

MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY

UNDERGRADUATE PROGRAM

Level:	Undergraduate
Major:	Automotive and Power Machinery
	Engineering
Code:	7520116
Mode of study:	Full-time

Gia Lai, 2025

UNDERGRADUATE PROGRAM

*(Issued together with Decision No. 1634/QĐ-ĐHQN dated June 9, 2025
of the Rector of Quy Nhon University)*

Level:	Undergraduate
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1. PROGRAM OBJECTIVES (POs)

1.1. General objectives

Powertrain Mechanical Engineering program is designed with an applied focus, aiming to train engineers with fundamental knowledge for professional development in the field of mechanical engineering; possessing strong professional competence, practical skills, and the necessary research and creative abilities to solve problems related to the design, implementation, and operation of mechanical systems; and having good political, ethical, and health qualities to meet the needs of the labor market.

1.2. Specific objectives

- + PO1: Possesses basic knowledge of politics and law, comprehensive knowledge of DNS and social sciences, and solid professional knowledge in the field of mechanical engineering and interdisciplinary science and technology.
- + PO2: Capable of analyzing, calculating, designing, operating, maintaining, and repairing mechanical power systems to meet practical job requirements.
- + PO3: Possesses communication skills, teamwork skills, critical thinking, and digital literacy to work in a multidisciplinary environment.
- + PO4: Possesses the ability to learn and conduct lifelong research, professional ethics and responsibility towards work, community and society, self-updating knowledge, ability to work independently and creatively; capable of identifying, solving problems and drawing accurate conclusions in the field of mechanical engineering.

2. JOB OPPORTUNITIES AND PROFESSIONAL DEVELOPMENT

2.1. Job Positions

- Working as a technician or manager in factories manufacturing and assembling power equipment and automobiles; or in companies that trade and provide services related to power equipment or automobiles.
- Working at road vehicle inspection centers, or administrative and professional units related to the automotive engineering industry.
- Taking on roles such as technical team leader, maintenance engineer, or operations officer at companies specializing in the operation, maintenance, and repair of power equipment.
- Responsible for the maintenance and repair of mechanical equipment on the production line.
- Working at vehicle inspection stations or agencies that inspect the quality of motor vehicles.
- Starting a business in the automotive service sector, engine manufacturing, or developing new mechanical products.

2.2. Opportunities for further education and skill development

- Pursue postgraduate programs at home and abroad to specialize in mechanical engineering, automotive engineering, or industrial management.
- Become a lecturer at colleges and universities after completing advanced training programs.
- Participate in professional courses or certifications such as mechanical inspection, modern automotive maintenance, or green energy technology in automotive engineering.

3. LEARNING OUTCOMES

Program Learning Outcomes (PLOs)

PLO1: Able to apply basic knowledge of social sciences, DNS , and digital technology to communicate, understand, and act correctly in life, in learning, and in research.

PLO2: Possess fundamental technical and industry-specific knowledge to meet the requirements for approaching and researching the field of mechanical engineering.

PLO3: Possesses comprehensive and in-depth specialized knowledge in mechanical engineering and interdisciplinary science and technology to analyze, design, and solve new and complex engineering problems in the field of mechanical engineering and technology.

PLO4: Capable of applying industry knowledge to solve technical problems in practical production within the field of mechanical engineering.

PLO5: Possesses organizational and management skills; has the capacity for in-depth professional critical analysis in the specific field of mechanical engineering; and is adaptable and capable of self-directing a specialized career path.

PLO6: Possesses effective communication and teamwork skills in a multidisciplinary, multicultural environment.

PLO7: Demonstrates creative design thinking capabilities, in-depth research and development of specialized products, and professional ethics and responsibility when providing expert opinions and assessments in the field of mechanical engineering.

Mapping of Program Objectives (POs) and Program Learning Outcomes (PLOs)

Program Objectives (POs)	Program Learning Outcomes (PLOs)						
	1	2	3	4	5	6	7
PO1	x	x					
PO2			x	x	x		
PO3			x			x	x
PO4					x	x	x

Performance Indicators (PIs) used to assess the Program Learning Outcomes (PLOs) of the
Powertrain Mechanical Engineering Program

Program Learning Outcomes	Performance Indicators
PLO1: Able to apply basic knowledge of social sciences, DNS , and digital technology to communicate, understand, and act correctly in life, in learning, and in research.	PI 1.1: Applying basic knowledge of social sciences to develop correct understanding and actions in life, studies, and research.
	PI 1.2: Apply basic knowledge of DNS to model, design, calculate, analyze, and solve engineering problems.
	PI 1.3: Applying basic knowledge about digital technology is used for learning, research, participating in social activities, exercising citizenship rights, and managing one's digital identity and reputation.
PLO2: Possess fundamental technical and industry-specific knowledge to meet the requirements for approaching and researching the field of mechanical engineering.	PI 2.1 : Apply fundamental engineering knowledge to solve dynamic engineering problems; present the design and manufacturing process of components and parts in a dynamic mechanical system.

	PI 2.2: Apply fundamental knowledge of the field to calculate, analyze, design, and evaluate the performance of machinery and drive systems in automobiles, tractors, construction machinery, and electrical and electronic control in mechanical power systems.
PLO3: Possesses comprehensive and in-depth specialized knowledge in mechanical engineering and interdisciplinary science and technology to analyze, design, and solve new and complex engineering problems in the field of mechanical engineering and technology.	PI 3.1: Application of modern software (such as CAD, CAM, CAE, Siemens NX) for simulation, vibration analysis, design, and high-precision CNC machining in the manufacturing of mechanical power products.
	PI 3.2: Apply interdisciplinary and specialized scientific and technical knowledge to analyze, design, and solve complex mechanical, electronic, and automation engineering problems.
PLO4: Capable of applying industry knowledge to solve technical problems in practical production within the field of mechanical engineering.	PI 4.1: Apply industry knowledge to design, manufacture, and improve mechanical power systems in practical production.
	PI 4.2: Apply industry knowledge to analyze, evaluate, maintain, and repair mechanical power systems in factories, enterprises, and transportation vehicles.
PLO5: Possesses organizational and management skills; has the capacity for in-depth professional critical analysis in the specific field of mechanical engineering; and is adaptable and capable of self-directing a specialized career path.	PI 5.1: Possesses comprehensive organizational and managerial skills, as well as in-depth professional critical thinking abilities to manage engineering projects, production management, and system operations; analyze and evaluate

	new technologies; and solve complex engineering problems in the field of mechanical engineering.
	PI 5.2: Possesses the ability to adapt and self-direct career development in depth to guide career growth and adapt to technological changes and the work environment.
PLO6: Possesses effective communication and teamwork skills in a multidisciplinary, multicultural environment.	PI 6.1: Possesses the skills to effectively communicate knowledge, including presenting and explaining specialized expertise; writing technical reports and professional documents; and the ability to mentor and train new employees and technical workers within the company.
	PI 6.2: Possesses effective teamwork skills in a multidisciplinary environment to collaborate in interdisciplinary engineering teams, work in multinational corporations, participate in international projects, and develop a career in the global engineering field.
PLO7: Demonstrates creative design thinking capabilities, in-depth research and development of specialized products, and professional ethics and responsibility when providing expert opinions and assessments in the field of mechanical engineering.	PI 7.1: Possesses creative design thinking and conducts in-depth research and development of specialized products in mechanical engineering to ensure the development of mechanical engineering products that meet international standards.
	PI 7.2: Understand and strictly adhere to personal and professional ethical principles in all activities related to the

	profession, ensuring integrity and transparency.
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4. PROGRAM DURATION AND TOTAL ACADEMIC WORKLOAD

4.1. Program Duration: 4.5 years (9 semesters)

4.2. Total academic workload: 150 credits (excluding the required non-credit courses in Physical Education and National Defense and Security Education)

Structure of the Power Mechanical Engineering program

No.	Program structure	Credits
1	General Education Knowledge	24
2	Professional Knowledge	126
2.1	Fundamental knowledge	45
2.2	Specialized knowledge	39
2.3	Internship, practice	34
2.4	Graduation thesis	8
	Total	150

5. ADMISSION REQUIREMENTS

Admission criteria are based on the current admission regulations of Quy Nhon University.

6. TRAINING METHOD, GRADUATION REQUIREMENTS

6.1. Training Method

Credit-based training system.

6.2. Graduation Requirements:

- Academic requirements: Accumulate sufficient course credits and workload for the training program, with a cumulative GPA of 2.00 or higher for the entire course.
- Physical Education, National Defense and Security: Complete the Physical Education modules and obtain a National Defense and Security Education certificate.
- Standard Foreign Language: Meets the foreign language proficiency standards as prescribed by the School.

Standard Believe learn: Meet the IT proficiency standards as prescribed by the University.

7. TEACHING METHODS AND LEARNING ASSESSMENT

7.1 Teaching Methods

➤ Direct teaching: The majority of theoretical subjects are taught using methods such as lectures, question-and-answer sessions, guided questioning, assigning homework, and assessing students' self-learning abilities through exercises and discussions. The corresponding teaching methods are as follows:

- Lecture
- Suggested questions
- Discuss

➤ Indirect teaching: Some courses are taught indirectly without any explicit lecturer intervention, such as internships and graduation projects. The corresponding teaching methods are as follows:

- Open-ended questions
- Idea generation
- Case study
- Problem solving

7.2 Learning Assessment

In accordance with the Regulations on undergraduate training issued together with Decision No. 1487/QĐ-DHQN dated July 1, 2021, by the Rector of Quy Nhon University.

8. PROGRAM CONTENT

No	Course code	Course name	Semester	Number of credits	In-Class hours			Experiment / Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
					Theory	Practice	Discussion						
I. General Knowledge				36									
Compulsor													
I.1. Political Science and Law				13									
1	1130299	Marxist-Leninist Philosophy	2	3	40		10			85		DPSLM	
2	1130049	Introduction to Law	2	2	27		6			57		DPSLM	
3	1130300	Marxist-Leninist Political Economy	3	2	27		6			57	1130299	DPSLM	
4	1130301	Scientific socialism	4	2	27		6			57	1130300	DPSLM	
5	1130302	History of the Communist Party of Vietnam	5	2	27		6			57	1130301	DPSLM	
6	1130091	Ho Chi Minh Thought	6	2	27		6			57	1130302	DPSLM	
I.2. Physical Education, National Defense and Security Education				12									
I.2.1. National Defense and Security Education				9									
7	1120168	National Defense and Security Education 1	2	3	37		16			82		CNDSE	
8	1120169	National Defense and Security Education 2	2	2	22		16			52		CNDSE	
9	1120170	National Defense and Security Education 3	2	2	14			32		44		CNDSE	
10	1120171	National Defense and Security Education 4	2	2	4			56		36		CNDSE	
I.2.2. Physical Education: Students choose one of the following eight groups.				3									
11	1120172	Physical Education 1 (Football 1)	1	1	4			26		21		DPE	
12	1120173	Physical Education 2 (Football 2)	2	1	4			26		21	1120172	DPE	
13	1120174	Physical Education 3 (Football 3)	3	1	4			26		21	1120173	DPE	
14	1120175	Physical Education 1 (Volleyball 1)	1	1	4			26		21		DPE	
15	1120176	Physical Education 2 (Volleyball 2)	2	1	4			26		21	1120175	DPE	
16	1120177	Physical Education 3 (Volleyball 3)	3	1	4			26		21	1120176	DPE	
17	1120178	Physical Education 1 (Basketball 1)	1	1	4			26		21		DPE	
18	1120179	Physical Education 2 (Basketball 2)	2	1	4			26		21	1120178	DPE	

1 9	1120180	Physical Education 3 (Basketball 3)	3	1	4			2 6		21	1120179	DPE	
2 0	1120181	Physical Education 1 (Badminton 1)	1	1	4			2 6		21		DPE	
2 1	1120182	Physical Education 2 (Badminton 2)	2	1	4			2 6		21	1120181	DPE	
2 2	1120183	Physical Education 3 (Badminton 3)	3	1	4			2 6		21	1120182	DPE	
2 3	1120184	Physical Education 1 (Traditional Vietnamese Martial Arts 1)	1	1	4			2 6		21		DPE	
2 4	1120185	Physical Education 2 (Traditional Vietnamese Martial Arts 2)	2	1	4			2 6		21	1120184	DPE	
2 5	1120186	Physical Education 3 (Traditional Vietnamese Martial Arts 3)	3	1	4			2 6		21	1120185	DPE	
2 6	1120187	Physical Education 1 (Taekwondo 1)	1	1	4			2 6		21		DPE	
2 7	1120188	Physical Education 2 (Taekwondo 2)	2	1	4			2 6		21	1120187	DPE	
2 8	1120189	Physical Education 3 (Taekwondo 3)	3	1	4			2 6		21	1120188	DPE	
2 9	1120190	Physical Education 1 (Karatedo 1)	1	1	4			2 6		21		DPE	
3 0	1120191	Physical Education 2 (Karatedo 2)	2	1	4			2 6		21	1120190	DPE	
3 1	1120192	Physical Education 3 (Karatedo 3)	3	1	4			2 6		21	1120191	DPE	
3 2	1120239	Physical Education 1 (Pickleball 1)	1	1	4			2 6		21		DPE	
3 3	1120240	Physical Education 2 (Pickleball 2)	2	1	4			2 6		21	1120239	DPE	
3 4	1120241	Physical Education 3 (Pickleball 3)	3	1	4			2 6		21	1120240	DPE	
I.3. Foreign Languages				7									
3 5	1090061	English 1	1	3	45					90		DFL	
3 6	1090166	English 2	2	4	40	20				120	1090061	DFL	
I.4. Social Sciences				4									
3 7	2030003	Communication skills	1	2	18		4	2 0		60		DFBA	
3 8	1150422	Entrepreneurship	6	2	20	5	10			60		DFBA	
II. Professional Knowledge				126									
II.1. Fundamental Knowledge				45									
3 9	1160742	Basic Computer Science (Python)	2	3	30			3 0		90		DET	
4 0	1010354	Linear algebra	3	3	30	15				90		DMS	
4 1	1010052	Calculus 1	1	3	34	11				90		DMS	
4 2	2020466	Chemical fuels	4	2	25		10			60		DNS	

4 3	1010059	Calculus 2	2	3	36	9				90	1010052	DMS	
4 4	1020162	Physics 1	1	2	28		4			58		DNS	
4 5	1020163	Physics 2	2	2	24	4	4			58	1020162	DNS	
4 6	1020164	Physics Experiment	2	1				3 0		15	1020163	DNS	
4 7	1160114	Engineering Mathematics	3	2	22	8				60		DET	
4 8	1160743	Applied fluid mechanics	6	3	45					90		DET	
4 9	2040002	Safety and environmental engineering	3	2	25	5				60		DET	
5 0	1160744	Technical drawing	1	2	30					60		DET	
5 1	2040069	Principles - Machine Details	4	3	30	15				60		DET	
5 2	2040070	Applied Mechanics	3	3	35	10				90		DET	
5 3	1160631	Electrical and Electronic Circuit Engineering	4	2	30					60		DET	
5 4	1160634	Automatic control theory	5	2	30					60		DET	
5 5	1160500	Microprocessors - Microcontrollers	5	3	30			3 0		90		DET	
5 6	2040042	Tolerances and measurement techniques	3	2	30					60		DET	
5 7	1160745	Engineering materials	3	2	30					60		DET	
II.2. Specialized Knowledge				39									
II.2.1. Compulsor courses				35									
5 8	1090418	English for Specific Purposes	7	2	25	5				60	1090166	DFL	
5 9	1160746	Introduction to Mechanical Engineering	1	2	30					60		DET	
6 0	2040068	Internal combustion engine	4	3	30	15				60		DET	
6 1	1160747	Automotive powertrain systems using internal combustion engines.	5	2	30					60		DET	
6 2	1160748	Electric and Hybrid Vehicle Powertrain Systems	5	3	30	15				90		DET	
6 3	1160749	Electrical equipment in the powertrain system	5	2	30					60		DET	
6 4	1160750	Special machining techniques	4	2	30					60		DET	
6 5	1160751	Techniques for diagnosing, maintaining, and repairing power equipment.	7	3	45					90		DET	

6 6	1160752	Stationary propulsion systems and ships	6	2	30					60		DET	
6 7	1160753	Mechanical drive system design and calculation project	7	1						60		DET	
6 8	1160754	Industrial robots	8	2	30					60		DET	
6 9	1160755	Pneumatic and hydraulic drive	6	2	25		10			60		DET	
7 0	1160756	Modern machine manufacturing technology	6	2	30					60		DET	
7 1	1160757	Industrial sensors	7	2	30					60		DET	
7 2	1160636	Electric drive	4	2	30					60		DET	
7 3	1160758	Power equipment design project	8	1								DET	
II.2.2. Elective courses				6									
7 4	1160759	CAE practice in mechanical structure calculations and automotive safety.	8	2				6 0		60		DET	
7 5	1160760	Practice designing and simulating power devices on a computer.	8	2				6 0		90		DET	
7 6	1160762	Testing of power equipment	8	2	30					60		DET	
7 7	1160763	Machine parts restoration technology	8	2	30					60		DET	
7 8	1160761	Vehicles and specialized machinery	8	2	25	5				60		DET	
7 9	1140265	Industry economics	8	2	30					60		DEA	
8 0	1150545	Industrial production management	8	2	20	8	2	2		60		DFBA	
8 1	1140199	Basic Logistics	8	2	30					60		DEA	
8 2	1160764	Automating the production process	8	2	15	15				60		DET	
8 3	1050387	Application programming	7	2	15			3 0		60		DIT	
8 4	1160635	Embedded systems	7	2	30					60		DET	
8 5	1160534	Artificial intelligence	7	2	30					60		DET	
8 6	1160765	New energy in the powertrain system	7	2	30					60		DET	
8 7	1160766	Humans and the environment	8	2	30					60		DET	
II.3. Internship, practice				34									
8 8	1160767	Practice in hydraulic and	7	1				3 0		30		DET	

		pneumatic actuation											
89	1160768	Practice in metal cutting and machining.	6	2				60		60		DET	
90	1160769	Computer-aided design practice	3	2				60		60		DET	
91	1160770	Mechanical practice	4	2				60		60		DET	
92	2040076	Internal Combustion Engine Practice	4	3				90		90		DET	
93	1160771	Practical exercises on automotive powertrain systems.	6	2				60		60		DET	
94	1160772	Practical exercises on electrical equipment in power systems.	6	2				60		60		DET	
95	1160773	Practice CAD/CAM/CNC	7	3				90		90		DET	
96	1160774	Practice in maintaining power equipment.	7	2				60		60		DET	
97	1160775	CNC machining practice	8	3				90		90		DET	
98	1160776	Practice PLC programming	8	2				60		60		DET	
99	1160777	Implementing production process automation	8	2				60		60		DET	
100	1160778	Cognitive practice	1	1				90				DET	
101	1160779	Internship	8	2				180				DET	
102	1160780	Graduation internship	9	5				150		300		DET	
II.4. Graduation thesis				8									
103	1160781	Graduation project	9	8				360		480		DET	
Total TC				150									

9. TEACHING PLAN

Semester 1

No	Course code	Course	Number of credits	In-Class hours			Experimental/Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1090061	English 1	3	30	15				90		DFL	
2	1010052	Calculus 1	3	34	11				90		DFL	

3	1020162	Physics 1	2	28		4			58		DNS	
4	1160744	Technical drawing	2	30					90		DSSH	
5	2030003	Communication skills	2	18		4	20	60			DSSH	
6	1160746	Introduction to Mechanical Engineering	2	30					60		DNS	
7	1160778	Cognitive practice	1				90	TT			DET	
Choose one of the following eight physical education modules:												
1	1120172	Physical Education 1 (Football 1)	1	4			26		21		DPE	
2	1120175	Physical Education 1 (Volleyball 1)	1	4			26		21		DPE	
3	1120178	Physical Education 1 (Basketball 1)	1	4			26		21		DPE	
4	1120181	Physical Education 1 (Badminton 1)	1	4			26		21		DPE	
5	1120184	Physical Education 1 (Traditional Vietnamese Martial Arts 1)	1	4			26		21		DPE	
6	1120187	Physical Education 1 (Taekwondo 1)	1	4			26		21		DPE	
7	1120190	Physical Education 1 (Karatedo 1)	1	4			26		21		DPE	
8	1120239	Physical Education 1 (Pickleball 1)	1	4			26		21		DPE	
Total			15									

Semester 2

No	Course code	Course	Number of credits	In-Class hours			Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1130299	Marxist-Leninist Philosophy	3	40		10			85		DPSLM	
2	1090166	English 2	4	40	20				120	1090061	DFL	

3	1160742	Basic Infomatics (Python)	3	30			30		90		DET	
4	1130049	Introduction to Law	2	27		6			57	1130299	DPSLM	
5	1010059	Calculus 2	3	36	9				90	1010052	DMS	
6	1020163	Physics 2	2	24	4	4			58	1020162	DNS	
7	1020164	Physics Experiment	1				30		15	1020163	DNS	
Choose one of the following eight physical education modules:												
1	1120173	Physical Education 2 (Football 2)	1	4			26		21	1120172	DPE	
2	1120176	Physical Education 2 (Volleyball 2)	1	4			26		21	1120175	DPE	
3	1120179	Physical Education 2 (Basketball 2)	1	4			26		21	1120178	DPE	
4	1120182	Physical Education 2 (Badminton 2)	1	4			26		21	1120181	DPE	
5	1120185	Physical Education 2 (Traditional Vietnamese Martial Arts 2)	1	4			26		21	1120184	DPE	
6	1120188	Physical Education 2 (Taekwondo 2)	1	4			26		21	1120187	DPE	
7	1120191	Physical Education 2 (Karatedo 2)	1	4			26		21	1120190	DPE	
8	1120240	Physical Education 2 (Pickleball 2)	1	4			26		21	1120239	DPE	
Total			18									

Semester 3

No	Course code	Course	Number of credits	In-Class hours			Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1130300	Marxist-Leninist	2	27		6			57	1130299	DPSLM	

		Political Economy										
2	1160114	Engineering Mathematics	2	22	8				60		DET	
3	1010354	Linear algebra	3								DMS	
4	1160745	Engineering materials	2	30					90		DET	
5	2040002	Safety and environmental engineering	2	25	5				60		DET	
6	2040070	Applied Mechanics	3	35	10				90		DET	
7	2040042	Tolerances and measurement techniques	2	30					60		DET	
8	1160769	Computer-aided design practice	2				60		60		DET	
Choose one of the following eight physical education modules:												
1	1120174	Physical Education 3 (Football 3)	1	4			26		21	1120173	DPE	
2	1120177	Physical Education 3 (Volleyball 3)	1	4			26		21	1120176	DPE	
3	1120180	Physical Education 3 (Basketball 3)	1	4			26		21	1120179	DPE	
4	1120183	Physical Education 3 (Badminton 3)	1	4			26		21	1120182	DPE	
5	1120186	Physical Education 3 (Traditional Vietnamese Martial Arts 3)	1	4			26		21	1120185	DPE	
6	1120189	Physical Education 3 (Taekwondo 3)	1	4			26		21	1120188	DPE	
7	1120192	Physical Education 3 (Karatedo 3)	1	4			26		21	1120191	DPE	
8	1120241	Physical Education 3 (Pickleball 3)	1	4			26		21	1120240	DPE	
Total			18									

Semester 4

No	Course code	Course	Number of credits	In-Class hours	Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
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				Theory	Practice	Discussion						
1	1130301	Scientific socialism	2	27		6			57	1130300	DPSLM	
2	2040069	Principles - Machine Details	3	30	15				60		DET	
3	1160631	Electrical and Electronic Circuit Engineering	2	30					60		DET	
4	2020466	Chemical fuels	2	25		10			60	1010354	DNS	
5	2040068	Internal combustion engine	3	30	15				90		DET	
6	1160750	Special machining techniques	2	30					60		DET	
7	1160636	Electric drive	2	30					60		DET	
8	1160770	Mechanical practice	2				60		60		DET	
9	1120168	National Defense and Security Education 1	3	37		16			82		CNDSE	
10	1120169	National Defense and Security Education 2	2	22		16			52		CNDSE	
11	1120170	National Defense and Security Education 3	2	14			32		44		CNDSE	
12	1120171	National Defense and Security Education 4	2	4			56		36		CNDSE	
Total			18									

Semester 5

N o	Course code	Course	Number of credits	In-Class hours	Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge
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				Theor y	Practic e	Discussio n					
1	1130302	History of the Communist Party of Vietnam	2	27		6			57	1130301	DPSLM
2	1160634	Automatic control theory	2	30					60		DET
3	1160500	Microprocessors - Microcontrollers	3	30		30			90		DET
4	1160747	Automotive powertrain systems using internal combustion engines.	2	30					60		DET
5	1160748	Electric and Hybrid Vehicle Powertrain Systems	3	30	15				90		DET
6	1160749	Electrical equipment in the powertrain system	2	30					60		DET
7	2040076	Internal Combustion Engine Practice	3				90		90		DET
Total			17								

Semester 6

No	Course code	Course	Number of credits	In-Class hours			Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1130091	Ho Chi Minh Thought	2	27		6			57	1130302	DPSLM	
2	1150422	Entrepreneurship	2	20	5		10		60		DFBA	
3	1160743	Applied fluid mechanics	3	45					90		DET	
4	1160752	Stationary propulsion systems and ships	2	30					60		DET	
5	1160755	Pneumatic and hydraulic drive	2	25		10			60		DET	
6	1160756	Modern machine manufacturing technology	2	30					60		DET	
7	1160771	Practical exercises on	2				60		60		DET	

		automotive powertrain systems.										
8	1160772	Practical exercises on electrical equipment in power systems.	2				60		60		DET	
9	1160768	Practice in metal cutting and machining.	2				60		60		DET	
Total			19									

Semester 7

No	Course code	Course	Number of credits	In-Class hours			Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1090418	English for Specific Purposes	2	25	5				60	1090166	DFL	
2	1160751	Techniques for diagnosing, maintaining, and repairing power equipment.	3	45					90		DET	
3	1160753	Mechanical drive system design and calculation project	1						60		DET	
4	1160757	Industrial sensors	2	30					60		DET	
5	1160767	Practice in hydraulic and pneumatic actuation	1				30		60		DET	
6	1160773	Practice CAD/CAM/CNC	3				90		90		DET	
7	1160774	Practice in maintaining power equipment.	2				60		60		DET	
8		Choose one of four modules.	2									
8.1	1050387	Application programming	2	15		30			60		DIT	
8.2	1160635	Embedded systems	2	30					60		DET	
8.3	1160534	Artificial intelligence	2	30					60		DET	
8.4	1160765	New energy in the powertrain system	2	30					60		DET	

Total	16									
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Semester 8

N o	Course code	Course	Numbe r of credits	In-Class hours			Experimental/ Practical	Othe rs	Self- stud y time	Prere quisit e cours e code	Department in charge	Not e
				Theor y	Practic e	Disc ussio n						
1	116075 4	Industrial robots	2	30						1090 166	DET	
2	116075 8	Power equipment design project	1						60		DET	
3	116077 5	CNC machining practice	3				90		90		DET	
4	116077 6	Practice PLC programming	2				60		60		DET	
5	116077 7	Implementin g production process automation	2				60		60		DET	
6	116077 9	Internship	2				180				DET	
7		Choose one of five modules.	2									
7. 1	114026 5	Industry economics	2	30					60		DEA	
7. 2	115054 5	Industrial production management	2	20	8	2	2		60		DFBA	
7. 3	114019 9	Basic Logistics	2	30					60		DEA	
7. 4	116076 6	Humans and the environment	2	30					60		DET	
7. 5	116076 3	Machine parts restoration technology	2	30					60		DET	
8	Choose one of five modules.		2									
8. 1	116075 9	CAE practice in mechanical structure calculations and automotive safety.	2				60		60		DET	
8. 2	116076 0	Practice designing	2				60		60		DET	

		and simulating power devices on a computer.										
8.3	1160762	Power equipment testing	2	30					60		DET	
8.4	1160761	Vehicles and specialized machinery	2	30					60		DET	
8.5	1160764	Automating the production process	2	15	15				60		DET	
Total			16									

Semester 9

No	Course code	Course	Number of credits	In-Class hours			Experimental/ Practical	Others	Self-study time	Prerequisite course code	Department in charge	Note
				Theory	Practice	Discussion						
1	1160780	Graduation internship	5				150		300	1130302	DET	
2	1160781	Graduation thesis	8				360		480		DET	
Total			13									

10. GUIDELINES FOR TRAINING PROGRAM IMPLEMENTATION

- This training program will be applied to students majoring in Mechanical Engineering starting from the 2025 admissions period.

- The training process is based on the designed curriculum, training objectives and target audience, human resource requirements, and specific training requirements. For elective courses, depending on the actual situation of development trends and social needs, the Faculty will advise students on choosing appropriate courses.

- The head of department is responsible for organizing and guiding the principles for developing detailed syllabi to ensure that objectives, content, and requirements are met, while also satisfying the needs of learners and society.

- The training program is reviewed and updated at least once every 5 years to meet the development of the mechanical engineering industry and align with socio-economic development needs.

Gia Lai, date 01 month 8 year 2025

DEAN OF DEPARTMENT

***HEAD OF TRAINING
OFFICE***

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

TS. Tran Thanh Thai

TS. Le Xuan Vinh

TS. Dinh Anh Tuan