



THAI NGUYEN UNIVERSITY OF AGRICULTURE AND FORESTRY
Quyêt Thang Commune, Thai Nguyen City, Viet Nam
Tel: +842086275999 * Fax: +842082490866 * Email: dhnl@tuaf.edu.vn

Program name: Credit-based Undergraduate Program

Level of training: Undergraduate

Field of study: Crop science

Type of training: Full-time

1. Introduction:

An introduction to the concepts and principles of crop ecology and morphology and a foundation for other crop science courses. Examines the dynamics and function of crop communities, and the biotic and environmental interactions that influence productivity. Fundamentals of the developmental morphology of crop seeds, seedlings, and plants. Morphological features of seeds and plants in relation to the identification of crop families and species of economic importance.

2. Objectives:

*** General Objectives**

Training crops science engineers with political qualities, good professional ethics, initiative and creativity in learning, responsibility for work, ability to start up; has in-depth knowledge in the fields of crop production, application and development of advanced technologies in crop production to create products with high productivity, quality, efficiency and competitiveness on domestic and international markets.

*** Objectives details**

- Training engineers capable to control plant growth and development; varieties production and disease control
- Ability to research and transfer advanced technical processes in agricultural production along the value chain
- Ability to manage, control production, business and market development



3. Learning outcomes

No	Expected learning outcomes/ Graduation Profile	Competency level
ELO1	Perform competently in the technical process of crop production.	3
ELO 2	Controlling the growth and development of plants to improve productivity and product quality.	3
ELO 3	Organize the production of seedlings and seeds	3
ELO 4	Organize production activities crops in the value chain	3
ELO 5	Implement scientific research, training and technology transfer activities in production practice	3
ELO 6	application soft skills, using information technology in crop production and management	3
ELO 7	Use English professional field (get output learning standards)	3

Total of knowledge course: 151 credits

(Excluding physical education and defense education)

4. Allocation of volumes of knowledge

content	Credit number
BASIC SCIENCE KNOWLEDGE	48
1. Compulsory courses	39
2. <i>Electives</i> courses	9
3. Physical education (without consider credit)	3
4. National Defense Education (without consider credit)	165 tiết
ADDITIONAL KNOWLEDGE(TRANS-DISCIPLINARY)	15
PROFESSIONAL KNOWLEDGE	88
General professional knowledge	27
1. Compulsory courses	21
2. Electives courses	6



Professional knowledge	36
1. Compulsory courses	30
2. Electives courses	6
Internships	5
Graduate thesis	10
Professional practice	10

5. Program content

No.	Tên tiếng Anh Subject name	Credit number	Theory lesson number	Practice lesson number	Subject course
	A. Basic science knowledge	48			
	Compulsory courses	39			
	<i>Political reasoning</i>	<i>11</i>			
1	Marxist-Leninist Philosophy	3	45	-	MLP131
2	Marxist-Leninist Political Economy	2	30	-	MLE122
3	Science Socialism	2	30	-	SCS123
4	Ho Chi Minh's Ideology	2	30	-	HCM124
5	History of the Vietnamese Communist Party	2	30	-	HCP125
	<i>Foreign languages, IT, natural & social sciences</i>	28			
6	Chemistry	4	50	20	CHE141
7	Biology	3	40	10	BIO131
8	General Sociology	2	30	0	GSO121
9	Physics	2	30	0	PHY121
10	Advanced mathematics	2	30	0	MAT121
11	English 1	3	45	0	ENG131
12	English 2	3	45	0	ENG132
13	English 3	3	45	0	ENG133
14	General Informatics	3	15	60	GIN131
15	Probability and Statistics	3	45	0	PST131
	<i>Electives (4 credits cumulative)</i>	9			
16-	General Microbiology	3	39	12	GMI121



18	Academic English	3	45	0	ENA134
	Soft Skills	3	30	30	SSK131
	Environmental Ecology	3	45	0	EEC131
	Management Science	3	45	0	MSC131
	Vietnam Economic Geography	3	45	0	VEG131
	Vietnamese Culture	3	35	20	VCU131
	Scientific Approach Methodology	3	45	0	SAM131
	Works Safety	3	45	0	WSA131
	State and Law	3	45	0	SLA131
	Environmental Pollution	3	45	0	EPO131
	Molecular Biology	3	45	0	MBI131
	Physical education	3			
19-21	Athletics	1	0	30	PHE111 +PHE112+ PHE113
	Volleyball	1			
	Badminton	1			
	Shuttlecock Kicking	1			
	Martial Art	1			
	Basketball	1			
	Football	1			
	National Defense Education	165 tiết			
	Part B: Professional knowledge	108			
	General professional knowledge	27			
	Compulsory courses	21			
22	Plant biochemistry	3	29	32	PBI231
23	Plant physiology	3	37	16	PPH231
24	Plant genetics	3	37	16	PGE231
25	Plant breeding	3	35	20	PBR231
26	Soil and Plant nutrition	3	37	16	SAP231
27	Introduction to plant insects and diseases	3	33	24	ITP231
28	Fight biology and weed control	3	37	16	FGP331



	<i>Elective courses (6 credits cumulative)</i>	6			
29-30	Agricultural meteorology	3	37	16	AME231
	Organic agriculture	3	37	16	OAG231
	Applied plant physiology	3	30	30	APP231
	Botanical classification	3	37	16	BCL231
	<i>Professional knowledge</i>	36			
	<i>Compulsory courses</i>	30			
31	Scientific research methodology	3	31	28	SRM331
32	Food Crops	3	37	16	FCR331
33	Annual industrial crops	3	37	16	AIC331
34	Perennial industrial crops	3	37	16	PIC331
35	Fruit production technology	3	37	16	FPT331
36	Vegetable, Flower production technology	3	37	16	VPT331
37	Medicinal plant production technology	3	37	16	MPP331
38	Postharvest technology	3	37	16	PTE331
39	Specialized plant insects and diseases	3	29	32	SPI331
40	Extension and training of trainers	3	30	30	EET331
	<i>Electives (6 credits cumulative)</i>	6			
41-42	Mushroom production technology	3	37	16	MPT331
	Principles of greenhouse crop production	3	30	30	POG331
	Cyclic agriculture	3	45	0	RCA331
	Seed production technology	3	37	16	SPT231
	Food safety and hygiene	3	37	16	FSA331
	<i>Trans-disciplinary knowledge</i>	15			
43	Animal Production	3	45	0	APR431
44	Agroforestry	3	45	0	AFO431
45	Brand Creation and Development	3	45	0	BCD431



46	Automated systems in hi-tech crop production	3	41	8	ASI431
47	Value Chain Analysis	3	45	0	VCA431
48	Rural assessment	3	30	30	RAS431
49	Forestry	3	45	0	FOR431
50	Business Administration	3	30	30	BAD431
51	Entrepreneurship	3	45	0	ENT431
52	Public Relations	3	37	16	PRT431
53	Marketing	3	30	30	MAR431
54	Environmental technology	3	37	16	ETE431
	Internships	5			
55	Internship 1: Career orientation and study visits on hi-tech production models.	1	-	30	INT111
56	Internship 2: Practicing career skills at enterprises, cooperatives and farms	2		60	INT422
57	Internship 3: Practicing career skills at high-tech agriculture business	2		60	INT523
	V. Graduation Internship	10			
58	Implementation of research topics	10		300	IET9101
	Internship in business	10		300	IIB9101
	VI. Professional practice (10 credits cumulative)	10			
R1	Processing techniques (Tea, coffee)	2		60	PRT521
R2	Off-season flower and fruit tree regulation	2		60	FFR321
R3	Grafting, cloning and asexual propagation for crops (vegetable, flower and fruit tree)	2		60	GCP521
R4	Mushroom and medical mushroom production techniques	2	-	60	MPT621
R5	Flower production in green house	2		60	FPG621
	Total No. of credits	156			

8. Teaching Planning



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First semester

No	Subject code	Subject name	Credits number	note
1.	PHE111	Physical education 1	1	
2.	BIO131	Biology	3	
3.	CHE141	Chemistry	4	
4.	MAT121	Advanced mathematics	2	
5.	ENG131	English 1	3	
6.	MLP131	Marxist-Leninist Philosophy	3	
7.	GSO121	General Sociology	2	
total			18	

Second semester

No	Subject code	Subject name	Credits number	note
1.	PHE112	Physical education 2	1	
2.	PHY121	Physics	2	
3.	PGE231	Plant genetics	3	
4.	ENG132	English 2	3	
5.	PST131	Probability and Statistics	3	
6.	GIN131	General Informatics	3	
7.	GMI121	General Microbiology	3	
8.	INT111	Internship 1: Career orientation and study visits on hi-tech production models.	1	
Tổng			19	

Third semester

TT No	Subject code	Subject name	Credit number	note
1	PHE113	Physical education 3	1	
2	ENG133	English 3	3	
3	MLE122	Marxist-Leninist Political Economy	2	
4	GMI121	Fight biology and weed control	3	
5	PBI231	Plant biochemistry	3	
6	SSK431	Soft Skills	3	
7	PBR231	Plant breeding	3	
total			18	

Fourth semester



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No	Subject code	Subject name	Credit number	note
1	PPH231	Plant physiology	3	
2	ITP231	Introduction to plant insects and diseases	3	
3	SAP231	Soil and Plant nutrition	3	
4	FCR	Food Crops	3	
5	PIC331	Perennial industrial crops	3	
6	AME221	Agricultural meteorology and climate change	3	
total			18	

Fifth semester

No	Subject code	Subject name	Credit number	note
1	POG321	Principles of greenhouse crop production	3	
2	SCS123	Science Socialism	2	
3	ICR331	Annual industrial crops	3	
4	SPI331	Specialized plant insects and diseases	3	
5	SRM231	Scientific research methodology	3	
6	ASI431	Automated systems in hi-tech crop production	3	
7	R1	Processing techniques (Tea, coffee)	2	
Tổng			19	

Sixth semester

No	Subject code	Subject name	Credit number	note
1	FPT331	Fruit production technology	3	
2	HCM124	Ho Chi Minh's Ideology	2	
3	FLP321	Vegetable, Flower production technology	3	
	APR431	Animal Production	3	
4	RPT521	Off-season flower and fruit tree regulation	2	
5	GCP521	Grafting, cloning and asexual propagation for crops (vegetable, flower and fruit tree)	2	
6	INT422	Internship 2: Practicing career skills at enterprises, cooperatives and farms	2	



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total	17	
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Seventh semester

No	Subject code	Subject name	Credit number	note
1	MPP331	Medicinal plant production technology	3	
2	HCP125	History of the Vietnamese Communist Party	2	
3	MPT331	Mushroom production technology	3	
4	AFO431	Agroforestry	3	
5	VCA431	Value Chain Analysis	3	
	MPT621	Mushroom and medical mushroom production techniques	2	
	INT523	Internship 3: Practicing career skills at high-tech agriculture business	2	
total			18	

Eighth semester

No	Subject code	Subject name	Credit number	Note
1	ENA134	Academic English	3	
2	EET331	Extension and training of trainers	3	
3	BCD431	Brand Creation and Development	3	
4	OAG221	Organic agriculture	3	
5	PTE331	Postharvest technology	3	
6	GAD331	Flower production in green house	2	
total			17	

Nineth semester: chose 1 of 2 form Graduate Internship

No	Subject code	Subject name	Credit number	note
1.	IET9101	Graduate thesis: Implementation of research topics	10	
2.	IIB9101	Graduate thesis: Internship in business	10	
Total			10	

List of core subjects of Crop science major

No.	Subject	Credit	Subject description
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		number	
1	Plant physiology	3	<p>Credit number and periods: 3 credits (37 theory lessons/16 practice lessons/143 self-study lessons)</p> <p>Pre-study subjects: Biology, Chemistry, Plant Biochemistry</p> <p>Prerequisites subjects: Plant Biochemistry</p> <p>Contents of the course:</p> <p>The module includes the following contents:</p> <p style="padding-left: 40px;">Cell physiology; Process of water exchange and mineral exchange; Photosynthesis; Respiratory; The process of growth and development and the physiology of plant tolerance; Determination of some physiological parameters of plants (determination of osmotic pressure and leaf area index of some plants, Effect of temperature and GA3 on seed germination; Effect of auxin solution concentration on rooting ability of cuttings; Determination of drought tolerance of some plants).</p>
2	Plant breeding	3	<p>Credit number and periods: 3 credits (35 theory lessons/20 lessons of practice/90 periods of self-study)</p> <p>Pre-study subjects:</p> <p>Prerequisites subjects: Biology, Plant Genetics, Scientific research methodology</p> <p>Contents of the module:</p> <p style="padding-left: 40px;">Introduction of basic knowledge about plant varieties and initial materials, imported plant varieties, sexual hybridization; Application of re-dominance in creating hybrids in self-pollinating and cross-pollinated plants; Methods of assessing pricing; Selection of plant varieties; Testing and recognition of varieties; Multiplication coefficients; Quality assessment of plant varieties.</p>
3	Soil and plant nutrition	3	<p>Credit number and periods: 3 credits (37 theory periods/16 practice periods/135 self-study periods)</p> <p>Pre-study subjects: Basic science subjects</p>



			<p>Prerequisites subjects: Basic Microbiology</p> <p>Contents of the module:</p> <p>The module introduces the origin of soil formation and characteristics of some major soil types in Vietnam; The relationship between soil - nutrients and plants. Plant nutrition requirement, characteristics of some types of inorganic and organic fertilizers, thereby determining a balance rate of fertilizer for plants and effective fertilization.</p>
4	Specialized pest and disease in crops	3	<p>Credit number and periods: 3 credits (29 theory periods/32 practice periods/135 self-study periods)</p> <p>Pre-study subjects: Basic science subjects</p> <p>Prerequisites subjects: Basic pests and diseases in crops</p> <p>Contents of the module:</p> <p>Part 1: Specialized entomology</p> <p>This part focuses on the knowledge of harmful symptoms, morphological characteristics, biology, and development and harmfulness of some major pests on agricultural crops. Investigation and prediction of pests and diseases of agricultural crops are also discussed.</p> <p>Part 2: Specialized plant diseases</p> <p>Application of molecular techniques in diagnosis and assessment of pathogens quickly and accurately. Biological and ecological characteristics, the rule of origin, development and harmfulness of the disease; Mode of disease transmission; Mechanism of disease-plant-agency interaction.</p> <p>Part 3: Integrated Pest Management:</p> <p>Effectiveness of farming and Biological Practices in Integrated Pest Management. Pesticides (biological, chemical): features, effects and safe and effective use techniques.</p>
5	Cereal crops	3	<p>Credit number and periods: 3 credits (37 theory periods/16 practice periods/135 self-study periods)</p> <p>Pre-study subjects: Basic science subjects</p>



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			<p>Prerequisites subjects: : Plant genetics, Plant physiology, Soil and plant nutrition</p> <p>Contents of the module:</p> <p>Economic value, production situation, origin and classification of maize and rice; Biological characteristics and ecological characteristics of maize and rice; Physiological characteristics of rice; Techniques for growing maize and rice</p>
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