IPB University
Bogor Indonesia
Smart Agriculture

ACADEMIC PROGRAM BOOK

Smart Agriculture
Undergraduate Program

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LEARNING OUTCOME

1. Able to apply and utilize science and technology in the field of smart agriculture in solving problems and adapting to the situation at hand.

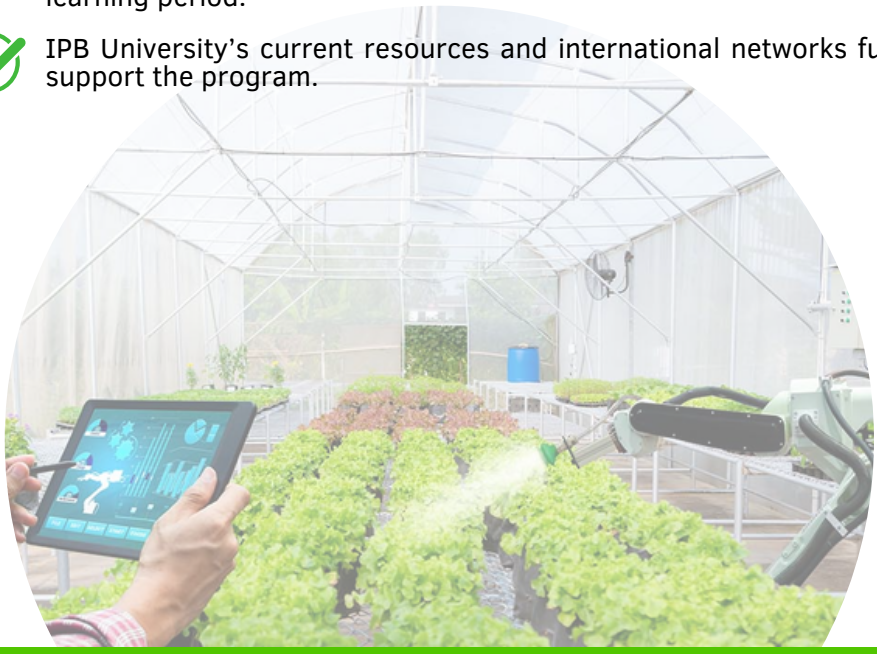
2. Mastering theoretical and technical concepts in the field of smart agriculture in depth for problem solving.

3. Able to make the right decisions and provide alternative solutions in accordance with the analysis of textual and spatial data information.

PROFILE

Description

- Establishing the Smart Agriculture study program is a strategic move of IPB University in response to the current development of the agricultural sector in the industrial revolution 4.0 era.
- In line with the 2028 vision, IPB University is dedicated to educating quality human resources who master advanced technology to develop smart and precise agriculture production from input to output. After completing the program, the graduates can plan, design, and apply an innovative smart agricultural production system.
- The bachelor's program in Smart Agriculture applies international education standards in the field of precision and intelligent agriculture to oversee agricultural transformation and accelerate the diffusion of technology to society.
- The courses in this program are delivered in English, and the students will get international exposure throughout the 4-year learning period.
- IPB University's current resources and international networks fully support the program.



CURRICULUM

Undergraduate Program

Following IPB University's K2020 Curriculum framework, the program offers a robust and flexible curriculum that allows students to engage in the learning process and design their own success. The curriculum is designed to achieve the expected learning outcomes. It is to introduce corporate-scale smart agriculture that is sustainable and adaptive to climate change. The courses cover a basic understanding of agricultural science and the use of IoT (Internet of Things), instrumentation, automation, spatial science, and other relevant tools.

Core Competence of the Graduates

The core competence of the graduates lies in implementing wall-to-wall systems, from planning, designing, and constructing to managing agricultural production, including post-harvest and marketing issues, through the use of sensing and geospatial technologies, as well as artificial intelligence (AI) in agriculture.

CURRICULUM

Semester 1 & 2

Courses	Credit
Mathematics and logycal thinking	3 (2-1)
Chemistry	3 (2-1)
Physics for Science and Technology	3 (2-1)
Basic of Biology	3 (2-1)
Statistics and Data Analysis	3 (3-0)
Innovative Agriculture	2(2-0)
Economics	2(2-0)
Religion*	3 (2-1)
Pancasila Education*	1(1-0)
Education Citizenship*	1(1-0)
Sociology	2(2-0)
Bahasa Indonesia*	2(1-1)
Sports/Art	1(0-1)
Climatology	2(2-0)
Computational Thinking	2(2-0)
English*	2(1-1)
Multicultural Courses	2(0-2)
Basic of Smart Agriculture	3 (2-1)

Semester 3

Courses	Credit
Principles of Agronomy	3(2-1)
Principles of Soil Sciences	2(2-0)
Plant Protection	3(2-1)
Landscape Planning for Smart Agriculture	2(1-1)
Crop Physiology	2(2-0)
Programming Fundamentals	3(2-1)
Tropical and Sub-Tropical Agriculture	2(2-0)

Semester 4

Courses	Credit
Land Management and Techologies	3 (2-1)
Crop and Irrigation Water Management	3 (2-1)
Nutrient Management	3 (2-1)
Artificial Intelligence in Agriculture	3 (2-1)
Agri-Socio-Entrepreneurship	2(2-0)
Smart Seed Industry	2(2-0)
Greenhouse Management and Hydroponics	2(1-1)

CURRICULUM

Semester 5

Courses	Credit
Multi-platform Earth Observation	3 (2-1)
Geospatial Data Analysis	3 (2-1)
Research Design and Methodology	2(2-0)
Agricultural Machineries	3 (2-1)
Agriculture Information System	2(2-0)
Agrifood Marketing	2(2-0)
Plant Factory	2(2-0)
Agriculture Politics	2(2-0)

Semester 6

Courses	Credit
Crop Production Modelling and Planning	3 (2-1)
Precision Crop Production	3 (2-1)
Embedded systems, IoT, and Wireless Sensor Networks	2(2-0)
Practices of Embedded systems, IoT, and Wireless Sensor Networks	1(0-1)
Weed Control Technology	3 (2-1)
Post-harvest and Handling	3 (2-1)
Scientific Writing	2(1-1)
Internship	3(0-3)

Transition Semester 6 - 7

Courses	Credit
Community Services	4(0-4)

Semester 7

Courses	Credit
Enrichment courses	20

Semester 8

Courses	Credit
Final year report/project	6 (0-6)

FACILITIES


Sukamantri Experimental Garden

UAVs


Plant Factory


Sadifa Gardens


Jonggol Gardens


Imaging Records

Proximal Sensors


Machineries

INTERNATIONAL COLLABORATION

Continuity

Cooperation with GNU, Universities, Industries, BRIN

- Collaboration, partnership and collaboration initiatives have been carried out in the preparation of the Smart Agriculture Study Program
- Collaboration with GNU is related to the establishment of new study program and curriculum development, student exchanges, research and smart agriculture supported by the Ministry of Education of the Republic of Korea.

Governance and quality management

- The Smart Agriculture Study Program is required to have accreditation from the National Accreditation Board for Higher Education (BAN-PT) at the earliest opportunity.
- During the first three years, the quality development and improvement will be adjusted to the aspects of the assessment by BAN-PT
- The 5-10 year period of developing and improving the academic quality of the Smart Agriculture will be focused on achieving A accreditation from BAN-PT

Student and Graduate Input

- The target of prospective students is Indonesian and international students.
- The recruitment of prospective students will proceed through 2 (two) channels, namely the invitation route and the open selection route.
- An increasing number of prospective international students will use and take advantage of various networks.
- The student quota for the department offered is 40 students per class
- Smart Agriculture Study Program graduates in collaboration with GNU will be channeled into South Korean industries and other countries

CONTACT

The Faculty Campus

The campus of the Smart Agriculture Study Program is located in Bogor City. The closest train station is Bogor Station. With easy access to neighboring cities, the campus is just 60 minutes from Jakarta on Commuter Line, making it convenient for students to commute from out of town. The rich natural surroundings provide students with an ideal environment to study.

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