

Bachelor of Science in Agricultural and Biosystems Engineering

PROGRAM INFORMATION

1. Program

- a. Name of Program : BS IN AGRICULTURAL & BIOSYSTEMS ENGINEERING
- b. Degree Granted : Bachelor of Science in Agricultural & Biosystems Engineering

2. Academic College where the Program is Offered: College of Engineering

3. Institution

- a. Name : Central Luzon State University
- b. Location of the Main Campus : Science City of Munoz, Nueva Ecija
- c. Campus where the Program is Offered : Science City of Munoz, Nueva Ecija

4. Name and Title of the:

- a. Chairman of the ABE Department : Dr. Elmar M. Villota
- b. Dean of the College : Dr. Theody B. Sayco
- c. VP for Academic Affairs : Dr. Renato G. Reyes
- d. President of the Institution : Dr. Edgar A. Orden

5. Legal Basis of the Program

In October 24, 2017, the CHED issued CMO No. 94 series of 2017 requiring all Higher Education Institutions (HEIs) with an existing BSABE program to shift to an outcomes-based approach based on CMO 37 s. 2012 and guided by its Policies, Standards and Guidelines (PSG) with its implementation effective Academic Year 2018-2019. This was based on the rationale that

“Quality education is now measured not only by effectiveness, efficiency, and sustainability, but also by relevance. Relevance in education would mean addressing the needs of the students and the employers of today and providing the future graduates a curriculum of global comparability”.

In compliance with CMO No. 94 s. 2017, the existing BS in Agricultural and Biosystems Engineering curriculum offered in the College of Engineering of the Central Luzon State University (CLSU-CEN), for it to become more globally recognized and competitive, needs also to be revitalized and must have some credible innovations to cope up with the current and forthcoming challenges of globalization. The revision of the BSABE based on CMO No. 94 s. 2017 was approved by the BOR on its Resolution No. 42-2018 dated September 13, 2018.

6. Accreditation Status : Level IV Re-accredited awarded by the Accrediting Agency for Chartered Colleges and Universities in the Philippines (AACUP)

The BSABE Program is consists of

Courses	CHED Minimum Units	CLSU BSABE Units
General Education	70	71
AB Sciences	12	12
Basic Engineering	32	32
Professional	48	52
Seminar	1	1
Industry Immersion	3	3
Thesis/Field Practice	6	6
Total	172	177

Areas of Specialization

- a. AB Machinery and Power Engineering
- b. AB Land and Water Resources Engineering

- c. AB Structures and Environment Engineering
- d. AB Process Engineering

Program Educational Objectives (PEO)

Three to five years after graduation, graduates of the BSABE program are:

1. Licensed AB engineers who are providing leadership in planning, implementing, and monitoring of ABE projects and programs;
2. Occupying supervisory positions in public or private organizations involved in the design and implementation of projects in ABE and other related fields in the local or global arena;
3. Managing his own ABE-based business enterprises;
4. Licensed professionals holding responsible positions in HEIs involved in the academic, research, development, and extension programs; and
5. Licensed professionals pursuing advanced studies, participating in life-long learning processes, and keeping abreast to technology trends for continuing personal and professional development.

BSABE Program Outcomes

By the time of graduation, the students of the program shall have the ability to:

- a. apply knowledge of mathematics & science to solve complex AB engineering problems;
- b. design and conduct experiments, as well as to analyze and interpret data;
- c. design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social,

- political, ethical, health & safety, manufacturability and sustainability, in accordance with standards;
- d. work effectively and independently in multi-disciplinary and multi-cultural teams;
- e. identify, formulate, and solve complex AB engineering problems;
- f. act in recognition of professional, social, and ethical responsibility;
- g. effectively communicate AB engineering activities with the engineering community and with society at large;
- h. understand the impact of AB engineering solutions in a global, economic, environmental, and societal context;
- i. recognize the need for, and engage in life-long learning;
- j. know contemporary issues;
- k. use techniques, skills, and modern engineering tools necessary for AB engineering practice
- l. know and understand engineering and management principles as a member and leader in a team, and to manage projects in a multidisciplinary environment; and
- m. understand at least one specialized field of ABE practice.

Admission Requirements

- a. Duly accomplished application form
- b. Must qualify in the CLSU College Admission Test
- c. Preferably should be on the STEM stand during high school. (For Non-STEM on non-SHS graduates, must agree to take additional course(s) or undergo the bridging program that may be prescribed by the department.
- d. Must pass the department interview.
- e. Transferees and shifters must have a GPA of 2.5 or better and must have a grade of 2.5 or better in ENGL 100 and MATH 100, and no failing grades

Bachelor of Science in Agricultural and Biosystems Engineering

FIRST YEAR - First Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISITE/ CO-REQUISITE
			Lec	Lab	
ABEN 1110	Introduction to AB Engineering	1	0	3	NONE
MATH 1100	Mathematics in the Modern World	3	3	0	NONE
FILKOM 1100	Kontekstwalisadong Komunikasyon sa Filipino	3	3	0	NONE
CHEM 1103	Chemistry for Engineers (Lecture)	3	3	0	NONE
CHEM 1104	Chemistry for Engineers (Laboratory)	1	0	3	NONE
PHYS 1107	Physics for Engineers	5	4	3	NONE
PE 1100	Foundation of Physical Fitness	2	2	0	NONE
NSTP 1	NSTP 1	3	3	0	NONE
	Total:	21	18	9	

FIRST YEAR - Second Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISITE/ CO-REQUISITE
			Lec	La b	
PSYCH 1100	Understanding the Self (Pag-unawa sa Sarili)	3	3	0	NONE
ENGR 1210	Computer Aided Drafting	1	0	3	NONE
MATH 1110	Calculus 1	3	3	0	MATH 1100
CENGR 1221	Surveying	3	2	3	MATH 1100
CRSCI 1100	Principles of Crop Science	3	2	3	NONE
SOILS 1100	Principles of Soil Science	3	2	3	NONE
PE 1105	Rhythmic Activities	2	2	0	PE 1100
NSTP 2	NSTP 2	3	3	0	NSTP 1
	Total:	21	17	12	

SECOND YEAR - Second Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISITE/ CO-REQUISITE
			Lec	Lab	
SOCSCI 1100	Readings in Philippine History	3	3	0	NONE
ENSCI 1100	Science, Technology and Society	3	3	0	NONE
MATH 2230	Differential Equations	3	3	0	MATH 2111
ENGR 2323	Fluid Mechanics	3	2	3	ENGR 2312
ENGR 2320	Materials and Processes for ABE	3	2	3	CHEM 1103/1104, ENGR 1210, ENGR 2312
ENGR 2313	Engineering Mechanics II	3	3	0	ENGR 2312
ABEN 2427	ABE and Related Laws, Specifications, Contracts, and Professional Ethics	1	1	0	SOCSCI 1110, ABEN 1110
PE 1115	Team Sports	2	2	0	PE 1110
	Total:	21	19	6	

SECOND YEAR - Midyear Term (Summer)					
CATALOG NUMBER	SUBJECT	Units	Hours/wk		PREREQUISITE/ CO-REQUISITE
			Lec	Lab	
COMM 1100	Purposive Communication	3	3	0	NONE
PHILI 1100	The Life and Works of Rizal	3	3	0	NONE
	Total:	6	6	0	

THIRD YEAR - First Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISITE/CO-REQUISITE
			Lec	Lab	
FILDIS 1105	Filipino sa ibat-ibang Disiplina	3	3	0	FILKOM 1100
ENGR 3321	Strength of Materials	3	3	0	ENGR 2313
ENGR 3322	Engineering Economy	3	3	0	Third Year Standing
ABEN 3413	Engineering Data Analysis	3	3	0	MATH 1100
ABEN 3410	Hydrometeorology	3	2	3	ENGR 2323, MATH 2111
ABEN 3411	AB Power Engineering	3	2	3	MENGR 2320, MATH 2111
ABEN 3513	Properties of AB Materials	3	2	3	ENGR 2320, MENGR 2320
Total:		21	18	9	

THIRD YEAR - Second Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISIT E/CO-REQUISITE
			Lec	Lab	
ABEN 3426	Computer Applications in AB Engineering	3	1	6	Third Year Standing
ABEN 3424	AB Structures Engineering	3	2	3	ENGR 3321
ABEN 3412	Irrigation and Drainage Engineering	4	3	3	CENGR 1221, ABEN 3410, MATH 2230, SOILS 1100, CRSCI 1100
ABEN 3423	AB Machinery and Mechanization	4	2	6	ABEN 3411, SOILS 1100, CRSCI 1100
ABEN 3421	AB Products Processing and storage	3	2	3	ABEN 3513, SOILS 1100, CRSCI 1100
ABEN 3521	AB Electrification and Control Systems	3	2	3	PHYS 1107, MATH 2230
ABEN 3501	Thesis 1	1	1	0	Third Year Standing
Total:		21	13	24	

THIRD YEAR - Midyear Term (Summer)					
CATALOG NUMBER	SUBJECT	Units	Hours/wk		PREREQUISITE/CO-REQUISITE
			Lec	Lab	
ABEN 3500	Industry Immersion Program (240 hours with at least 160 hours actual industry engagement)	3	2	3	Third Year Standing
Total:		3	2	3	

FOURTH YEAR- First Semester					
CATALOG NUMBER	SUBJECTS	Units	Hours/wk		PREREQUISITE /CO-REQUISITE
			Lec	Lab	
ARTS 1100	Arts Appreciation	3	3	0	NONE
SOCSCI 1105	The Contemporary World	3	3	0	NONE
ABEN 4514	Aquaculture Engineering	3	2	3	ABEN 3412
ABEN 4511	Machine Design for AB Production	3	2	3	ABEN 3423, ENGR 3321 and ABEN 3513
ABEN 4510	Food Process Engineering	4	3	3	ABEN 3421
ABEN 4512	Plant and Livestock Systems and Environment Control Engineering	4	2	6	ABEN 3424, SOILS 1100, CRSCI 1100, ANSCI 1100
ABEN 4523	Undergraduate Seminar	1	1	0	Fourth Year Standing
ABEN 4502	Thesis 2	2	0	6	ABEN 3501
Total:		23	16	21	

FOURTH YEAR- Second Semester					
CATALOG NUMBER	Second Semester	Units	Hours/wk		PREREQUISITE/ CO-REQUISITE
			Lec	Lab	
ABEN 4520	Technopreneurship 101	3	3	0	ENGR 3322
FILLIT 1120	Sosyedad at Literatura/ Panitikang Panlipunan	3	3	0	FILDIS 1105
ABEN 4422	Land & Water Conservation Engineering	3	2	3	ABEN 3412
ABEN 4420	Renewable Energy for AB Applications	3	2	3	ABEN 3411
ABEN 4513	Design and Mgt of AB Processing Systems	3	2	3	ABEN 3421
ABEN 4425	AB Waste Mgt Engineering	3	2	3	ABEN 4512
ABEN 4503	Thesis 3	3	0	9	ABEN 4502
	Total:	21	14	21	
	GRAND TOTAL	177	140	111	