



ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ
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សាកលវិទ្យាល័យជាតិបាត់ដំបង
មហាវិទ្យាល័យកសិកម្ម និងកែច្នៃអាហារ
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Curriculum Development

Department of Agriculture

Major: Agroecology

Bachelor’s degree

Program Educational Objectives

The Program Educational Objectives (PEOs) is intended to accommodate the national need in the development of planning studies.

- PEO 1:** Apply agroecological principles to enhance the sustainability of the Cambodian agriculture sector.
- PEO 2:** Develop innovative solutions for sustainable food production systems.
- PEO 3:** Support agroecological businesses based on, healthy and environmentally friendly value chains.
- PEO 4:** Apply technology-enhanced agroecological practices to support market growth.

Program Intended Learning Outcomes (PILOs)

The Agroecology program was designed to meet labour market needs in Cambodia and stakeholder feedback was used to define the Program Intended Learning Outcomes (PILOs). The program prepares graduates to become agroecologists, with comprehensive and contemporary knowledge of food systems, critical for employment in a few sectors - private enterprise, government institutions, non-government organizations.

Four main areas of the academic program include:

- **Knowledge:**
 - PILO1: Define** the principles of agroecology.
 - PILO2: Descript** agroecological principles.

PILO3: Identify advantages of agroecology approaches.

- **Cognitive skill:**

PILO4: Analyse agroecological techniques to improve sustainable agriculture by applying ecological principles.

PILO5: Develop innovative sustainability solutions for food production systems.

PILO6: Establish agroecological system business for fair, healthy and environmentally friendly value chains.

- **Interpersonal skills and responsibility:**

PILO7: Work effectively individually, in teams and in a range of setting (professional and community)

PILO8: Develop interpersonal skills, leadership skills, and independent learning skills useful for employment related to agroecology.

- **Communication, information technology, and numerical skills:**

PILO09: Apply ICT for agroecological practices and digital marketing.

PILO10: Demonstrate an ability to effectively communicate information and ideas in Khmer and in English in both local and international contexts.

PILO11: Undertake qualitative and quantitative studies and communicate findings use agroecological data/statistical analysis.

- **Psychomotor skills:**

PILO12: Demonstrate an appreciation of ecological principles in sustainable agricultural development in the respect of national interests, culture, and cultural diversity.

PILO13: Apply ecological principles in agricultural practices.

Program Structure and Credit Systems

The credit written as [a (b – c – d)] format in the credit curriculum meaning: a – number of credits for each course, b – number of hours for studies taking theory in class, c – number of hours for students taking practical work in laboratory or field, and d – number of self-studies of students.

	Semester 1	Credit	Semester 2	Credit
Year 1: Theories and foundation knowledge	Khmer Language for Communication	3(3-0-6)	English for Science	3(3-0-6)
	Humanity and Civilization	3(3-0-6)	Applied mathematics	3(3-0-6)
	Applied Biology	3(2-1-4)	Biochemistry	3(2-1-4)
	Foundation English	3(3-0-6)	Smart Agriculture	3(2-1-4)
	General Chemistry	3(2-1-4)	Agribusiness	3(3-0-6)

	Introduction to Agroecology	3(3-0-6)	Introduction to Microbiology	3(2-1-4)
			Agricultural Field Work I	1(1-2-4)
Total credit: 34		18		19
Year 2: Exploring and explaining basic concepts	Logistic and Supply Chain Management	3(3-0-6)	Plant Physiology and Nutrition	3(2-1-4)
	Botany	3(2-1-4)	Applied Entomology	3(2-1-4)
	Applied Soil Science	3(2-1-4)	Agroecology in the Cambodian context	3(3-0-6)
	English for Career	3(3-0-6)	Agroecological Crop protection	3(2-1-4)
	Rural Development	3(3-0-6)	Weed Management	3(2-1-4)
			Agricultural Field Work II	1(1-2-4)
Total credit: 34		15		16
Year 3: Development and application	Plant Breeding	3(2-1-4)	Scientific Writing and Communication Skills	3(3-0-6)
	Climate Change and Risk Mitigation	3(3-0-6)	Integrating animal systems with crops	3(2-1-4)
	Research methodology and statistical analysis	3(3-0-6)	Water management and irrigation systems	3(2-1-4)
	Crop diversification I: vegetables	3(2-1-4)	Innovation Technology and Agricultural Machinery	3(2-1-4)
	Geographic information system in agriculture (incl image processing)	3(2-1-4)	Crop diversification II: fruit	3(2-1-4)
Total credit: 30		15		15
Year 4: Project work	E-commerce in Agriculture	2(2-1-4)	Thesis (optional) 8 Without thesis, students must take another three courses from the elective courses for a minimum of 8 credits.	
	Entrepreneurship	3(3-0-6)		
	Hydroponics and Aquaponics	3(2-1-4)		
	Project development and management	3(3-0-6)		
	Rice Food system Production	3(2-1-4)		
Seminar	1(3-0-6)			
Total credit: 23		15		8

Not less than 120 Credits

CURRICULUM MAPPING

Each course was designed following the performance goal for each PILO as shown in the Table below.

No.	Course title	PILOs												
		1	2	3	4	5	6	7	8	9	10	11	12	13
A	General education courses													
1	Khmer Language for Communication										P		D	
2	Humanity and Civilization				D			P			P			
3	Applied Biology			D	E		D						P	
4	Foundation English	E	E								D			
5	General Chemistry				E			P						
6	Biochemistry				E		D	P						
7	Introduction to Microbiology				D		P			D				P
8	English for Career											D	P	
9	English for Science	E	D	E								D	P	
10	Applied Mathematics									P		P		
B	Basic Major Courses													
11	Rural Development	E	E	D	D			P	P					
12	Smart agriculture					D				P				P
13	Agroecology in the Cambodian context			D	D			P						
14	Research methodology and statistical analysis									D		P	D	P
15	Plant Physiology and Nutrition				P								P	
16	Botany				P					D			P	
17	Introduction to Agroecology	P	P	D				P						
18	Plant Breeding				D	D							P	
19	Integrating animal systems with crops					P	P							P
C	Professional Core Courses													
20	Scientific Writing and Communication Skills										D	P	P	
21	Weed Management				P	D								P
22	Applied Soil Science		D		E					D		P		P
23	Agroecological Crop protection						D						P	P
24	Crop diversification I: vegetables				E		P	D						P
25	Crop diversification II: fruit				P	D								P
26	Applied Entomology		D					P		D				P
D	Prescribed Course (Advanced Professional Course)													
27	Hydroponics and Aquaponics			E	D	P								P
28	Agribusiness						P					P		
29	Rice Food system Production			D	D	P							P	P
30	Entrepreneurship			D			P							D
31	Project development and management					D	D					P		
32	Geographic information system in agriculture (incl				E					P				D
33	Climate Change and Risk Mitigation				D					E			P	P
34	Water management and irrigation systems				D	P				D				P

