengths**

- Enthusiastic staff members with high competence in teaching and doing research
- Appropriate task assignment based on the background, working experiences, and personal skills of each staff. This help ensure teaching quality.
- Staff members are encouraged to take training courses or get higher degrees, especially studying abroad in developed countries and obtaining great advantages and techniques from collaborative projects/programs with advanced countries.
- The current staff management policies encourage the staff members work actively with high responsibility and discipline.

◆ **Weakness**

Deficient number of professors

◆ **Acts**

- Encourage and facilitate staff member to quanlify to apply for the professorship. Our goal is to have 5 professors within the next 5 years.
- Invite professors from other institutions of Vietnam or other countries to teach our students.

1.7. Support Staff Quality

◆ **Strengths**

- The Administrative Office does its consultancy task to the BiRDI leaders regarding management and governance of the Institute. Most of the staffs are highly experienced and competent, in addition to the professional training courses (on management, governance, English laguague, IT, etc.) that they have been encouraged to take; these help them fulfilling their tasks smoothly. Indeed, tasks regarding administration, academic affairs, students' affairs, budget proposal and liquidation for teaching theoretical and practical courses have normally been completed on time.
- The staffs are highly experienced and enthusiastic. Their working environment is friendly.

◆ **Weakness**

The staffs have sometimes been overloaded with different tasks. Only one of the 3 specialists is paid by CTU while the other 2 are paid BiRDI own budget which leads to financial problem.

◆ **Acts**

BiRD has proposed the appointment of 2 lab technicians in 2014 from CTU budget.

1.8. Student Quality

◆ **Strengths**

- The recruitment process is carried out strictly and scientifically.
- Studying load is suitably designed and carried out scientifically.
- Academic advisors and administrative staff receive, process, and advise new students efficiently.

- Recruiting announcement is highly efficient.

◆ **Weakness**

The English competence in students is not balanced.

◆ **Act**

Help students improve English skills through teaching and studying activities. Students who cannot meet the requirement of English are helped by lecturers in class and advised to attend some special courses at the Foreign Language Center of CTU.

1.9. Student Advice and Support

◆ **Strength:**

Through the online academic administration system, the study plan and the progression of the students is fully and closely monitored so the academic advisor and the student assistance can give the timely consultancy and guidance if necessary.

The academic warning helps the students' families and the staffs of University pay attention betimes to students who have bad results in study, then providing timely actions to help them study better in the next semesters.

The learning materials are diversified and plentifully served by the Learning Resource Center (six days/week) and the institute library, the online syllabus and references as well as the internet access system are available in good service condition.

A number of scholarships from the university and the institute offered to the poor and outstanding students to partly solve the financial difficulties during the study progress of students.

Beside of scholarships configured by the government and university, the institute has established the Biotechnology grant to help the poor and outstanding students.

◆ **Weakness**

The survey work recording the opinion of lecturers and students on the supporting activities for the timely adjustment and improvement of the training serving quality has not been carried out regularly and systematically.

◆ **Act**

The Institute will make a concrete plan and conduct the periodic survey to record the opinions and comments of lecturers and students on the supporting activities.

1.10. Facilities and Infrastructure

◆ **Strengths**

- The program has received diverse investments from national and international organizations. The facilities and infrastructures of BiRDI as well as CTU are sufficient and modern in comparison with South-eastern Asian countries, meeting the teaching, studying and researching demands of lecturers and students.

- CTU has a modern LRC with Asian standard. Libraries of BiRDI and other faculties are frequently upgraded learning resources from Vietnam and other countries.

◆ **Weakness**

Some laboratories located in the old building have to move to the new building which is going to build in 2015.

◆ **Acts**

- Continue to use funds from CTU and research projects for maintaining and repairing instruments in laboratories.
- Prepare for the establishment of the new building in 2015.

1.11. Quality Assurance of Teaching and Learning Process

◆ **Strengths**

- The program has been based on the original program of *Biochemistry & Molecular Biology/Biotechnology Major* of Michigan State University, the United States (MSU) with the approval of MOET, and assessed annually by MoET.
- The content of the curriculum is updated and periodic improved to be suitable for the requirement of society as well as the activeness and creativity of students. Lecturers get feedbacks from students to improve the course specification and teaching method if necessary.
- CTU has the quality assurance system and effective software for academic administration system, organizes meetings between students and leaders of BiRDI and Rectorate Board to solve all problems

in learning process. The course evaluation of undergraduates is step by step improved by online performance instead.

◆ **Weakness:**

The evaluation is not carried out enthusiastically by the students and lecturers. Reporting about teaching agenda and giving opinions about teaching and learning process are not still considered one of the prime condition for constantly improving teaching and learning.

◆ **Acts**

Establish the quality culture in BiRDI staff.

1.12. Staff Development Activities

◆ **Strengths**

- BiRDI submitted a staff development plan to CTU which has already been approved. The plan has regularly been evaluated and revised hang on current demands. The staff members have good opportunities to persue higher education or participate in short training courses related to their specialized fields.
- Beside BiRDI lectures, those from other Colleges, Falcuty of CTU having degrees on Biotech-related fields also participate in teaching at the Institute. Young generations of lecturers have been well-prepared to substitute the tasks of retired lecturers in future.

◆ **Weakness**

Limited numbers of technicians and other supporting staffs

◆ **Acts**

- Continue evaluating, revising and improving the staff development plan
- Offer good working conditions and reasonable incomes to the staff members. Suggestions: Increase the number of technicians and other supporting staffs

1.13. Stakeholders Feedback

◆ **Strengths**

- Collaborating with companies to organize workshops related to Biotechnology field is an effective manner which can help to collect the feedback and the demand of labor market as well as introduce jobs to students.
- Staying in touch with alumni help BiRDI update useful information, improve the curriculum, develop innovative teaching and studying methods in order to enhance the education quality, adjust the need of society as well as upgrade facilities and teaching conditions timely, adapt to new requirements for biotechnology professionals.
- An online surveying system is necessary and convenient for collecting feedback from stakeholders.

◆ **Weaknesses**

- Many students lack confidence to share their own thought or even do not care about the learning process. They just try to finish the program instead.
- The process of collecting feedback from stakeholders is facing many difficulties as they do not pay much attention on the feedback due to lack of time
- The feedback is still limited in quantity due to small number of graduates.

◆ **Act**

- Through the Youth Union and the Department of Student Association, graduates are kept in touch to record the satisfaction level with all activities in class, institute and university.
- The relationship between BiRDI and companies is continuously consolidated through regular contact.

1.14. Output

◆**Strengths**

- Lecturers work strongly in scientific research and have a lot of scientific articles.
- Transmission technology serving the community effectively contributes to the development of Mekong Delta in particular.
- University has a high proportion of excellent graduated students who have high level on foreign language so it is easy for them to get scholarship for higher education.
- Students have opportunities to do scientific research for students during study time and get soft skills based on the scientific conferences, working in team,… these chances lead to the great success of graduated students and the output results are equivalent to the objectives of the training program.

- Employers appreciate students based on specialized knowledge, technical skills, foreign language level and informatics, team work and capacity of negotiation.

◆**Weakness**

As employers evaluated, the formal writing skills of students is quite limited.

◆ **Act**

Enhance courses about practical Vietnamese usage and formal writing skill for students.

1.15. Stakeholders Satisfaction

◆ **Strengths**

- A majority of students and alumni are satisfied with the training program, teaching methods, supporting services and facilities of CTU and BiRDI
- Employers are satisfied with the quality of students studying the Advanced Program in Biotechnology and express their recruitment demand in the future.

◆ **Weakness**

A few employers suggest improving the linkage between the training program and the practical work.

◆ **Act**

Maintain and develop the survey system to receive feedbacks from the stakeholders about the training program and the educational quality for persistent improvement.

2. Self-assessment at Program level

1	Expected Learning Outcomes	1	2	3	4	5	6	7
1.1	The expected learning outcomes have been clearly formulated and translated into the program					X		
1.2	The program promotes life-long learning					X		
1.3	The expected learning outcomes cover both generic and specialised skills and knowledge					X		
1.4	The expected learning outcomes clearly reflect the requirements of the stakeholders				X			
	Overall opinion							
2	**Program Specification**							
2.1	The university uses program specification						X	
2.2	The program specification shows the expected learning outcomes and how these can be achieved					X		
2.3	The program specification is informative, communicated, and made available to the stakeholders					X		
	Overall opinion							
3	**Program Structure and Content**							
3.1	The program content shows a good balance between generic and specialised skills and knowledge						X	
3.2	The program reflects the vision and mission of the university						X	
3.3	The contribution made by each course to achieving the learning outcomes is clear					X		

3.4	The program is coherent and all subjects and courses have been integrated					X		
3.5	The program shows breadth and depth					X		
3.6	The program clearly shows the basic courses, intermediate courses, specialised courses and the final project, thesis or dissertation					X		
3.7	The program content is up-to-date					X		
	Overall opinion							
4	**Teaching and Learning Strategy**							
4.1	The faculty or department has a clear teaching and learning strategy						X	
4.2	The teaching and learning strategy enables students to acquire and use knowledge academically						X	
4.3	The teaching and learning strategy is student oriented and stimulates quality learning						X	
4.4	The teaching and learning strategy stimulates action learning and facilitates learning to learn						X	
	Overall opinion							
5	**Student Assessment**							
5.1	Student assessment covers student entrance, student progress and exit tests					X		
5.2	The assessment is criterion-referenced						X	
5.3	Student assessment uses a variety of methods						X	
5.4	Student assessment reflects the expected learning outcomes and the content of the program					X		
5.5	The criteria for assessment are explicit and well-known					X		
5.6	The assessment methods cover the objectives of the curriculum						X	
5.7	The standards applied in the assessment are explicit and consistent					X		
	Overall opinion							
6	**Academic Staff Quality**							
6.1	The staff are competent for their tasks						X	
6.2	The staff are sufficient to deliver the curriculum adequately						X	
6.3	Recruitment and promotion are based on academic merits					X		
6.4	The roles and relationship of staff members are well defined and understood					X		

6.5	Duties allocated are appropriate to qualifications, experience and skills					X		
6.6	Staff workload and incentive systems are designed to support the quality of teaching and learning					X		
6.7	Accountability of the staff members is well regulated					X		
6.8	There are provisions for review, consultation and redeployment						X	
6.9	Termination and retirement are planned and well implemented						X	
6.10	There is an efficient appraisal system					X		
	Overall opinion							
7	**Support Staff Quality**							
7.1	The library staff are competent and adequate in providing a satisfactory level of service					X		
7.2	The laboratory staff are competent and adequate in providing a satisfactory level of service						X	
7.3	The computer facility staff are competent and adequate in providing a satisfactory level of service					X		
7.4	The student services staff are competent and adequate in providing a satisfactory level of service						X	
	Overall opinion							
8	**Student Quality**							
8.1	There is a clear student intake policy						X	
8.2	The student admission process is adequate						X	
8.3	The actual study load is in line with the prescribed load						X	
	Overall opinion							
9	**Student Advice and Support**							
9.1	There is an adequate student progress monitoring system						X	
9.2	Students get adequate academic advice, support and feedback on their performance						X	
9.3	Mentoring for students is adequate						X	
9.4	The physical, social and psychological environment for the student is satisfactory						X	
	Overall opinion							
10	**Facilities and Infrastructure**							

10.1	The lecture facilities (lecture halls, small course rooms) are adequate						X	
10.2	The library is adequate and up-to-date						X	
10.3	The laboratories are adequate and up-to-date						X	
10.4	The computer facilities are adequate and up-to-date						X	
10.5	Environmental health and safety standards meet requirements in all aspects					X		
	Overall opinion							
11	**Quality Assurance of Teaching and Learning Process**							
11.1	The curriculum is developed by all teaching staff members					X		
11.2	The curriculum development involves students					X		
11.3	The curriculum development involves the labor market					X		
11.4	The curriculum is regularly evaluated at reasonable time periods							X
11.5	Courses and curriculum are subject to structured student evaluation						X	
11.6	Feedback from various stakeholders is used for improvement						X	
11.7	The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement						X	
	Overall opinion							
12	**Staff Development Activities**							
12.1	There is a clear plan on the needs for training and development of both academic and support staff					X		
12.2	The training and development activities for both academic and support staff are adequate to the identified needs					X		
	Overall opinion							
13	**Stakeholders Feedback**							
13.1	There is adequate structured feedback from the labor market					X		
13.2	There is adequate structured feedback from the students and alumni						X	
13.3	There is adequate structured feedback from the staff						X	
	Overall opinion							
14	**Output**							
14.1	The pass rate is satisfactory and dropout rate is of acceptable level						X	

14.2	Average time to graduate is satisfactory						X	
14.3	Employability of graduates is satisfactory						X	
14.4	The level of research activities by academic staff and students is satisfactory							X
	Overall opinion							
15	**Stakeholders Satisfaction**							
15.1	The feedback from stakeholders is satisfactory						X	
	Overall opinion							
Overall verdict								

IV. APPENDICES

1. List of Figures and Tables

Item	Table and Figure name	Remarks
1.	Figure 1: The structure of CTU and units	Introduction
2.	Figure 2: The structure of BiRDI and its departments	Introduction
3.	Figure 3: The relationship between BiRDI and other units in CTU in program training	Introduction
4.	Figure 4: QA Activities in BiRDI	Introduction
5.	Figure 5: The life-long learning pathway in Biotechnology	Criterion 1
6.	Figure 6.The mutual relationship among knowledge blocks	Criterion 2
7.	Figure 7: Flow-chat of Studying	Criterion 3
8.	Figure 8: Categories in the cognitive domain of Bloom's Taxonomy	Criterion 5
9.	Figure 9:The number of applicants and students passing the exam for Biotechnology Program vs. years	Criterion 8
10.	Figure 10: Lecture hall and laboratory area at BiRDI	Criterion 10
11.	Figure 11: Learning Resource Center and a typical computer room	Criterion 10
12.	Figure 12: Laboratory and practical class	Criterion 10
13.	Figure 13: Survey System of Stakeholder	Criterion 15
14.	Table 1. How to train in the lifelong learning context	
15.	Table 2: Expected learning outcomes grouped by knowledge, skills, attitudes and life-long learning skill	
16.	Table 3: Structure of the curriculum	
17.	Table 4: Knowledge block weights	
18.	Table 5: General Education (56 credits)	
19.	Table 6: Foundation Core (43 credits)	
20.	Table 7: Foundation Elective (Minimum 12 credits)	
21.	Table 8: Professional Core (23 credits)	
22.	Table 9: Professional Elective (Minimum 7 credits)	
23.	Table 10: Recommended Study Plan	
24.	Table 11. Matrix courses vs. learning outcomes (Skill matrix)	
25.	Table 12: The classification of learning results based on grade scales.	

2. List of Evidences

CRITERIA 1. EXPECTED LEARNING OUTCOMES		
Code	**Title of evidences**	**Category**
Exh.1.01	Đề án Quy hoạch phát triển tổng thể Trường ĐHCT trọng điểm đến năm 2020).	
Exh.1.02	Decision to promote student for international learning	
Exh.1.03	Biên bản hội thảo, hình ảnh, emails…..	
CRITERIA 2. PROGRAM SPECIFICATION		
Code	**Title of evidences**	**Category**
Exh.2.01	Certificates	
Exh.2.02	Bien ban hội thảo, feedbacks	Document
Exh.2.03	Statute 43/2007 of the Ministry of Education and Training	Document
Exh.2.04	Course Outlines	Document
Exh.2.06	Khen thuong SV các cấp	Document
Exh.2.07	LVTN va BB danh gia).	
Exh.2.08	Nghien cuu KH SV	Document
Exh.2.09	Biên bản HĐ, Giấy nhận xét phản biện	Document
Exh.2.10	bai bao Khoa hoc SV	Document
Exh.2.11	lich làm việc của các chuyên gia mời giảng CTTT_Ms. Dung)	
Exh.2.12	Van ban dieu chinh CTDT	Document
Exh.2.13	websites CTU & BiRDI	Website
CRITERIA 3. PROGRAM STRUCTURE AND CONTENT		
Code	**Title of evidences**	**Category**
Exh.3.01	Guideline for Biotechnology students	
Exh.3.02	Course Outlines	
Exh.3.03	Thực tập cơ sở	
Exh.3.04	Bài báo cáo Thực tập cơ sở	
Exh.3.05	Phiếu nhận xét của cơ sở thực tập	
Exh.3.06	QĐ thành lập Hội đồng Luận văn TN	
Exh.3.07	Biên bản Hội đồng LVTN	
Exh.3.08	Biên bản hội thảo	
Exh.3.09	các Biên bản Kiểm tra đánh giá CT của Bộ	
Exh.3.10	Biên bản Hội Thảo 2014	
Exh.3.11	Academic Regulations	
Exh.3.12	Course syllabus	
Exh.3.13	School schedule	
CRITERIA 4. TEACHING AND LEARNING STRATEGY		
Code	**Title of evidences**	**Category**
Exh.4.01	Statute 43/2007 of the Ministry of Education and Training	
Exh.4.02	Academic Regulations	
Exh.4.03	Teaching plans	
Exh.4.04	Lecturers's handbooks	
Exh.4.05	Certificate on attending workshop on teaching and learning in university education	
Exh.4.06	Certificate on attending the workshop "Developing curriculum and teaching for active and engaged learning"	
Exh.4.07	Invitation letters for international professors and specialists	
Exh.4.08	Survey of employers about the employees graduated from Advanced Biotechnology Program	
Exh.4.09	Seminar presentation of students	
Exh.4.10	Study-case exercises	
Exh.4.11	powerpoint slides of lectures	
Exh.4.12	video clip supporting for lectures	

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Exh.4.14	List of students practising and training at working institutions	
Exh.4.15	Student reports of the course Practical training in Industry	
Exh.4.16	Student presentations in international workshop	
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Exh.4.19	Anouncement on contests organized by CTU	
Exh.4.20	Awards for contests	
Exh.4.21	KOVA prizes for students in Advanced Program in Biotechnology	
Exh.4.22	Invitation letter for student exchange	
Exh.04.23	Document on funding for students to do research in international institutions	
CRITERIA 5. STUDENT ASSESSMENT		
Code	**Title of evidences**	**Category**
Exh.5.01	Statute 43/2007 of Ministry of Education and Training about academic assessment	
Exh.5.02	Academic regulations of Can Tho University	
Exh.5.03	Academic curriculums are shown on website: http://birdi.ctu.edu.vn/birdi_cttt/index.php?option=com_content&view=category&layout=blog&id=36&Itemid=56	
Exh.5.04	Circular of Ministry of Education and Training about the undergraduate output standards	
Exh.5.05	Announcement on admission scores	
Exh.5.06	Results of English test	
Exh.5.07	Question booklet of English test	
Exh.5.08	Course specification	
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Exh.5.10	Students' Assignments	
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Exh.5.13	Bachelor Thesis (in Vietnamese)	
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Exh.5.15	Assessment of bachelor thesis	
Exh.5.16	Decision on the establishment of Examination Committee to evaluate bachelor theses	
Exh.5.17	Decision on promulgating about extracurricular activities assessment form	
Exh.5.18	Academic transcript	
Exh.5.19	Website of academic administration system: https://htql.ctu.edu.vn/htql/login.php	
Exh.5.20	complaints procedure of the test results	
Exh.5.21	Student handbook	
CRITERA 6. ACADEMIC STAFF QUALITY		
Code	**Title of evidences**	**Category**
Exh.6.01	Curriculum vitae of the staff members	
Exh.6.02	Teaching plan of the advanced program in Biotechnology 2006-2013	
Exh.6.03	Plan of visiting lecturers invitation 2008-2014	
Exh.6.04	Job announcement of BiRDI	
Exh.6.05	Regulation of organization and administration on academic affairs, improvement of staff standard in CTU	
Exh.6.06	Plan on judging salary increase and seniority subsidization exceeding the 2010 regulation frame	
Exh.6.07	Plan on judging salary increase and seniority subsidization exceeding the 2011 regulation frame	
Exh.6.08	Plan on judging salary increase and seniority subsidization exceeding the 2012 regulation frame	

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Exh.6.10	Minutes of Committee on judging salary increase in 2010	
Exh.6.11	Minutes of Committee on judging salary increase in 2011	
Exh.6.12	Minutes of Committee on judging salary increase in 2012	
Exh.6.13	Minutes of Committee on judging salary increase in 2013	
Exh.6.14	Decision on salary increase in 2010	
Exh.6.15	Decision on salary increase in 2011	
Exh.6.16	Decision on salary increase in 2012	
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Exh.6.19	Statue of administration on specialized task of staff in CTU – 31/12/2013	
Exh.6.20	Emulative registration form – 2010	
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Exh.6.27	Plan on conducting staff evaluation and judging for emulation and sanction -2011	
Exh.6.28	Plan on conducting staff evaluation and judging for emulation and sanction -2012	
Exh.6.29	Plan on conducting staff evaluation and judging for emulation and sanction -2013	
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Exh.6.36	Plan on implementation of the appointment, reappointment for the leaders in the new term	
Exh.6.37	Decision on promulgating the process to appoint, reappoint the leaders at all levels within the authority of CTU	
Exh.6.38	CTU administration website	
Exh.6.39	Annual plan for professional activities of CTU staff and Departments	
Exh.6.40	Plan for staff promotion	
Exh.6.41	Criteria for special case of staff promotion	
Exh.6.42	Notice of retirement	
Exh.6.43	Decision for retirement	
Exh.6.44	Self-evaluation form	
Exh.6.45	Minutes of the staff evaluation and reward meeting	
CRITERIA 7. SUPPORT STAFF QUALITY		
Code	**Title of evidences**	**Category**
Exh.7.01	List of the Learning Resource Center staffs and their degrees	
Exh.7.02	Website of the Learning Resource Center http://www.lrc.ctu.edu.vn/eng/	
Exh.7.03	Website of the library of College of Agriculture and Applied Biology http://caab.ctu.edu.vn/thuvien/	
Exh.7.04	Website of Department of Facility Management http://websrv2.ctu.edu.vn/dept/dfm/	
Exh.7.05	Degree of computer facility staff	

Exh.7.06	Decision on task appointment of student's affairs	
Exh.7.07	Anuual staff evaluation form	
CRITERIA 8. STUDENT QUALITY		
Code	**Title of evidences**	**Category**
Exh.8.01	Anouncement for recruitment from Department of Academic Affairs	
Exh.8.02	List of candidates for Biotechnology Program 2013	
Exh.8.03	Selecting result for Biotechnology Program 2013	
Exh.8.04	Schedule for Intensive English Course, Semester I- 2013 – 2014 – Biotechnology 2013	
Exh.8.05	Announcement on the studying plan of Biotechnology class 2013	
Exh.8.06	posters, leaflet about Advanced Program in Biotechnology	
Exh.8.07	Website of Advanced Biotechnology Program http://birdi.ctu.edu.vn/birdi_cttt/)	
Exh.8.08	Documents of English Examination 2003	
Exh.8.09	Academic Regulations	
Exh.8.10	Studying plan of Biotechnology class 2012	
Exh.8.11	Final result of Intensive English Foundation Course	
Exh.8.12	Letters for approving the scholarships	
CRITERIA 9. STUDENT ADVICE AND SUPPORT		
Code	**Title of evidences**	**Category**
Exh.9.01	Decision no. 2067/QĐ-ĐHCT in 2007_decision of appointment for academic advisor	
Exh.9.02	Minutes of class meeting	
Exh.9.03	Website of academic administration system: https://htql.ctu.edu.vn/htql/login.php	
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Exh.9.06	Decision on Regulations of educational affairs for regular undergraduate students	
Exh.9.07	Announcement for students who had poor results	
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Exh.9.27	Announcement about the festival "Dell Day Job"	
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Exh.9.29	Website of Department of Student Assistance: http://websrv2.ctu.edu.vn/dept/dsa/	

Exh.9.30	Plan for meeting with BiRDI leaders	
Exh.9.31	Minutes of meeting with BiRDI leaders	
Exh.9.32	Regulations of the Dormitory	
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Exh.9.34	Announcement on paying compulsory health insurance	
Exh.9.35	Announcement No.85/TB-CTSV: Announcement on Eczema (Paederus fuscipes Curtis) warning	
Exh.9.36	List of academic advisors	
Exh.9.37	Announcement about the contest "Writing a tribute"	
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CRITERIA 10. FACILITIES AND INFARSTRUCTURE		
Code	**Title of evidences**	**Category**
Exh.10.01	Document on wifi system of Can Tho University	
Exh.10.02	Website e-learning system https://lms.ctu.edu.vn/dokeos/index.php	
Exh.10.03	Pictures of i-clicker system	
Exh.10.04	Regulations of using meeting room in Learning Resource Center	
Exh.10.05	Documents on students' activities in BiRDI's Hall	
Exh.10.06	Allocation of CTU fund for BiRDI and Advanced Program in Biotechnology	
Exh.10.07	Regulations of computer room	
Exh.10.08	Announcement on course registration	
Exh.10.09	Website of the Learning Resource Center http://www.lrc.ctu.edu.vn/eng/	
Exh.10.10	Website of digital collections http://digital.lrc.ctu.edu.vn/	
Exh.10.11	List of documents of national and international journals on LRC website	
Exh.10.12	List of ducuments in BiRDI library	
Exh.10.13	Regulations of BiRDI Library	
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Exh.10.16	Decision No. 1508/QĐ-ĐHCT about establishment of CTU Publishing House	
Exh.10.17	Decision No. 4061/QĐ-ĐHCT about establishment of House of Newspaper of CTU	
Exh.10.18	List of primary devices and equipment in BiRDI labs	
Exh.10.19	MHO and VLIR Projects	
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Exh.10.25	Anouncement on providing email account for students	
Exh.10.26	Regulations of BiRDI Lab	
Exh.10.27	Announcement on environment cleaning of the Youth Union	
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Exh.10.29	Regulations of using BiRDI volleyball court	
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Exh.10.31	Fire safety Regulations	
Exh.10.32	Map of fire extinguisher location in BiRDI	
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Exh.11.01	Contracts of syllabus design	
Exh.11.02	Minutes of the Conference on Assessment of Advanced Program in Biotechnology	
Exh.11.03	Minutes of the Conference on Assessment of Advanced Program in Biotechnology	
Exh.11.04	Decision No. 7738/QĐ-BGDĐT on 28th March, 2006	
Exh.11.05	Decision No.495/QĐ-ĐHCT on May 18, 2006	
Exh.11.06	Course Evaluation Form	
Exh.11.07	Curriculum Evaluation Form	
Exh.11.08	The results of surveying employers about graduates from Advanced Program in Biotechnology	
Exh.11.09	Working schedules for Advanced Program in Biotechnology	
Exh.11.10	Course Feedback sample	
Exh.11.11	Documents of adjustments of courses	
CRITERIA 12. STAFF DEVELOPMENT ACITIVITIES		
Code	**Title of evidences**	**Category**
Exh.12.01	Staff development plan for 2008-2015	
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Exh.12.03	Curriculum Vitae of the staff members	
Exh.12.04	Degrees/certificates of the staff members	
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Exh.12.07	Annual plan for staff trainings 2008, 2009, ...2014	
Exh.12.08	Annual Report of the Program	
Exh.12.09	Decision on nomation of lecturers to go to MSU	
Exh.12.10	Rreports of "Teaching Skills and Curriculum Development for Active Learning" course	
Exh.12.11	List of staffs taking short training courses during 2007-2014	
CRITERIA 13. STAKEHOLDERS FEEDBACK		
Code	**Title of evidences**	**Category**
Exh.13.01	Results of graduate survey	
Exh.13.02	Curriculum evaluation form of the alumni	
Exh.13.03	Minutes of the meeting between BiRDI leaders and students	
Exh.13.04	Minutes of the meeting between Youth Union/Student Association and students	
Exh.13.05	Course Evaluation form	
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CRITERIA 14. OUTPUT		
Code	**Title of evidences**	**Category**
Exh.14.01	List of scientific researches carried out by BiRDI staff	
Exh.14.02	Documents on seminars and workshops that BiRDI staff have participated	
Exh.14.03	List of BiRDI staff 's publications	
Exh.14.04	Contracts on technology transfer	
Exh.14.05	Announcement on Workshop about Scientifc Research for Students	
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Exh.15.01	Course evaluation of students	
Exh.15.02	Curriculum evaluation of the alumni	
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Exh.15.04	List of Scientific research carried out by students	

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