

MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY

UNDERGRADUATE PROGRAM

Level : Undergraduate
Major : Engineering Physics
Specialization : *Integrated Circuit Fabrication, Packaging, and Testing Technology*
Code : 7520401
Mode of Study : Full-time

UNDERGRADUATE PROGRAM

*(Issued together with Decision No. 1634/QĐ-ĐHQN dated June 09, 2025
of the Rector of Quy Nhon University)*

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Major	:	Engineering Physics
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1. OBJECTIVES

1.1. General objectives

The program equips students with a solid foundation in physics, mathematics, chemistry, engineering, and modern technologies; develops creativity, problem-solving, communication and teamwork skills; and fosters lifelong learning and global adaptability. For the specialization, students gain in-depth knowledge of integrated circuit (IC) fabrication, packaging, and testing technologies, together with extensive hands-on experience, enabling them to analyze and propose viable engineering solutions for the semiconductor and chip industry. The program also aims to develop high-quality human resources capable of meeting the increasing demands of the domestic and international IC industry.

1.2. Specific objectives

Graduates of the Engineering Physics program will be able to:

+ PO1: Possess fundamental knowledge of mathematics, natural sciences, electronics, information technology, foreign languages, and in-depth knowledge of IC fabrication, packaging, and testing to develop complete manufacturing processes in these domains.

+ PO2: Possess knowledge of simulation, measurement, and analytical methods, and be proficient in the techniques and technological procedures used in IC fabrication, packaging, and testing for research and product development that meet reliability and efficiency standards.

+ PO3: Possess communication skills, digital competency, creative and critical thinking, entrepreneurial mindset, project-management abilities, and the capability to work independently and collaboratively in inclusive and cooperative environments.

+ PO4: Exhibit professional ethics, responsibility in work, the ability for lifelong learning, rapid adaptation to technological advancements, and a strong sense of social and environmental responsibility toward sustainable development.

2. EMPLOYMENT OPPORTUNITIES AND FURTHER STUDY PROSPECTS

Graduates of the Engineering Physics program can take on the following positions:

- ✓ Wafer fabrication and semiconductor device manufacturing.
- ✓ Research and development of new materials and technologies in the semiconductor and chip industry.
- ✓ Product management, quality control, and development of semiconductor components.
- ✓ Supervision, consulting, inspection, maintenance, and technical guidance for the operation of high-tech equipment and machinery in semiconductor manufacturing.
- ✓ Lecturer or researcher positions at colleges, universities, and research institutes.
- ✓ Participation in exchange programs or postgraduate studies at reputable institutions domestically and internationally.

3. LEARNING OUTCOMES

Performance Indicators (PIs) used to assess the Program Learning Outcomes (PLOs) of the Engineering Physics program

Program Learning Outcomes	Performance Indicators
PLO1. Apply knowledge of mathematics, natural sciences, and engineering to solve technical problems related to IC fabrication, packaging, and testing.	PI 1.1. Use knowledge of mathematics, physics, and chemistry to perform calculations and process data for IC fabrication, packaging, and testing.
	PI 1.2. Apply engineering knowledge to address technical issues in IC fabrication, packaging, and testing.
PLO2. Apply knowledge of semiconductor materials, fabrication technologies, and electronic engineering to develop complete manufacturing processes in IC fabrication, packaging, and testing.	PI 2.1. Select appropriate materials, technologies, and techniques for IC fabrication and packaging processes.
	PI 2.2. Apply testing procedures to evaluate IC quality and performance.

PLO3. Apply knowledge of simulation methods, measurement techniques, and analytical approaches to the stages of IC fabrication, packaging, and testing for research and product development that meet reliability and efficiency standards.	PI 3.1. Apply simulation methods and measurement techniques to predict properties and develop semiconductor materials.
	PI 3.2. Apply measurement techniques and data analysis to monitor and evaluate IC quality.
PLO4. Perform fabrication techniques, material-processing procedures, and modern engineering tools in IC fabrication, packaging, and testing to ensure production efficiency and product quality.	PI 4.1. Perform appropriate fabrication techniques and material-processing procedures to optimize IC manufacturing efficiency.
	PI 4.2. Use modern engineering tools to inspect, evaluate, and control the quality of IC products.
PLO5. Demonstrate effective communication and teamwork skills, the ability to work independently and in teams, and creative and critical thinking to solve professional problems	PI 5.1. Demonstrate the ability to work independently and proactively to solve problems in the professional field.
	PI 5.2. Demonstrate effective communication and teamwork skills, along with creative and critical thinking, to solve professional problems.
PLO6. Demonstrate foreign-language proficiency equivalent to Level 3/6 of the Vietnamese Six-Level Foreign Language Proficiency Framework, and digital competency in professional and occupational activities.	PI 6.1. Use a foreign language in professional and occupational activities.
	PI 6.2. Use digital tools and digital technologies in professional and occupational activities.
PLO7. Demonstrate project-management capability and an entrepreneurial mindset.	PI 7.1. Demonstrate the ability to manage and coordinate projects.
	PI 7.2. Demonstrate an entrepreneurial mindset.
PLO8. Demonstrate professional ethics, responsibility in work, lifelong-learning ability, and adaptability to new technologies.	PI 8.1. Demonstrate professional ethics, responsibility in work, and a commitment to self-learning and continuous knowledge updating.

	PI 8.2. Demonstrate the ability for self-learning and rapid adaptation to changes in semiconductor and IC technologies.
PLO9. Demonstrate awareness of social responsibility and sustainable development in professional work, contributing to community development and environmental protection.	PI 9.1. Apply principles of sustainable development to professional work.
	PI 9.2. Demonstrate social responsibility, actively participate in community activities, and protect the environment.

4. PROGRAM DURATION AND TOTAL ACADEMIC WORKLOAD

4.1. Program Duration: 04 years

4.2. Total academic workload: 135 credits (excluding Physical education and National defense–security education)

Program structure	Credits
General knowledge	24
Political science and Law	13
Foreign languages	7
Social sciences/Mathematics, Natural sciences–Environment, Management sciences	4
Professional knowledge	111
- Fundamental knowledge	28
- Specialized knowledge (if any)	42
- Supplementary knowledge: Professional training and Skills development	27
- Supplementary knowledge: Internship	8
- Graduation thesis, Alternative courses	6
Total	135

5. ADMISSION REQUIREMENTS

5.1. Admission eligibility

Admission eligibility follows the current Admission Regulations of Quy Nhon University and the Admission Regulations of the Ministry of Education and Training (MOET).

5.2. Admission methods

Implemented in accordance with the annual admission scheme of the University.

6. MODE OF STUDY AND GRADUATION REQUIREMENTS

6.1. Mode of study: Credit-based system

6.2. Graduation Requirements (professional requirements, prerequisite courses, foreign-language proficiency, and IT proficiency)

- Professional requirements: Complete all courses and credits prescribed in the training program.

- Physical Education (PE) and National Defense–Security Education (NDSE): Complete all PE courses and obtain the NDSE certificate.

- Foreign-language proficiency: Meet the University’s foreign-language proficiency requirement.

- IT proficiency: Meet the University’s information-technology proficiency requirement.

7. TEACHING METHODS AND LEARNING ASSESSMENT

7.1. Teaching Methods

- *Lecturer preparation*

- + Lecturers study the program objectives, curriculum framework, and course syllabi to determine learning objectives and select suitable content and methods to ensure the highest teaching effectiveness.

- + Lecturers prepare all required teaching materials, including lecture notes and necessary instructional equipment. Lecture notes must clearly present the objectives, content, methods, materials, skills, sequence, and teaching activities. The objectives of each lesson and the course content must align with the overall objectives of the course, expected learning outcomes, and the training program. The instructional content in the lesson plan must be consistent with the content approved in the detailed syllabus by the Faculty Council and endorsed by the Rector. Learning activities must be closely aligned with teaching objectives and the training program.

- + Teaching methods employed must be appropriate to the course content and the learners’ characteristics, and should combine various teaching approaches within a course.

- *Teaching and learning approaches*

- + Face-to-Face Teaching: Lecturing, presentations, guided questioning, and dialogue.

- + Indirect instruction: Guiding questions, problem-solving, project-based teaching/learning.

- + Experiential learning: Practice, laboratory work, internship, fieldwork.

- + Interactive teaching and learning: Discussions, seminars, visual/interactive activities, academic advising and mentoring.

+ Self-study: Homework assignments, self-study topics, use of online tools, digital tools, and digital learning resources.

7.2. Learning Assessment

Implemented in accordance with the Regulations on Undergraduate Training issued under Decision No. 1487/QĐ-ĐHQN dated July 01, 2021 by the Rector of Quy Nhon University.

8. PROGRAM CONTENT

No	Course Code	Course Name	Seme ster	Num ber of credit s	In-class hours			Experi ment/ Practic e	Others	Self-stud y hour s	Prerequisit e Course Code	Department in charge	Note
					The ory	Assig hment	Discu ssion						
I. General Knowledge				24									
I.1. Political science and Law				13									
01	1130299	Marxist-Leninist Philosophy	1	3	40	0	10	0	0	95		DPLSM	
02	1130300	Marxist-Leninist Political Economy	2	2	27	0	6	0	0	62	1130299	DPLSM	
03	1130049	Introduction to Law	2	2	27	0	6	0	0	62	1130299	DPLSM	
04	1130301	Scientific Socialism	3	2	27	0	6	0	0	62	1130300	DPLSM	
05	1130302	History of the Communist Party of Vietnam	4	2	27	0	6	0	0	62	1130301	DPLSM	
06	1130091	Ho Chi Minh Thought	5	2	27	0	6	0	0	62	1130302	DPLSM	
I.2. Physical Education and National Defense– Security Education				12									
Physical Education: Students choose one of the following seven groups.				3									
07	1120172	Physical Education 1 (Football 1)	1	1	4	0	0	26	0	21		DPE	
08	1120173	Physical Education 2 (Football 2)	2	1	4	0	0	26	0	21	1120172	DPE	
09	1120174	Physical Education 3 (Football 3)	3	1	4	0	0	26	0	21	1120173	DPE	
10	1120175	Physical Education 1 (Volleyball 1)	1	1	4	0	0	26	0	21		DPE	
11	1120176	Physical Education 2 (Volleyball 2)	2	1	4	0	0	26	0	21	1120175	DPE	
12	1120177	Physical Education 3 (Volleyball 3)	3	1	4	0	0	26	0	21	1120176	DPE	
13	1120178	Physical Education 1 (Basketball 1)	1	1	4	0	0	26	0	21		DPE	
14	1120179	Physical Education 2 (Basketball 2)	2	1	4	0	0	26	0	21	1120178	DPE	
15	1120180	Physical Education 3 (Basketball 3)	3	1	4	0	0	26	0	21	1120179	DPE	
16	1120181	Physical Education 1 (Badminton 1)	1	1	4	0	0	26	0	21		DPE	
17	1120182	Physical Education 2 (Badminton 2)	2	1	4	0	0	26	0	21	1120181	DPE	

No	Course Code	Course Name	Semester	Number of credits	In-class hours			Experiment/Practic e	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
18	1120183	Physical Education 3 (Badminton 3)	3	1	4	0	0	26	0	21	1120182	DPE	
19	1120184	Physical Education 1 (Vietnamese Traditional Martial Arts 1)	1	1	4	0	0	26	0	21		DPE	
20	1120185	Physical Education 2 (Vietnamese Traditional Martial Arts 2)	2	1	4	0	0	26	0	21	1120184	DPE	
21	1120186	Physical Education 3 (Vietnamese Traditional Martial Arts 3)	3	1	4	0	0	26	0	21	1120185	DPE	
22	1120187	Physical Education 1 (Taekwondo Martial Arts 1)	1	1	4	0	0	26	0	21		DPE	
23	1120188	Physical Education 2 (Taekwondo Martial Arts 2)	2	1	4	0	0	26	0	21	1120187	DPE	
24	1120189	Physical Education 3 (Taekwondo Martial Arts 3)	3	1	4	0	0	26	0	21	1120188	DPE	
25	1120190	Physical Education 1 (Karatedo Martial Arts 1)	1	1	4	0	0	26	0	21		DPE	
26	1120191	Physical Education 2 (Karatedo Martial Arts 2)	2	1	4	0	0	26	0	21	1120190	DPE	
27	1120192	Physical Education 3 (Karatedo Martial Arts 3)	3	1	4	0	0	26	0	21	1120191	DPE	
National defense and security education				9									
28	1120168	National defense and security education 1	5	3	37	0	16	0	0	82		CNDSE	
29	1120169	National defense and security education 2	5	2	22	0	16	0	0	52		CNDSE	
30	1120170	National defense and security education 3	5	2	14	0	0	32	0	44		CNDSE	
31	1120171	National defense and security education 4	5	2	4	0	0	52	0	34		CNDSE	
I.3. Foreign Languages				7									
32	1090061	English 1	1	3	45	0	0	0	0	100		DFL	
33	1090166	English 2	2	4	60	0	0	0	0	135	1090061	DFL	
I.4. Social sciences/Mathematics, Natural sciences – Environment, Management sciences				4									
34	1150422	Entrepreneurship	5	2	20	5	10	0	0	60	1130049	DFBA	
35	2030003	Communication skills	2	2	18	10	4	0	0	63		DSSH	
II. Professional Knowledge				111									
II.1. Fundamental Knowledge				28									
36	1010481	Advanced mathematics 1	1	2	22	8	0	0	0	65		DMS	
37	1010482	Advanced mathematics 2	2	2	18	12	0	0	0	65	1010481	DMS	

No	Course Code	Course Name	Semester	Number of credits	In-class hours			Experiment/Practic e	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
38	2020637	Physics 1	1	3	30	12	6	0	0	97		DNS	
39	2020638	Materials chemistry	1	2	25	5	0	0	0	65		DNS	
40	2020640	Physics 2	2	3	30	12	6	0	0	97	2020637 1010482	DNS	
41	2020645	Mathematics for materials science	3	2	24	6	0	0	0	65	1010482	DNS	
42	2020646	Surface science	3	2	30	0	0	0	0	65	2020638	DNS	
43	2020647	Modern physics	3	3	28	12	10	0	0	95	2020640	DNS	
44	2020648	Statistical physics	3	2	25	5	0	0	0	65	1010482 2020640	DNS	
45	1050415	Basic informatics	3	2	20	0	0	20	0	55		DIT	
46	1160811	Circuit theory	4	3	30	15	0	0	0	100	2020640	DET	
47	2020652	Mechanics in Semiconductor technology	4	2	28	0	4	0	0	63	2020640	DNS	
II.2. Major knowledge, Specialized knowledge				42									
II.2.1. Major knowledge				26									
II.2.1a. Compulsory Courses				22									
48	2020649	Quantum mechanics	3	2	20	8	4	0	0	63	2020647	DNS	
49	2020653	Analog electronics	4	3	36	7	4	0	0	98	1160811	DNS	
50	2020654	Solid state physics	4	3	36	6	6	0	0	97	2020645 2020648 2020649	DNS	
51	2020655	Computational simulations of Materials	4	2	28	0	4	0	0	63	1050415	DNS	
52	2020656	Thin film technology	4	2	22	4	8	0	0	61	2020654	DNS	
53	2020658	Sensors and Measurement techniques	5	2	28	0	4	0	0	63	2020654	DNS	
54	2020659	Integrated circuit technology	5	3	42	0	6	0	0	97	2020654	DNS	
55	2020660	Synthesis and Characterization of Semiconductor materials and Device	5	3	40	4	2	0	0	99	2020656	DNS	
56	2020665	Digital electronics	6	2	25	5	0	0	0	65	2020653	DNS	
II.2.1b. Optional				4/8									
57	1160816	Digital IC design laboratory using HDL	7	2	25	5	0	0	0	65	1160811 2020665	DET	
58	1050416	Machine learning for materials science	7	2	20	10	0	0	0	65	1050415	DIT	
59	2020681	Applied electrochemistry	7	2	25	5	0	0	0	65	2020638 2020646	DNS	

No	Course Code	Course Name	Semester	Number of credits	In-class hours			Experiment/ Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
60	2020682	Thermodynamics of chemical processes	7	2	20	6	8	0	0	65	2020638 2020646	DNS	
II.2.2. Specialized knowledge				16									
IC Fabrication, Packaging, and Testing Technology				16									
II.2.2a. Compulsory Courses				10									
61	2020661	Semiconductor manufacturing technologies	5	2	26	2	4	0	0	63	2020653 2020659	DNS	
62	2020666	Introduction to Integrated circuit packaging	6	2	22	8	0	0	0	65	2020659 2020661	DNS	
63	2020667	Thermo-Mechanical Issues in Semiconductor packaging	6	2	22	6	4	0	0	63		DNS	
64	2020668	Introduction to Integrated circuit testing	6	2	15	10	10	0	0	60		DNS	
65	1160813	Introduction to IC design	7	2	25	5	0	0	0	65	1160811 2020665	DET	
II.2.2b. Elective Courses				6/12									
66	2020671	Advanced integrated circuit fabrication technology	6	2	28	0	4	0	0	63	2020659	DNS	
67	2020672	Materials and Processes in Semiconductor technology	6	2	24	4	4	0	0	63	2020654	DNS	
68	2020673	Photonic/Electro-optic packaging technology	6	2	15	10	10	0	0	60		DNS	
69	2020674	Semiconductor Advanced packaging technology	6	2	22	8	0	0	0	65		DNS	
70	2020675	Fundamentals of IC inspection and reability engineering	6	2	22	8	0	0	0	65		DNS	
71	2020676	Mixed signal IC testing	6	2	15	10	10	0	0	60		DNS	
II.3. Supplementary knowledge				35									
II.3.1. Professional training				27									
II.3.1a. Compulsory Courses				27									
72	2020639	Material chemistry Practice	1	1.5	0	0	0	45	0	25	2020638	DNS	
73	2020641	: Laboratory safety techniques	2	2	22	0	8	8	0	57		DNS	
74	2020642	Physics Experiments 1	2	1.5	3	0	0	39	0	28	2020637 2020641	DNS	
75	2020650	Physics Experiments 2	3	1.5	0	0	0	45	0	25	2020640 2020641 2020650	DNS	
76	2020651	Career orientation	3	1	0	0	0	0	45	15	2020641	DNS	
77	2020657	Specialized IT Practice	4	1.5	0	0	0	45	0	25	1050415 2020649	DNS	

No	Course Code	Course Name	Semester	Number of credits	In-class hours			Experiment/ Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
78	1160812	Circuit theory Laboratory	4	1	0	0	0	30	0	15	1160811	DET	
79	2020662	Fabrication practices and Characterization of Semiconductor materials	5	1.5	0	0	0	45	0	25	2020654 2020656 2020660	DNS	
80	2020663	Semiconductor device Fabrication and Characterization laboratory	5	1.5	0	0	0	45	0	25	2020641 2020653 2020660	DNS	
81	2020664	Measurement and Sensor practice	5	1	0	0	0	30	0	15	2020658	DNS	
82	2020669	Product quality management	6	2	28	0	4	0	0	63		DNS	
83	2020670	Chip Packaging and Testing practice (1)	6	1.5	0	0	0	45	0	25	2020652 2020666 2020667 2020668	DNS	
84	1160814	Analog and Digital electronics experiment	6	2	0	0	0	60	0	35	2020653 2020665	DET	
85	1160815	IC design laboratory	7	1	0	0	0	30	0	15	1160813 1160816	DET	
86	2020677	Specialized English (<i>English for Semiconductor Technology</i>)	7	2	15	10	10	0	0	60	1090061 1090166	DNS	
87	2020678	Advanced chip Packaging and Testing practice	7	1.5	0	0	0	45	0	25	2020667 2020670	DNS	
88	2020679	Research methodology	7	2	28	0	4	0	0	63	2020677	DNS	
89	2020683	Project management	8	1	12	3	0	0	0	30	2020669 2020680	DNS	
II.3.2. Internships				8									
90	2020680	Professional internship	7	4	0	0	0	0	180	15	2020670 2020678	DNS	
91	2020684	Graduation internship	8	4	0	0	0	0	180	15	2020678 2020680	DNS	
II.4. Graduation Thesis, Alternative courses				6									
92	2020685	Bachelor thesis	8	6	0	0	0	0	270	25	2020677 2020679 2020680 2020684	DNS	
93	2020686	Alternative course: Capstone Project	8	6	0	0	0	0	270	25	2020677 2020679 2020680 2020684	DNS	

9. TENTATIVE TEACHING PLAN

Semester 1:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/Practic e	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130299	Marxist–Leninist Philosophy	3	40	0	10	0	0	95		DPLSM	
2	1090061	English 1	3	45	0	0	0	0	100		DFL	
3	1010481	Advanced mathematics 1	2	22	8	0	0	0	65		DMS	
4	2020638	Materials chemistry	2	25	5	0	0	0	65		DNS	
5	2020637	Physics 1	3	30	12	6	0	0	97		DNS	
6	2020639	Material chemistry Practice	1.5	0	0	0	45	0	25	2020638	DNS	
7	2030003	Communication skills	2	18	10	4	0	0	63		DSSH	
Total:			16.5									

Semester 2:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/Practic e	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130300	Marxist–Leninist Political Economy	2	27	0	6	0	0	62	1130299	DPLSM	
2	1130049	Introduction to Law	2	27	0	6	0	0	62	1130299	DPLSM	
3	1090166	English 2	4	40	20	0	0	0	135	1090061	DFL	
4	1010482	Advanced mathematics 2	2	18	12	0	0	0	65	1010481	DMS	
5	2020640	Physics 2	3	30	12	6	0	0	97	2020637 1010482	DNS	
6	2020641	Laboratory safety techniques	2	22	0	8	8	0	57		DNS	
7	2020642	Physics experiments 1	1.5	3	0	0	39	0	28	2020637 2020641	DNS	
Total:			16.5									

Semester 3:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/Practic e	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130301	Scientific Socialism	2	27	0	6	0	0	62	1130300	DPLSM	
2	2020645	Mathematics for materials science	2	24	6	0	0	0	65	1010482	DNS	

3	2020646	Surface science	2	30	0	0	0	0	65	2020638	DNS	
4	2020647	Modern physics	3	30	12	6	0	0	97	2020640	DNS	
5	2020648	Statistical physics	2	25	5	0	0	0	65	1010482 2020640	DNS	
6	1050415	Basic informatics	2	20	0	0	20	0	55		DIT	
7	2020649	Quantum mechanics	2	20	8	4	0	0	63	2020647	DNS	
8	2020650	Physics experiments 2	1.5	0	0	0	45	0	25	2020640 2020641 2020650	DNS	
9	2020651	Career orientation	1	0	0	0	0	45	0	2020641	DNS	
Total:			17.5									

Semester 4:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/ Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130302	History of the Communist Party of Vietnam	2	27	0	6	0	0	62	1130301	DPLSM	
2	1160811	Circuit theory	3	30	15	0	0	0	100	2020647	DET	
3	2020652	Mechanics in Semiconductor technology	2	28	0	4	0	0	63	2020640	DNS	
4	2020653	Analog electronics	3	36	7	4	0	0	98	1160811	DNS	
5	2020654	Solid state physics	3	36	6	6	0	0	97	2020645 2020648 2020649	DNS	
6	2020655	Computational simulations of Materials	2	28	0	4	0	0	63	1050415 2020649	DNS	
7	2020656	Thin film technology	2	20	4	8	4	0	59		DNS	
8	2020657	Specialized IT Practice	1.5	0	0	0	45	0	25	1050415 2020649	DNS	
9	1160812	Circuit theory Laboratory	1	0	0	0	30	0	15	1160811	DET	
Total:			19.5									

Semester 5:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/ Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130091	Ho Chi Minh Thought	2	27	0	6	0	0	62	1130302	DPLSM	
2	1150422	Entrepreneurship	2	20	5	10	0	0	60	1130049	DFBA	
3	2020658	Sensors and Measurement techniques	2	28	0	4	0	0	63	2020654	DNS	
4	2020659	Integrated circuit technology	3	42	0	6	0	0	97	2020654	DNS	
5	2020660	Synthesis and Characterization of	3	40	4	2	0	0	99	2020656	DNS	

		Semiconductor materials and Device										
6	2020661	Semiconductor manufacturing technologies	2	26	2	4	0	0	63	2020653 2020659	DNS	
7	2020662	Fabrication practices and Characterization of Semiconductor materials	1.5	0	0	0	45	0	25	2020654 2020656 2020660	DNS	
8	2020663	Semiconductor devices Fabrication and Characterization laboratory	1.5	0	0	0	45	0	25	2020641 2020653 2020660	DNS	
9	2020664	Measurement and Sensor practice	1	0	0	0	30	0	15	2020658	DNS	
Total:			18									

Semester 6:

[illegible]

10	2020673	Photonic/Electro-optic packaging technology	2	15	10	10	0	0	60		DNS	
11	2020674	Semiconductor Advanced packaging technology	2	22	8	0	0	0	65		DNS	
Choose one of the following two courses:			2									
12	2020675	Fundamentals of IC inspection and reability engineering	2	22	8	0	0	0	65		DNS	
13	2020676	Mixed signal IC testing	2	15	10	10	0	0	60		DNS	
Total:			19.5									

Semester 7:

[illegible]

Semester 8:

No.	Course Code	Course Name	Number of credits	In-class hours			Experiment/ Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	2020683	Project management	1	12	2	2	0	0	29	2020669 2020680	DNS	
2	2020684	Graduation internship	4	0	0	0	0	180	15	2020680	DNS	
Graduation thesis												
3	2020685	Bachelor thesis	6	0	0	0	0	270	25	2020677 2020679 2020680 2020684	DNS	
Alternative courses												
4	2020686	Capstone project	6	0	0	0	0	270	25	2020677 2020679 2020680 2020684	DNS	
Total:			11									

10. GUIDELINES FOR PROGRAM IMPLEMENTATION

- This training program applies to Engineering Physics students admitted in 2025.
- The training process is based on the designed curriculum, the program objectives, intended learning outcomes, target learners, workforce requirements, and specific training needs. For optional courses, depending on actual development trends and societal demands, the Department will advise students in selecting the most appropriate courses.
- The Dean of Department is responsible for coordinating and guiding the development of detailed course syllabi to ensure that the objectives, content, and requirements are met and consistent with the needs of learners and society.
- The training program is reviewed and updated periodically (every 2–3 years) to align with advances in Engineering Physics, the specialization in IC fabrication, packaging, and testing technology, and the socio-economic development needs./.

Binh Dinh, June 09, 2025

**DEAN OF
DEPARTMENT**

**HEAD OF TRAINING
OFFICE**

**BY THE DELEGATION
OF THE RECTOR
VICE-RECTOR**

**Assoc. Prof. Dr. Phan
Thanh Hai**

Dr. Le Xuan Vinh

Dr. Dinh Anh Tuan

