INTERNATIONAL UNIVERSITY
DEPARTMENT OF PHYSICS

SPACE ENGINEERING

Undergraduate Program

Student Handbook

Academic Year 2024-2025

CONTENTS

I. WELCOME TO SPACE ENGINEERING PROGRAM

Welcome to the Space Engineering (SE) program of International University - Vietnam National University HCMC! We are the first academic program of Vietnam that trains engineers in the field of satellite technology applications, which includes signal processing and analytic, satellite imagery, remote sensing technology, satellite navigation and big data analysis. This program was launched in 2016 to meet the huge demand of highly qualified human resources in satellite technology applications into society, natural resources management, environment, territory, and national security and defense.

Welcome Freshmen

II. ABOUT SPACE ENGINEERING PROGRAM

The Department of Physics was established on September 26th, 2008, according to decision No. 333/QD-ĐHQT-TCHC of the President of the International University. The Department has been in charge of teaching all fundamental courses of Physics for other departments in our university. The courses are built to equip students with basic knowledge as well as practical skills such as Classical Mechanics, Thermodynamics, Electromagnetism, Optics, Quantum Physics, and Physics Laboratories.

In 2016, the International University officially opened the undergraduate Space Engineering program in the Department of Physics according to decision No. 261/QD-ĐHQG dated April 14th, 2016, of the Chancellor of VNU-HCM. The Space Engineering program trains engineers in the application of satellite technology, including signal processing and analysis, satellite imagery, remote sensing technology, and satellite navigation. The curriculum of the SE pro-gram is designed to offer students the following: (1) Mathematics, (2) Physics, (3) Sciences for space engineers, (4) Development of technical solutions, such as signals and information systems, image processing, geographic information system (GIS), and satellite communication systems, (5) Programming for mobile devices using global positioning systems (GPS), (6) Big data analytics for satellite technology and business, and (7) Experiment in eight laboratories with 15 credits, focusing on analyzing and interpreting satellite signals.

1. VISION - MISSION

The goals of the SE program are aligned with the vision, mission, and philosophy of education of IU and the national strategy for developing space science and technology.

- ✓ Engineer Program in Space Engineering provides graduates with good political ethics and moral attitudes, professional knowledge and skills, research skills, and creative thinking.
- ✓ The graduates have abilities to flexibly apply knowledge and skills to solve various problems in space engineering and related fields.

- ✓ The graduates have abilities to study in a higher education level in space science, satellite communication, remote sensing, and global navigation satellite system applications.

2. PROGRAM OBJECTIVES

This is a credit-based program providing students with a strong foundation in the field of satellite technology applications, which includes signal processing and analysis, satellite imagery, remote sensing technology, and satellite navigation. This program was launched to meet the huge demand of highly qualified human resources in satellite technology applications into society, natural resources management, environment, territory, and national security and defense.

Graduates of the program will possess the following knowledge, abilities, and competencies:

PO1. Broad fundamental knowledge of Mathematics, Physics, and Informatics to meet the requirements of the Space Engineering field and pursuit higher education levels.

PO2. Strong professional knowledge and skills in space science, satellite communication, digital image processing, remote sensing, global navigation satellite system (GNSS), and geolocation-based services to develop applications in space engineering and related fields.

PO3. Solid skills in research, communication, and teamwork suitable for interdisciplinary contexts and multicultural environments.

PO4. Good understanding of socioeconomics and politics to effectively contribute to the sustainable development of society and community.

3. CAREER OPPORTUNITIES

After graduation, students will have the opportunity to:

The graduates can:

- Work in software, logistics, and telecommunication companies of exploiting big data analysis, remote sensing, global navigation satellite system (GNSS), and geolocation-based services.
- Work in worldwide organizations of applying satellite data in urban planning, management of the environment, natural resources, forest, land, and territory.
- Study at a higher education level and work in worldwide institutes or universities in space science, satellite communication, remote sensing, and GNSS applications.

4. STUDENT LEARNING OUTCOMES

Graduates from Space Engineering program should achieve:

Knowledge, skills, and attitudes	**Intended learning outcomes**
Generic knowledge	ILO1 - Apply knowledge of mathematics, physics, and informatics for solving space engineering problems.
Specific knowledge	ILO2 - Apply knowledge of physics and space science for solving problems in satellite technology applications. ILO3 - Apply knowledge and skills of digital signal processing for analyzing satellite communication signals. ILO4 - Develop applications using satellite-based positioning and remote sensing in the era of interdisciplinary science and technology.
Specific skills	ILO5 - Perform experiments, analyze data, interpret results, and make conclusions regarding to technical problems in satellite technology applications.

General skills	ILO6 - Communicate effectively in career. ILO7 - Work effectively in a team in space engineering and interdisciplinary areas.
Attitudes	ILO8 - Show an understanding of the role and responsibility of an engineer in society. ILO9 - Show abilities of further self-learning and lifelong learning. ILO10 - Recognize the impact of technical solutions and modern technology on the environmental issues and contemporary society.

III. ACADEMIC PROGRAM OF SPACE ENGINEERING

1. PROGRAM OFFERING

- Name of qualification:
  - Engineer in Space Engineering; Kỹ sư Kỹ thuật Không gian
- Title conferred (full, abbreviated; in original language):
  - Engineer in Space Engineering, Eng. in SE; Kỹ sư Kỹ thuật Không gian
- Major: Space Engineering
- Institution awarding the qualification:
  - International University, Vietnam National University, Ho Chi Minh City (IU-VNUHCM)
- Faculty/Department offering the Degree Program:
  - Department of Physics
- Language of instruction: English

2. PROGRAM STRUCTURE

Knowledge Block	Number of Credits	ECTS	Percentage
General courses (G)	62	98.1	41%
Core courses (C)	35	55.93	23%
Major courses (M)	37	60.83	24%
Internship, project, thesis (P)	18	29.46	12%
Total	152	244.32	100%

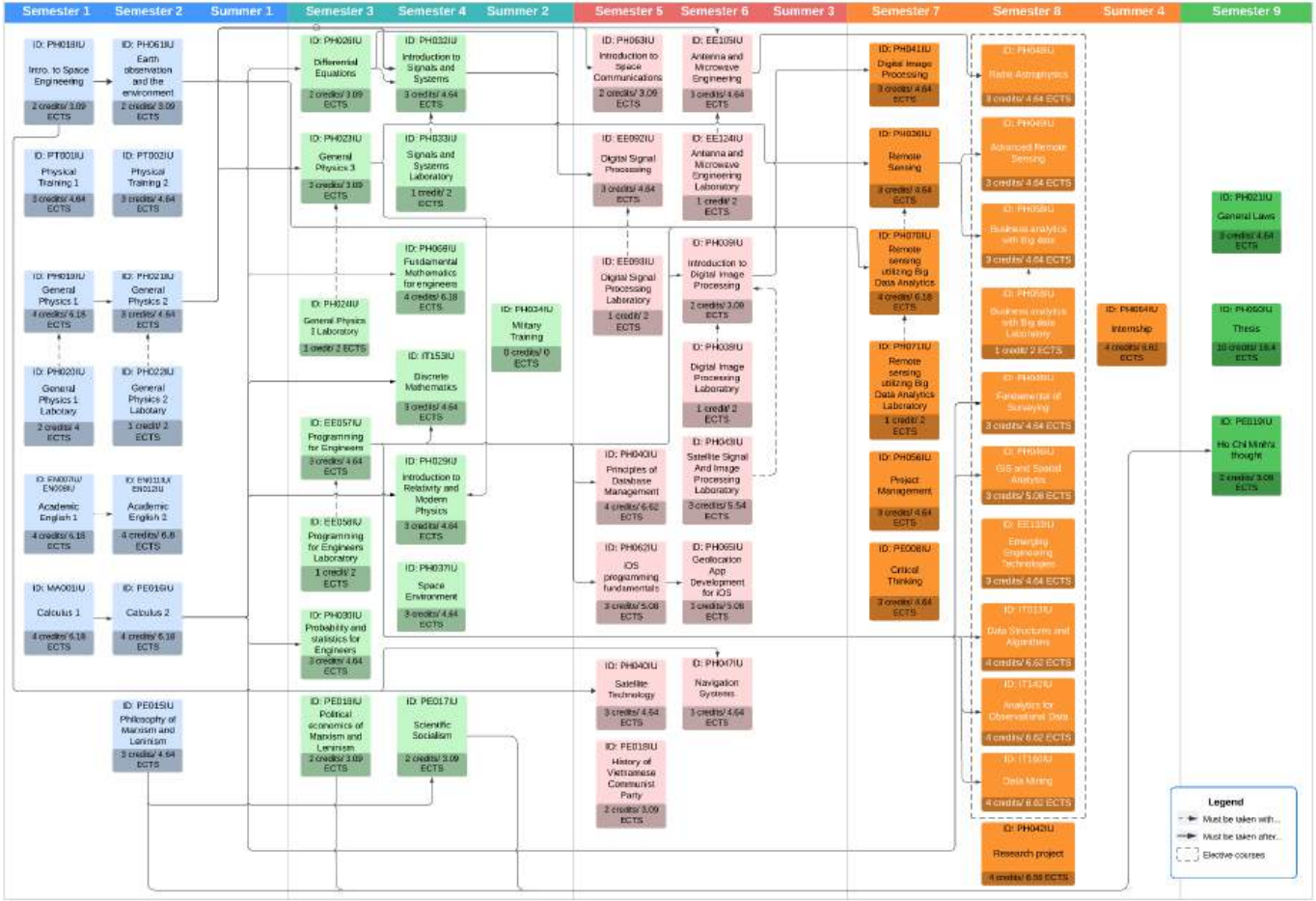
3. QUALIFICATION

In order to graduate, students are required to complete a minimum of 152 credits (244.32 ECTS) which includes both general and professional courses. The English qualification for graduation is equivalent to the TOEFL iBT score of 61 or IELTS score of 5.5 or any other equivalent qualifications.

The following courses are required for graduation:

VIETNAM NATIONAL UNIVERSITY HCMC-INTERNATIONAL UNIVERSITY

Department of Physics - Space Engineering Program



4. CURRICULUM

4.1 LEVEL AE

LEVEL AE (TOEFL iBT ≥ 61 or IELTS ≥ 5.5)							
No	**Course ID**	**Course name**	**Credit**				**ECTS**
			Theory	**Practice**	**Project**	**Total**	
Semester 1			**14**	**2**	**0**	**16**	**25.63**
1	MA001IU	Calculus 1	4	0		4	6.18
2	PH019IU	General Physics 1	4	0		4	6.18
3	PH020IU	General Physics 1 Laboratory	0	2		2	4
4	PH018IU	Introduction to Space Engineering	2	0		2	3.09
5	EN007IU	Writing AE1	2	0		2	3.09
6	EN008IU	Listening AE1	2	0		2	3.09
7	PT001IU	Physical training 1	0	0		0	0
Semester 2			**16**	**1**	**0**	**17**	**26.73**
8	MA003IU	Calculus 2	4	0		4	6.18
9	PH021IU	General Physics 2	3	0		3	4.64
10	PH022IU	General Physics 2 Laboratory	0	1		1	2
11	PH061IU	Earth observation and the environment	2	0		2	3.09
12	EN011IU	Writing AE 2	2	0		2	3.09
13	EN012IU	Speaking AE2	2	0		2	3.09
14	PE015IU	Marxist-Leninist philosophy	3	0		3	4.64
15	PT002IU	Physical training 2	0	0		0	0
Summer semester (Year 1)							
Semester 3			**15**	**2**	**0**	**17**	**27.19**

16	PH023IU	General Physics 3	2	0		2	3.09
17	PH024IU	General Physics 3 Laboratory	0	1		1	2
18	PH037IU	Space Environment	3	0		3	4.64
19	PH026IU	Differential equations	2	0		2	3.09
20	PH030IU	Probability and statistics for engineers	3	0		3	4.64
21	EE057IU	Programming for engineers	3	0		3	4.64
22	EE058IU	Programming for engineers Laboratory	0	1		1	2
23	PE016IU	Marxist - Leninist Political Economy	2	0		2	3.09
Semester 4			**15**	**1**	**0**	**16**	**25.19**
24	PH068IU	Fundamental Mathematics for engineers	4	0		4	6.18
25	IT153IU	Discrete Mathematics	3	0		3	4.64
26	PH029IU	Introduction to Relativity and Modern Physics	3	0		3	4.64
27	PH032IU	Introduction to Signals and Systems	3	0		3	4.64
28	PH033IU	Signals and Systems Laboratory	0	1		1	2
29	PE017IU	Scientific socialism	2	0		2	3.09
Summer semester (Year 2)							
30	MP001IU	Military training	0	0		0	0
Semester 5			**15**	**3**	**0**	**18**	**29.19**
31	PH063IU	Introduction to Space Communications	2	0		2	3.09
32	PH040IU	Satellite Technology	3	0		3	4.64
33	EE092IU	Digital Signal Processing	3	0		3	4.64

34	EE093IU	Digital Signal Processing Laboratory	0	1		1	2
35	IT079IU	Principles of Database Management	3	1		4	6.64
36	PH062IU	iOS programming fundamentals	2	1		3	5.09
37	PE018IU	History of Vietnamese Communist Party	2	0		2	3.09
Semester 6			**11**	**5**	**0**	**16**	**27.01**
38	PH047IU	Navigation Systems	3	0		3	4.64
39	PH065IU	Geolocation App Development for iOS	2	1		3	5.09
40	PH038IU	Introduction to Digital Image Processing	2	0		2	3.09
41	PH039IU	Digital Image Processing Laboratory	0	1		1	2
42	PH043IU	Satellite Signal and Image Processing Laboratory	1	2		3	5.55
43	EE105IU	Antenna and Microwave Engineering	3	0		3	4.64
44	EE124IU	Antenna and Microwave Engineering Laboratory	0	1		1	2
Summer semester (Year 3)							
Semester 7			**16**	**1**	**0**	**17**	**26.74**
45	PH041IU	Digital Image Processing	3	0		3	4.64
46	PH036IU	Remote Sensing	3	0		3	4.64
47	PH069IU	Remote sensing utilizing Big Data Analytics	4	0		4	6.18
48	PH070IU	Remote sensing utilizing Big Data Analytics Laboratory	0	1		1	2
49	PH056IU	Project Management	3	0		3	4.64
50	PE008IU	Critical thinking	3	0		3	4.64

Semester 8			**10**	**2**	**4**	**16**	**26**
51	PH042IU	Research Project	0	0	4	4	6.55
Electives (choose 12 credits in 10 courses below)			10	2		12	19.45
52	PH045IU	Fundamental of Surveying	2	1		3	5.09
53	PH046IU	Geographic Information Systems (GIS) and Spatial Analysis	2	1		3	5.09
54	PH048IU	Radio Astrophysics	3	0		3	4.64
55	PH049IU	Advanced Remote Sensing	3	0		3	4.64
56	EE133IU	Emerging Engineering Technologies	3	0		3	4.64
57	IT013IU	Data Structures and Algorithms	3	1		4	6.64
58	IT142IU	Analytics for Observational Data	3	1		4	6.64
59	IT160IU	Data mining	3	1		4	6.64
60	PH058IU	Business analytics with Big data	3	0		3	4.64
61	PH059IU	Business analytics with Big data Laboratory	0	1		1	2
Summer semester (Year 4)			**0**	**0**	**4**	**4**	**6.55**
62	PH064IU	Internship	0	0	4	4	6.55
Semester 9			**5**	**0**	**10**	**15**	**24.09**
63	PE021IU	General Laws	3	0		3	4.64
64	PE019IU	Ho Chi Minh's Thought	2	0		2	3.09
65	PH050IU	Thesis	0	0	10	10	16.36
Total			**117**	**17**	**18**	**152**	**244.32**

4.2 LEVEL IE2

LEVEL IE2 (46≤ TOEFL iBT ≤ 60 or IELTS = 5.0)							
No	Course ID	Course	Credit				ECTS
			Theory	Practice	Project	Total	
Semester 1			**17**	**0**	**0**	**17**	**6.18**
1	ENTP02IU	IE2	13	0		13	0
2	MA001IU	Calculus 1	4	0		4	6.18
3	PT001IU	Physical training 1	0	0		0	0
Semester 2			**16**	**2**	**0**	**18**	**28.72**
4	PH019IU	General Physics 1	4	0		4	6.18
5	PH020IU	General Physics 1 Laboratory	0	2		2	4
6	PH018IU	Introduction to Space Engineering	2	0		2	3.09
7	EN007IU	Writing AE1	2	0		2	3.09
8	EN008IU	Listening AE1	2	0		2	3.09
9	MA003IU	Calculus 2	4	0		4	6.18
10	PH061IU	Earth observation and the environment	2	0		2	3.09
11	PT002IU	Physical training 2	0	0		0	0
Summer semester (Year 1)			**8**	**1**	**0**	**9**	**14.37**
12	PE015IU	Marxist-Leninist philosophy	3	0		3	4.64
13	PE016IU	Marxist - Leninist Political Economy	2	0		2	3.09
14	PH021IU	General Physics 2	3	0		3	4.64
15	PH022IU	General Physics 2 Laboratory	0	1		1	2

Semester 3			**15**	**2**	**0**	**17**	**27.19**
16	PH023IU	General Physics 3	2	0		2	3.09
17	PH024IU	General Physics 3 Laboratory	0	1		1	2
18	EN011IU	Writing AE 2	2	0		2	3.09
19	EN012IU	Speaking AE2	2	0		2	3.09
20	PH037IU	Space Environment	3	0		3	4.64
21	PH030IU	Probability and statistics for engineers	3	0		3	4.64
22	EE057IU	Programming for engineers	3	0		3	4.64
23	EE058IU	Programming for engineers Laboratory	0	1		1	2
Semester 4			**17**	**1**	**0**	**18**	**28.28**
24	PH069IU	Fundamental Mathematics for engineers	4	0		4	6.18
25	IT153IU	Discrete Mathematics	3	0		3	4.64
26	PH029IU	Introduction to Relativity and Modern Physics	3	0		3	4.64
27	PH032IU	Introduction to Signals and Systems	3	0		3	4.64
28	PH033IU	Signals and Systems Laboratory	0	1		1	2
29	PH026IU	Differential equations	2	0		2	3.09
30	PE017IU	Scientific socialism	2	0		2	3.09
Summer semester (Year 2)							
31	MP001IU	Military training	0	0		0	0
Semester 5			**15**	**3**	**0**	**18**	**29.19**
32	PH063IU	Introduction to Space Communications	2	0		2	3.09
33	PH040IU	Satellite Technology	3	0		3	4.64

34	EE092IU	Digital Signal Processing	3	0		3	4.64
35	EE093IU	Digital Signal Processing Laboratory	0	1		1	2
36	IT079IU	Principles of Database Management	3	1		4	6.64
37	PH062IU	iOS programming fundamentals	2	1		3	5.09
38	PE018IU	History of Vietnamese Communist Party	2	0		2	3.09
Semester 6			**11**	**5**	**0**	**16**	**27.01**
39	PH047IU	Navigation Systems	3	0		3	4.64
40	PH065IU	Geolocation App Development for iOS	2	1		3	5.09
41	PH038IU	Introduction to Digital Image Processing	2	0		2	3.09
42	PH039IU	Digital Image Processing Laboratory	0	1		1	2
43	PH043IU	Satellite Signal and Image Processing Laboratory	1	2		3	5.55
44	EE105IU	Antenna and Microwave Engineering	3	0		3	4.64
45	EE124IU	Antenna and Microwave Engineering Laboratory	0	1		1	2
Summer semester (Year 3)							
Semester 7			**16**	**1**	**0**	**17**	**26.74**
46	PH041IU	Digital Image Processing	3	0		3	4.64
47	PH036IU	Remote Sensing	3	0		3	4.64
48	PH070IU	Remote sensing utilizing Big Data Analytics	4	0		4	6.18

49	PH071IU	Remote sensing utilizing Big Data Analytics Laboratory	0	1		1	2
50	PH056IU	Project Management	3	0		3	4.64
51	PE008IU	Critical thinking	3	0		3	4.64
Semester 8			**10**	**2**	**4**	**16**	**26**
52	PH042IU	Research Project	0	0	4	4	6.55
Electives (choose 12 credits in 10 courses below)			10	2		12	19.45
53	PH045IU	Fundamental of Surveying	2	1		3	5.09
54	PH046IU	Geographic Information Systems (GIS) and Spatial Analysis	2	1		3	5.09
55	PH048IU	Radio Astrophysics	3	0		3	4.64
56	PH049IU	Advanced Remote Sensing	3	0		3	4.64
57	EE133IU	Emerging Engineering Technologies	3	0		3	4.64
58	IT013IU	Data Structures and Algorithms	3	1		4	6.64
59	IT142IU	Analytics for Observational Data	3	1		4	6.64
60	IT160IU	Data mining	3	1		4	6.64
61	PH068IU	Business analytics with Big data	3	0		3	4.64
62	PH059IU	Business analytics with Big data Laboratory	0	1		1	2
Summer semester (Year 4)			**0**	**0**	**4**	**4**	**6.55**
63	PH064IU	Internship	0	0	4	4	6.55
Semester 9			**5**	**0**	**10**	**15**	**24.09**
64	PE021IU	General Laws	3	0		3	4.64
65	PE019IU	Ho Chi Minh's Thought	2	0		2	3.09

66	PH050IU	Thesis	0	0	10	10	16.36
Total			**130**	**17**	**18**	**165**	**244.32**

4.3 LEVEL IE1

LEVEL IE1 (35≤ TOEFL iBT ≤ 45 or IELTS = 4.5)							
No	**Course ID**	**Course**	**Credit**				**ECTS**
			Theory	**Practice**	**Project**	**Total**	
Semester 1			**30**	**0**	**0**	**30**	**0**
1	ENTP01IU	IE1	17	0		17	0
2	ENTP02IU	IE2	13	0		13	0
Semester 2			**16**	**2**	**0**	**18**	**28.72**
3	MA001IU	Calculus 1	4	0		4	6.18
4	PH019IU	General Physics 1	4	0		4	6.18
5	PH020IU	General Physics 1 Laboratory	0	2		2	4
6	PH018IU	Introduction to Space Engineering	2	0		2	3.09
7	EN007IU	Writing AE1	2	0		2	3.09
8	EN008IU	Listening AE1	2	0		2	3.09
9	PH061IU	Earth observation and the environment	2	0		2	3.09
10	PT001IU	Physical training 1	0	0		0	0
Summer semester (Year 1)			**9**	**0**	**0**	**9**	**13.91**
11	PE015IU	Marxist-Leninist philosophy	3	0		3	4.64
12	PE016IU	Marxist - Leninist Political Economy	2	0		2	3.09
13	MA003IU	Calculus 2	4	0		4	6.18
Semester 3			**15**	**2**	**0**	**17**	**27.19**
14	PH021IU	General Physics 2	3	0		3	4.64

15	PH022IU	General Physics 2 Laboratory	0	1		1	2
16	EN011IU	Writing AE 2	2	0		2	3.09
17	EN012IU	Speaking AE2	2	0		2	3.09
18	PH026IU	Differential equations	2	0		2	3.09
19	PH030IU	Probability and statistics for engineers	3	0		3	4.64
20	EE057IU	Programming for engineers	3	0		3	4.64
21	EE058IU	Programming for engineers Laboratory	0	1		1	2
22	PT002IU	Physical training 2	0	0		0	0
Semester 4			**15**	**2**	**0**	**17**	**27.19**
23	PH069IU	Fundamental Mathematics for engineers	4	0		4	6.18
25	PH023IU	General Physics 3	2	0		2	3.09
26	PH024IU	General Physics 3 Laboratory	0	1		1	2
27	IT153IU	Discrete Mathematics	3	0		3	4.64
28	PH037IU	Space Environment	3	0		3	4.64
29	PH032IU	Introduction to Signals and Systems	3	0		3	4.64
30	PH033IU	Signals and Systems Laboratory	0	1		1	2
Summer semester (Year 2)							
30	MP001IU	Military training	0	0		0	0
Semester 5			**16**	**3**	**0**	**19**	**30.74**
31	PH063IU	Introduction to Space Communications	2	0		2	3.09
32	PH029IU	Introduction to Relativity and Modern Physics	3	0		3	4.64

33	PH040IU	Satellite Technology	3	0		3	4.64
34	EE092IU	Digital Signal Processing	3	0		3	4.64
35	EE093IU	Digital Signal Processing Laboratory	0	1		1	2
36	IT079IU	Principles of Database Management	3	1		4	6.64
37	PH062IU	iOS programming fundamentals	2	1		3	5.09
Semester 6			**11**	**5**	**0**	**16**	**27.01**
38	PH047IU	Navigation Systems	3	0		3	4.64
39	PH065IU	Geolocation App Development for iOS	2	1		3	5.09
40	PH038IU	Introduction to Digital Image Processing	2	0		2	3.09
41	PH039IU	Digital Image Processing Laboratory	0	1		1	2
42	PH043IU	Satellite Signal and Image Processing Laboratory	1	2		3	5.55
43	EE105IU	Antenna and Microwave Engineering	3	0		3	4.64
44	EE124IU	Antenna and Microwave Engineering Laboratory	0	1		1	2
Summer semester (Year 3)							
Semester 7			**18**	**1**	**0**	**19**	**29.83**
45	PH041IU	Digital Image Processing	3	0		3	4.64
46	PH036IU	Remote Sensing	3	0		3	4.64
47	PH070IU	Remote sensing utilizing Big Data Analytics	4	0		4	6.18

48	PH071IU	Remote sensing utilizing Big Data Analytics Laboratory	0	1		1	2
49	PE017IU	Scientific socialism	2	0		2	3.09
50	PH056IU	Project Management	3	0		3	4.64
51	PE008IU	Critical thinking	3	0		3	4.64
Semester 8			**12**	**2**	**4**	**18**	**29.09**
52	PH042IU	Research Project	0	0	4	4	6.55
53	PE018IU	History of Vietnamese Communist Party	2	0	0	2	3.09
Electives (choose 12 credits in 10 courses below)			10	2		12	19.45
54	PH045IU	Fundamental of Surveying	2	1		3	5.09
55	PH046IU	Geographic Information Systems (GIS) and Spatial Analysis	2	1		3	5.09
56	PH048IU	Radio Astrophysics	3	0		3	4.64
57	PH049IU	Advanced Remote Sensing	3	0		3	4.64
58	EE133IU	Emerging Engineering Technologies	3	0		3	4.64
59	IT013IU	Data Structures and Algorithms	3	1		4	6.64
60	IT142IU	Analytics for Observational Data	3	1		4	6.64
61	IT160IU	Data mining	3	1		4	6.64
62	PH068IU	Business analytics with Big data	3	0		3	4.64
63	PH059IU	Business analytics with Big data Laboratory	0	1		1	2
Summer semester (Year 4)			**0**	**0**	**4**	**4**	**6.55**
64	PH064IU	Internship	0	0	4	4	6.55

Semester 9			**5**	**0**	**10**	**15**	**24.09**
65	PE021IU	General Laws	3	0		3	4.64
66	PE019IU	Ho Chi Minh's Thought	2	0		2	3.09
67	PH050IU	Thesis	0	0	10	10	16.36
Total			**147**	**17**	**18**	**182**	**244.32**

4.4 LEVEL IE0

LEVEL IE1 (35≤ TOEFL iBT ≤ 45 or IELTS = 4.5)							
No	**Course ID**	**Course**	**Credit**				**ECTS**
			Theory	**Practice**	**Project**	**Total**	
Semester 1			**30**	**0**	**0**	**30**	**0**
1	ENTP01IU	IE1	17	0		17	0
2	ENTP02IU	IE2	13	0		13	0
Semester 2			**16**	**2**	**0**	**18**	**28.72**
3	MA001IU	Calculus 1	4	0		4	6.18
4	PH019IU	General Physics 1	4	0		4	6.18
5	PH020IU	General Physics 1 Laboratory	0	2		2	4
6	PH018IU	Introduction to Space Engineering	2	0		2	3.09
7	EN007IU	Writing AE1	2	0		2	3.09
8	EN008IU	Listening AE1	2	0		2	3.09
9	PH061IU	Earth observation and the environment	2	0		2	3.09
10	PT001IU	Physical training 1	0	0		0	0
Summer semester (Year 1)			**9**	**0**	**0**	**9**	**13.91**
11	PE015IU	Marxist-Leninist philosophy	3	0		3	4.64
12	PE016IU	Marxist - Leninist Political Economy	2	0		2	3.09

13	MA003IU	Calculus 2	4	0		4	6.18
Semester 3			**15**	**2**	**0**	**17**	**27.19**
14	PH021IU	General Physics 2	3	0		3	4.64
15	PH022IU	General Physics 2 Laboratory	0	1		1	2
16	EN011IU	Writing AE 2	2	0		2	3.09
17	EN012IU	Speaking AE2	2	0		2	3.09
18	PH026IU	Differential equations	2	0		2	3.09
19	PH030IU	Probability and statistics for engineers	3	0		3	4.64
20	EE057IU	Programming for engineers	3	0		3	4.64
21	EE058IU	Programming for engineers Laboratory	0	1		1	2
22	PT002IU	Physical training 2	0	0		0	0
Semester 4			**15**	**2**	**0**	**17**	**27.19**
23	PH069IU	Fundamental Mathematics for engineers	4	0		4	6.18
25	PH023IU	General Physics 3	2	0		2	3.09
26	PH024IU	General Physics 3 Laboratory	0	1		1	2
27	IT153IU	Discrete Mathematics	3	0		3	4.64
28	PH037IU	Space Environment	3	0		3	4.64
29	PH032IU	Introduction to Signals and Systems	3	0		3	4.64
30	PH033IU	Signals and Systems Laboratory	0	1		1	2
Summer semester (Year 2)							
30	MP001IU	Military training	0	0		0	0
Semester 5			**16**	**3**	**0**	**19**	**30.74**

31	PH063IU	Introduction to Space Communications	2	0		2	3.09
32	PH029IU	Introduction to Relativity and Modern Physics	3	0		3	4.64
33	PH040IU	Satellite Technology	3	0		3	4.64
34	EE092IU	Digital Signal Processing	3	0		3	4.64
35	EE093IU	Digital Signal Processing Laboratory	0	1		1	2
36	IT079IU	Principles of Database Management	3	1		4	6.64
37	PH062IU	iOS programming fundamentals	2	1		3	5.09
Semester 6			**11**	**5**	**0**	**16**	**27.01**
38	PH047IU	Navigation Systems	3	0		3	4.64
39	PH065IU	Geolocation App Development for iOS	2	1		3	5.09
40	PH038IU	Introduction to Digital Image Processing	2	0		2	3.09
41	PH039IU	Digital Image Processing Laboratory	0	1		1	2
42	PH043IU	Satellite Signal and Image Processing Laboratory	1	2		3	5.55
43	EE105IU	Antenna and Microwave Engineering	3	0		3	4.64
44	EE124IU	Antenna and Microwave Engineering Laboratory	0	1		1	2
Summer semester (Year 3)							
Semester 7			**18**	**1**	**0**	**19**	**29.83**
45	PH041IU	Digital Image Processing	3	0		3	4.64

46	PH036IU	Remote Sensing	3	0		3	4.64
47	PH070IU	Remote sensing utilizing Big Data Analytics	4	0		4	6.18
48	PH071IU	Remote sensing utilizing Big Data Analytics Laboratory	0	1		1	2
49	PE017IU	Scientific socialism	2	0		2	3.09
50	PH056IU	Project Management	3	0		3	4.64
51	PE008IU	Critical thinking	3	0		3	4.64
Semester 8			**12**	**2**	**4**	**18**	**29.09**
52	PH042IU	Research Project	0	0	4	4	6.55
53	PE018IU	History of Vietnamese Communist Party	2	0	0	2	3.09
Electives (choose 12 credits in 10 courses below)			10	2		12	19.45
54	PH045IU	Fundamental of Surveying	2	1		3	5.09
55	PH046IU	Geographic Information Systems (GIS) and Spatial Analysis	2	1		3	5.09
56	PH048IU	Radio Astrophysics	3	0		3	4.64
57	PH049IU	Advanced Remote Sensing	3	0		3	4.64
58	EE133IU	Emerging Engineering Technologies	3	0		3	4.64
59	IT013IU	Data Structures and Algorithms	3	1		4	6.64
60	IT142IU	Analytics for Observational Data	3	1		4	6.64
61	IT160IU	Data mining	3	1		4	6.64
62	PH068IU	Business analytics with Big data	3	0		3	4.64
63	PH059IU	Business analytics with Big data Laboratory	0	1		1	2

Summer semester (Year 4)			**0**	**0**	**4**	**4**	**6.55**
64	PH064IU	Internship	0	0	4	4	6.55
Semester 9			**5**	**0**	**10**	**15**	**24.09**
65	PE021IU	General Laws	3	0		3	4.64
66	PE019IU	Ho Chi Minh's Thought	2	0		2	3.09
67	PH050IU	Thesis	0	0	10	10	16.36
Total			**147**	**17**	**18**	**182**	**244.32**

5. RELATION OF PROGRAM ILOS AND COURSES

No	Course ID	Course name	Credits	ECTS	Intended Learning Outcomes									
					General Knowledge	Specific Knowledge			Specific Skills	General Skills		Attitudes		
					ILO1	ILO2	ILO3	ILO4	ILO5	ILO6	ILO7	ILO8	ILO9	ILO10
Semester 1														
1	MA001IU	Calculus 1	4	6.18	L									
2	PH019IU	General Physics 1	4	6.18	L									
3	PH020IU	General Physics 1 Laboratory	2	4					L					
4	PH018IU	Introduction to Space Engineering	2	3.09		L					L		L	
5	EN007IU	Writing AE1	2	3.09							L			
6	EN008IU	Listening AE1	2	3.09							L			
7	PT001IU	Physical training 1	0	0										
Semester 2														
8	MA003IU	Calculus 2	4	6.18	M									
9	PH021IU	General Physics 2	3	4.64	L									

10	PH022IU	General Physics 2 Laboratory	1	2					L					
11	PE015IU	Marxist-Leninist philosophy	3	4.64								L		
12	PH061IU	Earth observation and the environment	2	3.09		L			L					L
13	EN011IU	Writing AE2	2	3.09							M			
14	EN012IU	Speaking AE2	2	3.09							M			
15	PT002IU	Physical training 2	0	0										
Summer Semester (Year 1)														
Semester 3														
16	PH023IU	General Physics 3	2	3.09	L									
17	PH024IU	General Physics 3 Laboratory	1	2					L					
18	PH037IU	Space Environment	3	4.64		M			L					L
19	PH026IU	Differential equations	2	3.09	L									
20	PH030IU	Probability and statistics for	3	4.64	M									

		engineers												
21	EE057IU	Programming for engineers	3	4.64	L									
22	EE058IU	Programming for engineers Laboratory	1	2					L					
23	PE016IU	Political economics of Marxism and Leninism	2	3.09						L		L		
Semester 4														
24	PH069IU	Fundamental Mathematics for Engineers	4	6.18	M									
25	IT153IU	Discrete Mathematics	3	4.64	M									
26	PH029IU	Introduction to Relativity and Modern Physics	3	4.64		M					L		L	
27	PH032IU	Introduction to Signals and Systems	3	4.64			L							
28	PH033IU	Signals and	1	2					L					

		Systems Laboratory												
29	PE017IU	Scientific socialism	2	3.09						L		M		
Summer Semester (Year 2)														
30	MP001IU	Military Training	0	0										
Semester 5														
31	PH063IU	Introduction to Space Communications	2	3.09	M		M				M	M		
32	PH040IU	Satellite Technology	3	4.64			M			L				L
33	EE092IU	Digital Signal Processing	3	4.64			M							
34	EE093IU	Digital Signal Processing Laboratory	1	2					M					
35	IT079IU	Principles of Database Management	4	6.64				M						
36	PH062IU	iOS programming fundamentals	3	5.09	M			M	M			L		

37	PE018IU	History of Vietnamese Communist Party	2	3.09								M		
Semester 6														
38	PH047IU	Navigation Systems	3	4.64				M	M					M
39	PH065IU	Geolocation App Development for iOS	3	5.09				H	H	M	M			
40	PH038IU	Introduction to Digital Image Processing	2	3.09				M	M			M		
41	PH039IU	Digital Image Processing Laboratory	1	2				M	M			M		
42	PH043IU	Satellite Signal and Image Processing Laboratory	3	5.55			H		H	M				M
43	EE105IU	Antenna and Microwave Engineering	3	4.64			M							
44	EE124IU	Antenna and	1	2					M					

		Microwave Engineering Laboratory												
Summer Semester (Year 3)														
Semester 7														
45	PH041IU	Digital Image Processing	3	4.64				H	H				M	
46	PH036IU	Remote Sensing	3	4.64	M			H	H					M
47	PH070IU	Remote Sensing Utilizing Big Data Analytics	4	6.18				H	H				M	
48	PH071IU	Remote Sensing Utilizing Big Data Analytics Laboratory	1	2.0				H	H				M	
49	PH056IU	Project Management	3	4.64						M		M		
50	PE008IU	Critical thinking	3	4.64					L			L		
Semester 8														
51	PH042IU	Research Project	4	6.55					H	M	H	M	M	M

Electives (choose 12 credits in 10 courses below)														
52	PH045IU	Fundamental of Surveying	3	5.08				M	M					M
53	PH046IU	Geographic Information Systems (GIS) and Spatial Analysis	3	5.08				H	H			M	M	
54	PH048IU	Radio Astrophysics	3	4.64		M			M				M	
55	PH049IU	Advanced Remote Sensing	3	4.64				H	H					M
56	EE133IU	Emerging Engineering Technologies	3	4.64		M								M
57	IT013IU	Data Structures and Algorithms	3	1				M						
58	IT142IU	Analytics for Observational Data	3	1				M						
59	IT160IU	Data mining	3	1				M						
60	PH068IU	Business analytics with Big data	3	0				H	H				M	
61	PH059IU	Business analytics	0	1				H	H				M	

		with Big data Laboratory												
Summer Semester (Year 4)														
62	PH064IU	Internship	4	6.55					H	M	M	M	M	M
Semester 9														
63	PE021IU	General Laws	3	4.64								M		
64	PE019IU	Ho Chi Minh's Thought	2	3.09								M		
65	PH050IU	Thesis	10	16.36					H		H	M	M	M

Where in:

- Low (L) or the understanding level: Students can construct meaning from oral, written, and graphic messages by interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.
- Medium (M) or the applying level: Students can employ procedures for executing or implementing.
- High (H) or the analyzing level: Students can break materials into constituent parts and determine the relationship between different aspects. They can analyze an overall structure/purpose through differentiating, organizing, and attributing.

6. COURSE DESCRIPTIONS

BASIC SCIENCE KNOWLEDGE		
1.	**General Physics 1** **ID: PH019IU** **Credits: 04**	This subject will provide an introduction to mechanics including concepts and principles of kinetics, dynamics, energetics of motion of a particle and a rigid body and provide a basic knowledge of fluid mechanics; macroscopic description of gases; heat and the first law of thermodynamics; heat engines and the second law of thermodynamics; microscopic description of gases and the kinetic theory of gases. Prerequisites: None
2.	**General Physics 1 Laboratory** **ID: PH020IU** **Credits: 02**	This subject is an experimental course that provides students necessary skills to do experiment of mechanics, thermodynamics and fluid mechanics. Parallel course: General Physics 1 (PH019IU)
3.	**General Physics 2** **ID: PH021IU** **Credits: 03**	This subject will provide a basic knowledge of electricity and magnetism. Previous course: General Physics 1 (PH019IU)
4.	**General Physics 2 Laboratory** **ID: PH022IU** **Credits: 01**	This course provides students with basic knowledge of electricity and magnetism in laboratory, consisting of: Ohm's law, LRC circuit, RC circuit, LR circuit, magnetic fields of coils…. Parallel course: General Physics 2 (PH021IU)

5.	**General Physics 3** **ID: PH023IU** **Credits: 02**	This subject will provide a basic knowledge of Wave and Modern Physics. Previous course: General Physics 1 (PH021IU)
6.	**General Physics 3 Laboratory** **ID: PH024IU** **Credits: 01**	This course provides students with basic knowledge of optics in laboratory, consists of diffraction, interferences, telescope, Brewster's law, photoelectric effect…. Parallel course: General Physics 3 (PH023IU)
7.	**Calculus 1** **ID: MA001IU** **Credits: 04**	This course equips students with basic concepts of calculus: limits, continuity, differentiation, and integration. Applications of these concepts are extensively discussed. Prerequisites: None
8.	**Calculus 2** **ID: MA003IU** **Credits: 04**	This course is a continuation of Calculus 1. Its aim is to equip students with basic concepts of sequence, series, vector functions, functions of several variables, multiple integrals and their applications. Previous course: Calculus 1 (MA001IU)
9.	**Differential Equations** **ID: PH026IU** **Credits: 02**	This course provides an introduction to ordinary differential equations. Topic includes first order, second order, numerical methods, series solutions, Laplace transforms and Fourier series. Previous course: Calculus 2 (MA003IU)

10.	**Probability and Statistics for Engineers** **ID: PH030IU** **Credits: 03**	This course develops an engineer's view of probability, starting from the notion of chance, relative frequencies and then probability. It covers all fundamental concepts in probability, random variables and statistics that will serve everyday an engineer working in practical fields such as quality control, signal processing, biomedical engineering, automatic control, communications etc… Previous course: Calculus 2 (MA003IU)
11.	**Programming for Engineers** **ID: EE057IU** **Credits: 03**	This course is aimed at students with no or little programming experience. Generally, it endeavors to provide students with an understanding about the role of programming that can play in solving problems. The course content thus equips the basic terminologies of principles of programming and data structures via C programming language. The fundamentals include the history of programming, stepwise refinement and flow-charting, introduction to algorithm analysis; basic data types, type conversion, making decision and looping, branching, I/O operations; functions, recursion; arrays and multiple-subscripted arrays, searching and sorting algorithms; pointers/function pointers; characters and strings; structures, unions, enumerates, operations on bits; introduction to abstract data types; dynamic memory allocation, file processing. Parallel course: Programming for Engineers Laboratory (EE058IU)

12.	**Programming for Engineers Laboratory** **ID: EE058IU** **Credits: 01**	This laboratory is associated with the Programming for Engineers course. It covers everything that students will need to understand the basic concepts covered in the theory course, as well as the implementation of simple-to-complex C programs especially in the field of engineering. Topics include data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging. Parallel course: Programming for Engineers (EE057IU)
13.	**Fundamental Mathematics for Engineers** **ID: PH025IU** **Credits: 04**	This course provides essential knowledge in mathematics for solving engineering problems, including complex analysis, determinant, and matrix. Previous course: Calculus 2 (MA003IU)
POLITICAL, ECONOMIC, CULTURAL AND SOCIAL KNOWLEDGE		
14.	**Marxist – Leninist Philosophy** **ID: PE015IU** **Credits: 03**	The course equips students with basic knowledge of Marxist-Leninist philosophy. Prerequisites: None
15.	**Marxist - Leninist Political Economy** **ID: PE016IU** **Credits: 02**	The program consists of 6 chapters, in which Chapter 1 discusses the Objects, research methods and functions of Marxist-Leninist political economy; the remain chapters present the core content of Marxist-Leninist Political Economy according to the module's objectives. Specifically, the content includes commodities, markets and the role of stakeholders; producing surplus value; competition and monopoly; socialist-oriented market

		economy and economic interest relations in Vietnam; and industrialization, modernization, and international economic integration in Vietnam. Parallel course: Marxist-Leninist philosophy (PE015IU)
16.	**Scientific Socialism** **ID: PE017IU** **Credits: 02**	The course equips students with basic knowledge of scientific socialism. Previous courses: Previous courses: Marxist-Leninist philosophy (PE015IU), Marxist-Leninist political economy (PE016IU).
17.	**History of Vietnamese Communist Party** **ID: PE018IU** **Credits: 02**	The course equips students with basic knowledge about the History of the Communist Party of Vietnam Previous courses: Previous courses: Marxist-Leninist philosophy (PE015IU), Marxist-Leninist political economy (PE016IU), Scientific socialism (PE017IU)
18.	**Ho Chi Minh's Thoughts** **ID: PE019IU** **Credits: 02**	The course equips students with basic knowledge about subjects, research methods and meaning of Ho Chi Minh's ideologies; origin of Ho Chi Minh's ideologies; national independence and socialism; Communist Party of Viet Nam and the Vietnamese State; great national unity and international solidarity; culture, morality and human. Previous courses: Marxist-Leninist philosophy (PE015IU), Marxist-Leninist political economy (PE016IU), Scientific socialism (PE017IU)
19.	**Critical Thinking** **ID: PE008IU** **Credits: 03**	This course provides the nature and techniques of thought as a basis for our claims, beliefs, and attitudes about the world. The course also explores the process in which people develop their claims and support their beliefs.

		Specifically, the course includes the theory and practice of presenting arguments in oral and written forms, making deductive and inductive arguments, evaluating the validity or strength of arguments, detecting fallacies in arguments, and refuting fallacious arguments. Resources for the reasoning process include hypothetical and real-life situations in various fields of natural sciences, social sciences, and humanities. Prerequisites: None
20.	**Project Management** **ID: PH056IU** **Credits: 03**	This course is developed to provide the principal concept on project management which was characterized by the project management body of knowledge guide (PMBOK Guide). This guide emphasizes the five project process groups of initiating, planning, executing, controlling and closing, and the nine knowledge areas of project integration, scope, time, cost, quality, human resources, communication, risk, and procurement management. Students will also apply all project management knowledge in a specific satellite development project to understand more about satellite life cycle via a mini project and final report. In addition, this course also provides computer aid for project management by introducing the application of Microsoft Project and project scheduling. Prerequisites: None
21.	**General Law** **ID: PE021IU** **Credits: 03**	The overarching aims of this course are to: ● Provide essential knowledge of Vietnamese legal system through integrated technology and real cases for social and cultural sustainability.

		• Raise awareness of responsibility toward others and how to stand for ending all types of legal violations, especially corruption in various social contexts. • Practice necessary skills to act as an ambassador to ensure social fairness and global equitable rights. • Use integrated online legal resources and communication tools to help the community to identify issues and develop countermeasures. Prerequisites: None
FOREIGN LANGUAGE		
22.	**Writing AE1 (Academic Writing)** **ID: EN007IU** **Credits: 02**	This course provides students with comprehensive instructions and practice in essay writing, including transforming ideas into different functions of writing such as process, cause-effect, comparison-contrast, and argumentative essays. Students must fulfill ONE of the following requirements to attend this course: Hold TOEFL iBT certificate with score ≥ 61. Hold IELTS certificate with score ≥ 5.5. Have complete IE2 course
23.	**Listening AE1 (Listening & Note-Taking)** **ID: EN008IU** **Credits: 02**	The course is designed to prepare students for effective listening and note-taking skills, so that they can pursue the courses in their majors without considerable difficulty. The course is therefore lecture-based in that the teaching and learning procedure is built on lectures on a variety of topics such as business, science, and humanities. Students must fulfill ONE of the following requirements to attend this course:

		Hold TOEFL iBT certificate with score ≥ 61. Hold IELTS certificate with score ≥ 5.5. Have complete IE2 course
24.	**Writing AE2 (Research Paper Writing)** **ID: EN011IU** **Credits: 02**	This course introduces basic concepts in research paper writing, especially the role of generalizations, definitions, classifications, and the structure of a research paper to students who attend English- medium college or university. It also provides them with methods of developing and presenting an argument, a comparison or a contrast. Previous course: Writing AE1 (EN007IU)
25.	**Speaking AE2 (Effective Presentations)** **ID: EN012IU** **Credits: 02**	Giving presentations today becomes a vital skill for students to succeed not only in university but also at work in the future. Speaking AE2, therefore, provides students with the knowledge and skills needed to deliver effective presentations (informative and persuasive presentations). Previous course: Writing AE1 (EN007IU), Listening AE1 (EN008IU)
CORE COURSES		
26.	**Introduction to Space Engineering** **ID: PH018IU** **Credits: 02**	This introductory course will bring a general overview of Space Science and Engineering to students, including the background of space and solar physics and the historical development of Space Engineering throughout the XX century. Since the course is designed from the engineers' point of view, prospective students with strong interests in Space Science and Engineering will be provided with solid foundations of the field, as well as the finest

		motivations for the needs of Vietnam for space science, space technology and applications in the XXI century. Prerequisites: None
27.	**Earth Observation and the Environment** **ID: PH061IU** **Credits: 02**	This course gives students an understanding of the Earth's climate system, an appreciation of the environmental issues (water pollution, air pollution, soil pollution, etc), and also sheds light on the role of Earth's climate system, which may have on the space systems, especially the negative impacts. Some engineering approaches are suggested to suppress these negative impacts in maintaining the lifetime of the space systems in their services. Previous course: Introduction to Space Engineering (PH018IU)
28.	**Introduction to Relativity and Modern Physics** **ID: PH029IU** **Credits: 03**	This course is introductory to all theoretically fundamental aspects of Special Relativity and Early Quantum Theory. In the first part of the course, students are brought up with some experiments that lead to the special relativity concepts of objects moving at speed close to the speed of light. From there, they can develop the formalism of special relativity in both kinematics and dynamics via the discussion of moving frames of reference, Galilean and Lorentz transformations, and electromagnetism. The second part of the course will also introduce the other pillar of modern physics, quantum theory, in its early stage. Again, students will get acquainted with some experiments that led to the thoughts of quantization, the duality characteristics of the particle-wave nature of radiation, and the principle of uncertainty; and apply these foundation physics backgrounds to the

		quantum theory of the atom then. Previous courses: General Physics 3 (PH023IU), Calculus 2 (MA003IU)
29.	**Introduction to Signals and Systems** **ID: PH032IU** **Credits: 03**	Introduction to continuous- and discrete-time systems and signals, basis function representation of signals, convolution, Fourier Series, Fourier, Laplace, Z-transform theory, state space variable analysis of linear systems, basic feedback concepts. Previous courses: General Physics 2 (PH021IU), Differential Equations (PH026IU)
30.	**Signals and Systems Laboratory** **ID: PH033IU** **Credits: 01**	This course covers the following topics: Experimental exercises via simulation using MATLAB to get an understanding of frequency and time domain analysis of linear dynamic systems and corresponding signals. Finding the response of continuous-time and discrete-time linear systems via simulation. Parallel course: Introduction to Signals and Systems (PH032IU)
31.	**Introduction to Space Communications** **ID: PH063IU** **Credits: 02**	This course is introductory to all fundamental aspects of Space Communications between a spacecraft (or satellites) and the ground stations. The scope of the course covers a wide range of discussions from the satellite's technological designs and technical solutions to its communications with the controlled-ground stations. In the first part of the course, students will study the essential characteristics and components of satellites, the satellite launching methods, the satellite orbits (mainly

		concentrating on the geostationary satellites), and the satellite orbital perturbations; nevertheless, in the second part, the learning contents will focus on the analog and digital signals, transmissions, receptions, link equations, and satellite services. Previous course: General Physics 2 (PH021IU)
32.	**Remote Sensing** **ID: PH036IU** **Credits: 03**	In this course, students will be able to extract physical information of the Earth's surface using remote sensing, applying for forestry, agriculture, water resources, and environment. Wavelength ranges used in this course are ultraviolet, visible, short-wavelength infrared, thermal infrared, and microwave. Previous course: General Physics 3 (PH023IU) Parallel Course: General Physics 3 Laboratory (PH024IU)
33.	**Space Environment** **ID: PH037IU** **Credits: 03**	This is an introductory course of physical properties of plasma; the solar atmosphere; the solar dynamo; the magnetic field and the ionosphere of the Earth; the interaction between the solar wind and the magnetic field of the Earth; the impact of the ionosphere on satellite communication. Parallel Course: General Physics 2 (PH021IU)
34.	**Satellite Technology** **ID: PH040IU** **Credits: 03**	This course is introductory to general knowledge about satellites, including two parts separately of satellite technology and applications. The first part of the course will introduce students to the fundamental topics of satellite technology, satellite orbits, and satellite launching. The second part of the course focuses mostly on satellite applications, including communication

		techniques, remote sensing, navigation, weather satellites, and military satellites. Previous course: Introduction to Space Engineering (PH018IU)
35.	**iOS Programming Fundamentals** **ID: PH062IU** **Credits: 03 (02 theory and 01 practice)**	This course provides students with an introduction to programming on the iOS platform with Swift Programming language including: environment, syntax, data types, variables, tuples, constants, literals, operators, decision making, loops, strings, arrays, sets, functions, classes, properties, methods, OOP concepts, App development methodologies, UI designs. Previous course: Programming for Engineers (EE057IU)
36.	**Introduction to Digital Image Processing** **ID: PH038IU** **Credits: 02**	This course will introduce students to essential basic knowledge of creating, visualizing, and manipulating digital images by computer. Topics will include representation of two-dimensional (2D) data, time and frequency domain representations, filtering and enhancement, the Fourier transform, convolution, interpolation, color images, and preliminary knowledge in object recognition and description. Previous course: Programming for Engineers (EE057IU)
37.	**Digital Image Processing Laboratory** **ID: PH039IU** **Credit: 01**	This course gives students computer-based laboratory exercises designed to introduce methods of real-world data manipulation. The lab exercises will introduce various imaging processing topics, which could be completed with many widely used programming languages such as Matlab, C, or Python. Parallel Course: Introduction to digital image processing

		(PH038IU)
38.	**Principles of Database Management** **ID: IT079IU** **Credit: 04 (03 theory and 01 practice)**	This subject introduces the students to basic database design and implementation concepts. Database design techniques, including relational design and E-R analysis, are presented. Database queries using SQL are covered in lectures and supported by practical exercises. Previous course: C/C++ programming (IT116IU) or Programming for Engineers (EE057IU)
39.	**Discrete Mathematics** **ID: IT153IU** **Credits: 03**	The course provides students the ability to reason and think mathematically and logically; and apply this ability to analyze and solve discrete practical problems in Computer Science and IT. Previous course: Calculus 1 (MA001IU), Calculus 2 (MA003IU), C/C++ programming (IT116IU) or Programming for Engineering (EE057IU)
MAJOR COURSES		
40.	**Remote Sensing Utilizing Big Data Analytics** **ID: PH070IU** **Credits: 04**	The aim of the course is to get students familiar with big data analytics tools for remote sensing. Students will learn how to discover knowledge from remote sensing data with high-performance, distributed computing approaches and machine learning tools (Apache Hadoop and Map Reduce, Python for computer vision, and Google Earth Engine). Previous Course: Programming for engineers (EE057IU), Earth Observation and Environment (PH027IU) Parallel course: Remote Sensing (PH036IU)

41.	**Remote Sensing Utilizing Big Data Analytics Laboratory** **ID: PH071IU** **Credits: 01**	This course provides students with hands-on experience of handling remote sensing big data. Students will work with the latest development tools and platforms such as Apache Hadoop, parallel Python, R, Google Earth Engine. Parallel Course: Remote Sensing Utilizing Big Data Analytics (PH070IU)
42.	**Geolocation App Development for iOS** **ID: PH065IU** **Credits: 03 (02 theory+01 practice)**	This course provides students with an introduction to programming on the iOS platform with Swift Programming language for location-based services apps, including Core Location services, Maps, Region monitoring, iBeacon, Compass Heading, Geocoding, Error Handling, and Firebase. In addition, this course gives students skills to design, implement & debug a program for the iOS platform. Previous course: iOS Programming fundamentals (PH062IU)
43.	**Digital Signal Processing** **ID: EE092IU** **Credits: 03**	This course is an introduction to the basic principles, methods, and applications of digital signal processing, emphasizing its algorithmic, computational, and programming aspects. In particular, the students will learn the conversion from analog to digital, the concepts of discrete time linear systems, filtering, spectral analysis of discrete time signals and filter design. Previous course: Introduction to Signals and Systems (PH032IU)

44.	**Digital Signal Processing Laboratory** **ID: EE093IU** **Credits: 01**	This course is an introduction to the basic principles, methods, and applications of digital signal processing, emphasizing its algorithmic, computational, and programming aspects. Parallel course: Digital Signal Processing (EE092IU)
45.	**Digital Image Processing** **ID: PH041IU** **Credits: 03**	This course provides advanced topics in digital image processing. In-class students will be provided in-depth theoretical knowledge of professional themes, including segmentation, morphological image processing, linear image filtering, imaging correlation, imaging transforms, eigenimage, multiresolution image processing, noise reduction and restoration, feature extraction, and recognition tasks. Previous course: Introduction to digital image processing (PH038IU)
46.	**Satellite Signal and Image Processing Laboratory** **ID: PH043IU** **Credits: 03 (01 theory and 02 practice)**	This course provides students with knowledge of satellite system design, verification, and validation processes, and experiments on transmitting the collected data from satellites to ground-based stations, then performing post-processing data on the ground. Participating students will have a chance to learn how to operate and control satellites and equip them with project management skills. Parallel course: Digital signal processing (EE092IU), Introduction to digital image processing (PH038IU)

47.	**Antenna and Microwave Engineering** **ID: EE105IU** **Credits: 03**	The course provides students with the understanding of radiation fundamentals, linear antennas, point source arrays, aperture antennas, antenna impedance, and antenna systems. Basic concepts of microwave engineering such as transmission lines, Smith plot, microwave circuits, analysis techniques, design and applications. Previous course: General Physics 2 (PH021IU)
48.	**Antenna and Microwave Engineering Laboratory** **ID: EE124IU** **Credit: 01**	Antenna & Microwave Engineering Practical Workbook covers a variety of experiments that are designed to aid students in their profession and theory. They include a variety of topics which include antennas, transmission lines and microwave waveguides. Practical exposure to such equipment is necessary as it builds on the theory taught to students. Parallel course: Antenna and Microwave Engineering Laboratory (EE105IU)
49.	**Navigation systems** **ID: PH047IU** **Credits: 03**	This course introduces the principles of space navigation systems based on inertial sensors and satellite navigation. Students will start with a development history of many global navigation satellite systems (GNSS) such as GPS, GLONASS, EGNOS, Galileo, etc. and then will build upon the modern navigation systems, GPS, with Coordinate Frames, Time Reference, and Orbits to estimate the position, velocity, and times, as well as their errors. Besides, the course also provides the learners with based knowledge of GPS signals and GPS Signal Conditioning and Acquisition utilizing the Fourier transformation and convolution. Previous course: Introduction to Space Engineering

		(PH018IU)
50.	**Research Project** **ID: PH042IU** **Credits: 04**	This course provides research projects for students, which improves their skills in doing research and has experience in a practical project. Prerequisites: None
51.	**Internship** **ID: PH044IU** **Credits: 04**	Students will start their internship at space centers, satellite centers and companies relating to satellite science and satellite engineering. Prerequisites: - Successfully finish at least 70% over the total numbers of credits of the academic program. - Do not be under any academic warning - Chair of Department of Physics will decide for other special cases.
52.	**Thesis** **ID: PH050IU** **Credits: 10**	The topics of the thesis focus on space engineering, especially satellite technology and satellite application. Students have a deep understanding about theoretical knowledge and application. Students will also become familiar with research topics, ways of argument and making points according to the research process, which will help them develop a more academic perspective. Prerequisites: - Successfully finish at least 90% over the total numbers of credits of the academic program - Do not be under any academic warning

ELECTIVE COURSES		
53.	**Emerging Engineering Technologies** **ID: EE133IU** **Credits: 03**	This course will explore current breakthrough technologies and disruptive innovations that have recently emerged in the past few years. A close examination of the technology will be conducted to understand the application using the new technologies. The class is a series of seminars on each of the emerging technologies. Prerequisites: None
54.	**Geographic Information Systems (GIS) and Spatial Analysis** **ID: PH046IU** **Credits: 03 (02 theory and 01 practice)**	This course will focus on the concepts and techniques of GIS. Students will be familiar with data models and structures, database management and spatial analysis and modeling. Previous course: Calculus 2 (MA003IU)
55.	**Advanced Remote Sensing** **ID: PH049IU** **Credits: 03**	This course provides knowledge and skills of digital image processing for extracting environmental information from satellite and airborne imaging systems. Applications of pre-processing, enhancement, classification, and modeling image processing routines are for environmental monitoring, modeling, and management, and applicable for biological, terrestrial, atmospheric, and oceanic sciences. Previous courses: Remote sensing (PH036IU), Introduction to Digital Image Processing (PH038IU)
56.	**Fundamental of**	This subject is related to some definitions of the Earth's

	Surveying **ID: PH045IU** **Credits: 03 (02 theory and 01 practice)**	shapes and coordinate systems and is also related to an introduction to measurement equipment, such as theodolite, level, etc. Moreover, it presents ways to conduct basic measurements and methods for estimating the accuracy of measured results. Besides, the course represents the procedures for creating coordinate and leveling traverses in creating topographic maps. Previous course: Calculus 2 (MA003IU)
57.	**Radio Astrophysics** **ID: PH048IU** **Credits: 03**	The purpose of this course is to broaden students' knowledge in space science, to clearly understand how to use antennas in doing research in Astrophysics. Parallel course: Antenna and microwave engineering (EE105IU), Antenna and microwave engineering laboratory (EE124IU)
58.	**Data Structures and Algorithms** **ID: IT013IU** **Credits: 04 (3 theory and 1 practice)**	This subject introduces students to basic data structures and algorithms. Previous course: Object-Oriented Programming (IT069IU) or Programming for Engineers (EE057IU) & object-oriented programming with C++/Java
59.	**Analytics for Observational Data** **ID: IT142IU** **Credits: 04 (3 theory and 1 practice)**	This subject explains the principles and practice of modelling and analysing observational data, with an emphasis on practical applications. Previous course: Fundamental of Programming (IT149IU) or Programming for Engineering (EE057IU)

60.	**Data Mining** **ID: IT160IU** **Credits: 04 (3 theory and 1 practice)**	This subject introduces the students to principles and algorithms of data mining, and requirements of a data mining process. Previous course: Object-Oriented Programming (IT069IU) or Programming for Engineering (EE057IU)
61.	**Business Analytics with Big Data** **ID: PH068IU** **Credits: 03**	This course is an introduction to business analytics with various types of business analytics, types of data, data sources, understanding of big data and big data analytics and social media as well as social media analytics. Previous course: Remote Sensing Utilizing Big Data Analytics (PH070IU)
62.	**Business Analytics with Big Data Laboratory** **ID: PH059IU** **Credits: 01**	This course provides students with case studies related to business analytics with various types of business analytics, types of data, data sources, understanding of big data and big data analytics and social media as well as social media analytics. Parallel course: Business Analytics with Big Data (PH068IU)

** The total number of credits is 152, not including Physical training (PT001IU and PT002IU) and Military training (MP001IU).

IV. OTHER ACTIVITIES

1. INTERNSHIP

Students majoring in Space Engineering will have the opportunity to do an internship (1 – 1.5 months) in year 3, at the Institute of Space Science Research (ISAS) – Japan Aerospace Research and Development Agency (JAXA), the Korea Institute of Astronomy and Space Sciences (KASI) and the Institute of Astronomy and Astrophysics of the Academy of Sinica (ASIAA) in Taiwan. Some excellent students will have the opportunity to practice many times during their studies. In addition, students also have the opportunity to participate in an internship program lasting from 1 to 6 months (expenses excluded) in order to access advanced scientific and technological knowledge, essential techniques and techniques. modern design and manufacture of JAXA – ISAS. These programs enable students to access and work with today's most advanced technology.

All tuition fees of the above internship programs are 100% supported.

- In the past 3 academic years 2016-2017, 2017-2018 and 2018-2019, the Physics Department has selected 08 excellent students of the field to practice at ASIAA (03 students in 2016-2017 and 02 students in 2016. 2017-2018 and 03 students in 2018-2019). Students are sponsored for meals and accommodation during the internship (self-sufficient airfare).
- In the academic year 2018-2019, 01 excellent students of the industry were sponsored to do an internship at JAXA-ISAS, Japan and 03 excellent students were allowed to do an internship at KASI, Korea (sponsored for airfares), accommodation and travel expenses).
- In the 2019-2020 school year, due to the Covid-19 pandemic, 03 students who plan to do their graduation thesis in Korea and the US have to do it online.

- In the academic year 2020-2021, 03 students conducted an online internship with leading experts at ASIAA (Taiwan) and Leiden University (Netherlands) and 03 students conducted an online graduation thesis with experts. experts in the US and France.
- In the academic year 2021-2022, 02 excellent students were sponsored to do an internship at KASI and 03 more were allowed to do an internship at ASIAA.

2. CLUBS OF SE

2.1 SPACE ENGINEERING ASTRONOMY CLUB (SEAC)

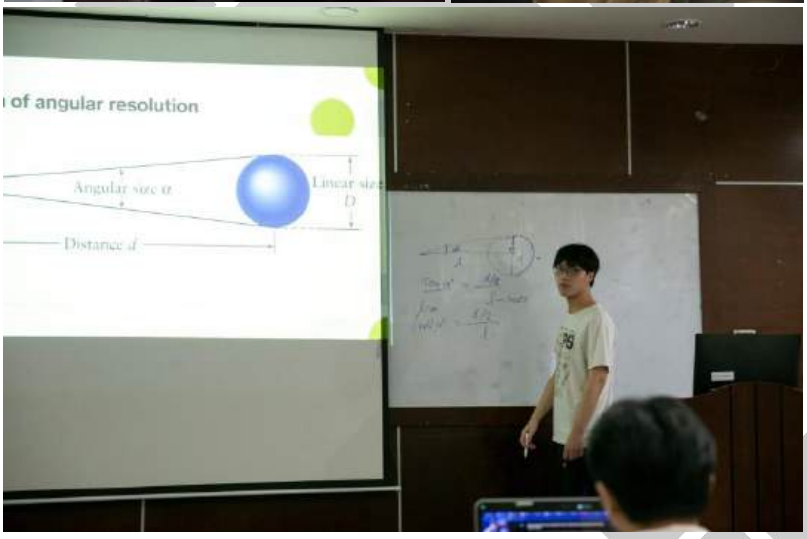
Introduction

SEAC or the Space Engineering Astronomy Club was established in 2017 by the Department of Physics - Space Engineering. The primary objective of the club is to provide a friendly and outgoing environment for Space Engineering and IU students who are enthusiastic about astronomy and astrophysics. The club offers a range of activities to students to help them acquire valuable skills and general knowledge about astronomy.

Activities

- Timeframe: weekly
- The main highlights of SEAC stem from its four core activities: weekly workshops; hands-on workshops; stargazing; media administration.
  - ✓ **Weekly workshops:** The first of which is weekly workshops on various astronomical subjects, from planetary science to cosmology- each of the members can pick a topic of personal interest in astronomy, then study and give a presentation in front of the crowd.

- ✓ **Hands-on workshops:** Regularly held hands-on workshops regarding the operation of astronomical instruments such as optical telescopes.
- ✓ **Star gazing:** Stargazing, which is the most recognizable activity, allows the member to explore the night sky to gain more insight into the field. This fosters interconnection, mutual understanding, and knowledge exchange.
- ✓ **Media administration:** Joining in the last activity, so-called media administration, SEAC's members can enhance scientific writing skills, by creating content on the fan page while also sharpening editing and interpretation skills.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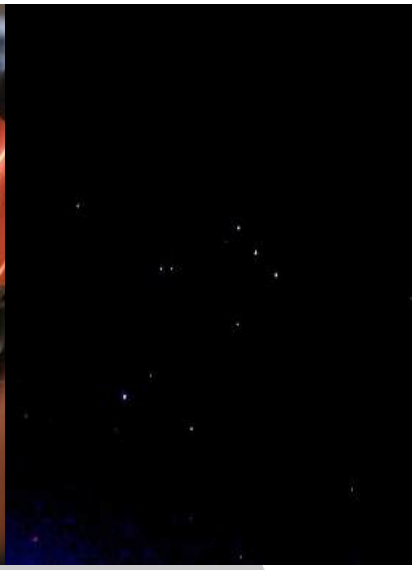


Human resources

Administrative board

- The board of SEAC was established for the purpose of managing and operating all activities of the club.
- President of the club was assigned by the Department of Physics. Other positions were discussed and openly approved by all the advisors and members of SEAC.
- The president and vice-president are responsible for managing the overall members, initiating new activities, and representing the club in handling the procedures, announcements, tasks from the department.
- SEAC is divided into three teams: Content, Logistics and Media. Each team will operate one section:

- ✓ **Team Content** will be in charge of the club's academic library, which features all the slides and books about Astronomy. This team also works with the fan page of the club on Facebook, such as coming up with ideas for the content to attract viewers, followers, etc.
- ✓ **Team Media** will take responsibility for the image of the club. From long to short videos, posters, etc, Team Media will have to co-work with team Content in order to build a good image for the club.
- ✓ **Team Logistics** will take care of all the equipment in SEAC, such as the telescopes. During the overnight session (a special session that members get to stay overnight at school to observe the sky), Logistics will control the shipment of food, water, devices, room, etc to ensure the session's continuation.

- The official administrative board of SEAC 2024-2025:

#	Name	ID	Position
1	Đinh Trung Quốc Anh	SESEIU22055	President
2	Trần Nguyễn Phương An	SESEIU22050	Vice President
3	Bùi Lê Thanh Thy	SESEIU22059	Co-Leader Team Content
4	Huỳnh Thái Hoà	SESEIU22016	Leader Team Logistics
5	Nguyễn Thanh Hậu	SESEIU22049	Leader Team Media

Media

Currently, SE Astronomy Club is mainly active on Facebook: https://www.facebook.com/seastronomyclub

2.2 SPACE ENGINEERING ENGLISH CLUB (SEEC)

Introduction:

SEEC or the Space Engineering English club was established in 2017 by the Department of Physics - Space Engineering. The club aims to provide a friendly and flexible environment for Space Engineering students to develop their skills in presentations, communications using English. SEEC offers a variety of activities that help students improve their English skills, such as English presentation and Night discussion. Through these activities, students can build their confidence in using English as a means of communication.

Human resources: The official administrative board of SEEC 2024-2025

Leader: Bùi Lê Thanh Thy - SESEIU220059

The leaders hold the responsibility of organizing all club activities and guiding them towards accomplishing the club's main goals and tasks.

Activities

Throughout the 2022-2023 semester, SEEC conducts weekly discussions on various topics, totaling 41 weeks of activities, excluding holidays and exam weeks.

2.3 SPACE ENGINEERING PHYSICAL TRAINING (SEPT)

Introduction

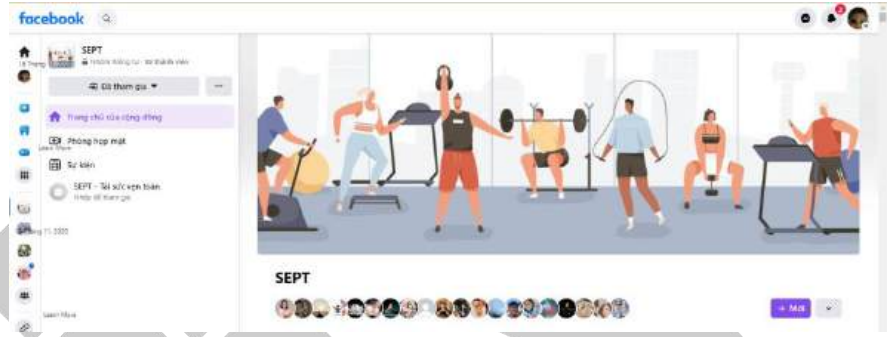
SEPT or the Space Engineering Physical Training club was established by the Department of Physics - Space Engineering with three goals:

- Improve the health and physical fitness of students.
- Strengthen the spirit of solidarity and mutual support and connect students.
- Develop teamwork, communication, and coordination skills, contributing to the development of soft skills for research and academic activities.

Human resources: The official administrative board of SEPT 2024-2025

Leader: Lưu Đình Hiển– SESEIU23

Media: Currently, SEPT is mainly active on Facebook group: https://www.facebook.com/groups/220200352439530


facebook
SEPT
SEPT


SEPT
Schedule
Monday
Running
Tuesday
Ping Pong
Wednesday
Badminton
Thursday
Yoga & Aerobics
Friday
Martial Arts

V. MUST-KNOW INFORMATION

1. ACADEMIC ADVISORS

Academic advisor is the person who guides prospective and current students through the admission process, course registration and selection, program planning, degree completion, scholarships and more. Advisors help students find solutions to course or degree-specific requirements or they may connect students to specific services as needed.

Batch	Academic advisors	Office room	Email address	
2017 **2018** **2019** **2020** **2024**	Assoc. Prof. Phan Bảo Ngọc	A1-503	pbngoc@hcmiu.edu.vn	
2021	Dr. Phan Hiền Vũ	A1-503	phvu@hcmiu.edu.vn	
2022	MEng. Trịnh Thanh Thủy	A1-403	ttthuy@hcmiu.edu.vn	

2023	MSc. Lê Thị Quế	A1-403	ltque@hcmiu.edu.vn	

2. THESIS REGISTRATION

Criteria:

- Successfully finish at least 90% over the total numbers of credits of the academic program (equivalent to 128 credits).
- Do not be under any academic admonishment.

Duration: 12 weeks

3. GRADUATIONS

The students must complete all the following requirements for graduation:

- Comply with regulations of Vietnam National University - Ho Chi Minh City and International University.
- Successfully complete the academic program (compulsory and elective credits) with a GPA from 50/100 or 5/10.
- English proficiency of IELTS ≥ 6.0 or equivalent (TOEFL iBT ≥ 61, TOEFL pBT ≥ 500).
- Successfully complete thesis which is evaluated by the Board of Assessment
- Complete physical education courses and have a military education certification.
- Meet other requirements in accordance with the regulations for graduation set by the IU.

4. SCHOLARSHIP INFORMATION

Each semester, the top 10% of students with the highest GPA will receive scholarship from the IU. 4% of students will receive full scholarship and 6% of students will receive half scholarship.

The minimum requirements are:

- Register at least 14 credits/semester.
- Complete the Academic English 1 (AE1)
- No course failed in that semester.
- Semester GPA>= 70

5. COURSE REGISTRATION

Course registration aims at helping students gain full success in building their own training plan, selecting appropriate subjects for every semester in such a way that can meet his or her own personal capacity and conditions for the highest achievement.

- Students should register a minimum of 12 credits, except for the last semester.
- Students should register a maximum of 24 credits in one semester, except for the last semester, for those who have cumulative GPA ≥ 65.
- The subject registration form must be approved by the academic advisors.
- For exceptional cases, students must file for the consideration of the dean of schools.

6. GRADING CRITERIA

Classification	Scale 0 to 100	Scale 0 to 4	Letter Grade
Pass			
Excellent	85 ≤ GPA ≤ 100	4.0	A
Very good	75 ≤ GPA < 85	3.75	A-
Good	65 ≤ GPA < 75	3.5	B+
Fairly good	60 ≤ GPA < 65	3.0	B
Fair	55 ≤ GPA < 60	2.5	C+
Average	50 ≤ GPA < 55	2.0	C
Fail			
Weak	30 ≤ GPA < 50	1.3	D+
Rather weak	10 ≤ GPA < 30	1.0	D
Too weak	GPA < 10	0	F

7. CONTACT INFORMATION

Department of Physics Room A1.503 Telephone: (028)37244270 – Ext: 3326 Website: physics.hcmiu.edu.vn	**Office of Finance and Planning** Room A2.701 Telephone: (028)37244270 – Ext: 3222
Office of Student Affairs Room A1.202 Telephone: (028)37244270 – Ext: 3826	**University Clinic** Room A2.310 Telephone: (028)37244270 – Ext: 3369
Office of Academic Affairs Room A2.708 Telephone: (028)37244270 – Ext: 3221 Website: oaa.hcmiu.edu.vn	**Center of Information Services** Office of Academic Affairs Room A1.312 Telephone: (028)37244270 – Ext: 3366

VI. ACADEMIC REGULATION

1. CHAPTER 1 GENERAL PROVISIONS

Article 1: Scope of regulations and subjects of application

1. This Decision provides a set of regulations for organizing and managing undergraduate education at International University, including curriculum and study period; organizing and planning teaching activities; assessing outcome standards and accrediting; other regulations for undergraduate students.
2. These regulations apply to organizations and individuals involved in undergraduate education at IU. Joint programs whose accreditations are provided by partnering universities may follow these regulations or partnering universities' own regulations provided that the partnering universities' regulations are compatible with IU's regulations.
3. List of all abbreviations:

IU	International University
VNU-HCM	Vietnam National University – Ho Chi Minh City
TS	Teaching staff
AA	Academic advisor
CI	Curriculum
OS	Outcome standard
SAM	Semester average mark
AAM	Accumulated average mark
ME	Military Education
PE	Physical Education
Cr.	Credit
Int.	Graduation internship
Thesis	Graduation thesis

Article 2: Curriculum and study period

1. Credits are used for calculating the academic load of the students. A credit shall be equivalent to 15 theory periods; 30 - 45 periods of practice, experiment or discussion; 45 - 90 hours of internship; 45 - 60 hours of thesis, coursework or graduation thesis ('thesis'). For theory courses or practical courses, students shall spend at least 30 hours for self- preparation. The study period shall last 50 minutes.

2. A "course" means a nearly complete amount of knowledge which students can accumulate during the study process. Most courses can carry 2 to 4 credits, course content is provided completely and evenly during a semester. Knowledge in each course shall correspond to a level according to the course design and shall be structured as a part of a subject or a collection of subjects. Each course shall be designated with a particular code as regulated by the university. Courses are divided into compulsory and elective courses:

   a) A compulsory course contains the primary knowledge of a curriculum which all students must acquire.

   b) An elective course contains the necessary knowledge that students are allowed to select for themselves under the guidance of their respective universities in order to diversify the specialties or select freely to accumulate sufficient courses as required.

3. A "specialty" is the body of knowledge or professional skills of a scientific domain or a vocation. A specialty may consist of one or many subspecialties. Each specialty shall be designated with a particular code in the MOET's level four classification of education at undergraduate level.

4. A curriculum shall specify the aim(s) of education; knowledge and skill standards; the scope and structure of the educational content; methods and forms of training; forms of evaluation for each course, credit, specialty and level of education:

a) A curriculum shall be developed according to the credit system and structured from individual courses; a curriculum shall cover all compulsory courses and meet the current curriculum standards as prescribed by the MOET. In cases of multidisciplinary and disciplinary – sub disciplinary education, the curriculum shall specify the general and specific workload for each discipline/subdiscipline.

b) The aim(s) of education shall be specific, compatible with the values and vision of IU, consistent with the aim of education as prescribed by the MOET.

5. Outcome standards (OS) are requirements for students after completing the curriculum, pertaining to both competences and virtues. These standards consist of minimum requirements for knowledge, skills, autonomy and other responsibilities that students shall meet when graduate. OS shall meet the following criteria:

a) Be specific and realistic, clearly exemplify the learners' learning outcomes in terms of general knowledge, core knowledge at their level of education, and other requirements for their specialties and disciplines.

b) Clearly evaluate and differentiate different levels of thinking; execute and improve the curriculum as well as teaching methods; assess and evaluate academic performance and award degrees to learners.

c) Be consistent with the aims of the program; clearly demonstrate contributions and at the same time meet the representative requirements of contemporary recruiters and other related parties.

d) Be able to specify the level of education and meet the outcome standards for knowledge, autonomy, responsibilities, and competences, as prescribed by the Vietnamese qualification

framework for the respective level of education.

e) Ensure continuity with the admission requirements for higher level(s) of education (if applicable); at the same time create interconnectivity with same-level curricula, especially with curricula in the same area of specialty or expertise.

f) Be clearly and concretely present in the outcome standards for each credit and course in the curriculum; and at the same time be executed systematically through the connection between academic credits and courses.

g) Be feasible and suitable for the academic workload in order for most learners who have met the admission requirements to complete the curriculum in the standard time.

h) Meet the qualifications prescribed in VNU-HCM's requirements for competences and virtues.

6. The curriculum's content and outcome standards shall be applied uniformly to different forms and methods of teaching as well as types of learners. For learners that have completed a different academic level or specialty, the actual academic workload is calculated on the basis of the respective accreditation(s) or converted the accumulated credits and excluded credits for the previous program(s).

7. The content of the curriculum shall be publicized for learners before admission and the start of the course; modifications made to the curriculum shall be applied according to current regulations as well as approved and announced to learners before the enrollment course in order not to cause adverse effects to students.

8. The curriculum shall provide a standard academic plan for the enrollment course in order to orient students. The time of education for formal undergraduate education shall conform to the regulations prescribed in the MOET's structural framework of the national education system and at the same time ensure that most students will

be able to complete the curriculum.

9. For programs offering bachelor's degrees, each curriculum can carry from 120 to 130 credits, which are designed for the standard study duration of 4 years. For programs offering engineering degrees, each curriculum can carry from 150 to 160 credits, which are designed for the standard study duration of 4 to 5 years.

10. The maximum time for students to complete their curriculum is one and a half hours of the standard study duration for that enrollment course. Under certain circumstances, the rector may permit to prolong the time of education to up to 2 times the standard study duration for that enrollment course. For students that have already completed a university degree and have had the study duration deducted accordingly, the maximum time to complete the curriculum shall be discerned on the basis of the deducted workload.

Article 3: Method of training organization

1. IU agrees to conduct its training under the credit system, which shall be applied to all programs and forms of training.

2. Education applying academic credit system is a method of training organization which divides the knowledge into different courses, allowing students to accumulate credits from each course and complete their training program according to their personal plan and IU's teaching plan.

3. Students who fail to complete a compulsory course shall have to take that course again or substitute it with an equivalent course in the training program or take a replacement course if that course is no longer offered.

4. Students who fail to complete an elective course shall take that course again or choose another elective course as prescribed in the training program.

Article 4: Forms of education

1. IU offers formal university training for undergraduate courses for which the university or its accredited partner provides certifications.
2. All teaching activities are conducted on IU campuses. Field trips, practical activities, practical experience activities and online teaching activities may be conducted outside of the university campuses.
3. The time to conduct teaching activities is from 6 a.m. to 8 p.m. every day of the week (excluding Sunday). The time to conduct other specific activities in the curriculum shall be decided on a case-by-case basis by the Rector.

2. CHAPTER II FORMULATE AND EXECUTE TEACHING PLANS

Article 5: Teaching and learning plans

1. Teaching and learning plans shall elaborate the curriculum of that year or semester, concurrent with training activities at IU.
2. The plan for the academic year shall specify the different milestones for all training activities in that academic year. The plan shall be publicized to all concerned parties before the start of the academic year. Each academic year has two main semesters (the first and second semester), each semester has at least 15 study weeks. Aside from the two semesters, IU also offers a summer semester (the third semester), which lasts for at least 7 weeks.
3. The plan for the semester consists of a plan to open courses, form of teaching and learning (in-person, online, or hybrid), academic calendar, exam schedule for all modules in the respective courses of that semester, training plan. The plan for that semester shall be formulated and announced 2 weeks before course registration,

complete with all necessary information so that students may formulate their own academic plan.

4. The agenda specifies the time, location, teaching and learning activities for each class in that course and training program. The agenda for each module is divided evenly in the weeks of that semester.

Article 6: Organization of course registration

1. Before the start of each semester, the Office of Undergraduate Academic Affairs (OUAA), departments/schools and supervisors are responsible for notifying and instructing students to register for courses on the school's registration software.
2. Students shall sign up for courses that they intend to take that semester, including new courses, unfinished courses (in order to take them again) and completed courses (in order to improve their grades, if they so desire) based on the list of all courses offered in that semester and the prerequisites for respective courses.
3. The course registration process abides by the following regulations:
   a) Before a semester, the OUAA formulates the plan for that semester, timetable, course registration plan and announces the information to schools/department in order for them to publicize the information to their respective students.
   b) Schools/Departments shall publicize the following information to their students: (a) a list of all courses offered that semester; (b) TS for that semester and prerequisites for respective courses and (c) deadline for course registration.
   c) Academic advisors are responsible for: (a) giving students advice on how to form their own academic schedules; (b) organizing the registration so that students may sign up for all necessary courses within the prescribed time period; (c) on the basis of the

curriculum and each student's academic performance, giving students advice on choosing the appropriate number of credits and courses for that semester; (d) checking and vetting the registration of students. Academic advisors shall meet with students at least once per semester.

d) Students register for courses within the prescribed time period.

e) For each student, the amount of workload in any given semester is no less than two- thirds (2/3) of the standard workload for a semester but also no more than three-halves (3/2) of the standard workload.

f) First year students ('freshmen') do not need to register for courses. The OUAA will automatically sign them up for courses based on the university's standard curriculum for students. Students in previous academic years will be given priority in course registration.

g) Students do not need to register for courses during the summer semester.

4. Adding, dropping, and modifying courses:

a) Registered courses may be cancelled before or one week after the start of a semester when they do not meet the criteria for starting a course. Cancelled courses will not appear on the agenda or incur tuition fees.

b) Students may modify their course registration during the first week of a main semester (first or second semester). They may not modify their course registration for the summer semester.

c) Students may be permitted to add, drop, or modify courses after the first week of a main semester on the basis of the requested time for modification. Their tuition may also be recalculated on the same basis.

5. The registration results are stored on IU's academic affairs management software.

Article 7: Organizing teaching and learning activities

1. Principles for organizing teaching and learning activities:
   a) Promoting the professional competences and liability of every lecturer while adhering to current regulations for working regimes for lecturers.
   b) Promoting an active role while upholding each student's responsibilities, facilitating and encouraging students to actively study; upholding academic rigor, increasing the teaching quality and effectiveness.
   c) Having an inspection regime, internal surveillance and a quality improvement regime based on the collection of learners' feedback.
2. Online teaching and learning:
   a) IU shall organize online classes when the university has met all current regulations for applying technology in managing and organizing training through the Internet; have solutions to ensure the quality of these online classes and the ability to demonstrate that the quality of online classes is not lower than that of in-person classes.
   b) The number of credits from online courses shall not exceed 30% of the total credits of the curriculum. In case of natural disasters, pandemics or *force majeure* circumstances, online classes will be organized in accordance with the current regulations prescribed by the MOET and VNU-HCM.
3. Responsibilities in organizing teaching and learning activities:
   a) Schools/Departments are responsible for assigning lecturers to

courses: lecturers are liable for teaching theories, giving students instructions on how to do experiments, internships, projects, these and other learning activities; ensuring their own professional competences and liabilities, in concurrence with current IU regulations on working regime for lecturers.

b) The Office of Quality Assurance and Testing (OQAT) is responsible for collecting the feedback of students on quality assurance measures and learning efficiency; reporting the results to the unit(s) responsible for the courses and the schools/departments responsible for the lecturer assignment; reporting to the Board of Rectors after the semester ends. The results of the feedback survey shall be publicized on the official website.

c) Lecturers assigned to teach or instruct students have to ensure the academic workload and teaching quality conform to IU regulations on teaching activities.

d) Upon enrolling in a course; participating in an experiment; practicing; undertaking an internship, a project, a thesis or any other learning activities, students shall be liable for completing all assigned tasks and meeting the minimum required study time; students shall also adhere to all rules and regulations of the university, as well as the professional requirements of their lecturers. Students participating in an experiment; practicing; undertaking an internship, a project, a thesis or any other learning activities reserve the rights to be instructed and to practice, to be informed publicly of all regulations and evaluation methods, and to complain about the evaluated results and other matters arising during the study duration.

Article 8: Tuition fees

1. Students shall fulfill their financial responsibilities when registering for courses in any given semester, as prescribed by IU regulations.

2. The tuition fee for each module shall be calculated based on the number of credits that module carries. The tuition fee of each credit in any given module shall be decided by the Rector. The tuition rates for special modules shall be calculated separately.

3. Tuition payment:

   a) Students shall pay for tuition fees on time, for all courses that have been registered and/or have official timetables. Students can check for tuition fees on the EdusoftWeb software and pay for tuition fees accordingly, before the deadline prescribed by the Office of Finance and Planning (OFP). Fees that have not been paid will be debited.

   b) For main semesters, students shall have to pay for tuition fees before mid-semester (specifically announced every semester). Students who fail to pay the tuition before the deadline will not be allowed to take examinations or register for courses in the upcoming semester.

   c) In case a student fails to pay for tuition fees before the deadline due to unforeseen difficulties, he or she shall make a petition to prolong the tuition deadline and submit it to the OFP. In the petition, s/he has to specify the reasons in order to be permitted to take examinations, register for courses and gets their own agenda for next semester.

4. Students who fail to pay for tuition fees without a legitimate reason will be considered for academic sanction according to the regulations on student affairs and other IU regulations.

3. CHAPTER III ACADEMIC EVALUATION AND CERTIFYING

Article 9: Evaluation and calculation of academic modules

1. The official scale of assessment is a 100-point scale, rounded to the nearest unit. The other scales of assessment are used for referential purposes only. The conversion to other scales of assessment has to be conducted from the official 100-point scale.

2. For any academic module, students are evaluated through at least two component scores. Modules that carry fewer than one credit only have one component point. Component scores are calculated on the 100-point scale. Forms, methods of evaluation and weightage of component scores are regulated in the detailed syllabus which has been approved for that module. The weightage for each component score included in the final result shall be calculated as follows:

   - Score given for practice exercises, homework and essays: 20-40%.
   - Score given for midterm examinations: 20-40%.
   - Score given for final examinations: 30-50%.

   For practical modules, the weightage for each component score shall be calculated as follows:

   - Score given for practice exercises throughout the semester: 70-80%.
   - Score given for final examinations: 20-30%.

   For online courses, the weightage shall be calculated as follows:

   - Score given for practice exercises, homework and essays: 30-60%.

- Score given for midterm examinations: 20-40%.
- Score given for final examinations: 20-40%.

The total percentage of all component scores is 100%.

3. The form of online evaluation shall be employed in an honest, fair and impartial manner, similarly to in-person evaluation. Online evaluation shall not contribute to more than 50% of that module's score. Online thesis/essay evaluation may account for a higher weightage if these additional conditions are fulfilled:

   a) The evaluation has to be conducted by an evaluation panel consisting of at least 3 members.

   b) The form of online defense and evaluation has to be approved by the members of the panel and the learners.

   c) The proceedings of the defense session shall be recorded on video and audio and archived.

   d) In case of natural disasters, pandemics or force majeure circumstances, the form of online evaluation shall be considered for a higher weightage by the Rector.

4. The evaluation of a module has to be conducted in accordance with the approved detailed syllabus. A module may consist of multiple examinations but there shall only be one midterm examination and one final examination. During the summer semester, the university is responsible for organizing the final examination. TS members are responsible for organizing the midterm examination. Modules that replace the midterm and final examinations with other forms of evaluation that are not in the detailed syllabus have to be recommended by the department/school and approved by the Board of Rectors within 02 weeks (or 01 week for the summer semester) after the start of the module.

5. The content of the midterm and final examinations has to be suitable

with the approved content of the module:

a) For modules that are taught to one class, the content of the examination is developed by the lecturer.

b) For modules that are taught to multiple classes by multiple lecturers, the OUAA (for general modules) or Departments/schools (for modules that are managed by Departments/schools) shall be responsible for the development of the exam content: one or multiple lecturers who teach the modules are responsible for the developing the content of the examination or compiling the exam papers that the lecturers have composed into one test;

c) Exam papers approved by the Department/school shall be presented in IU style. The approver and exam maker shall be responsible for the professionalism and security of the exam paper.

d) If multiple classes study the same module, the final examination shall take place at the same time by using only one test paper.

e) The exam lasts between 45 and 120 minutes.

f) In some cases, (disasters, pandemics) the final examination shall be organized according to the regulations approved by the Board of Rectors.

6. Final examinations in the form of oral exams may be moderated by one or many lecturers. The oral exam score is announced publicly after each exam session. In case the lecturers are unable to agree on the score, the lecturers shall present the scores to the Head of the school/department for decision.

7. For projects and theses, the evaluation shall be conducted by a panel approved by the Rector. The minimum number of members on a panel is 3. The Rector will regulate the addition of bonus points for journal articles related to the research topic, based on the

recommendations made by the school/department and the Office of Research and Development. Modules concerning graduation internship, internship, excursion outside of IU campuses as well as practical and other specialized modules shall be evaluated according to the plan of the respective school or department, which shall be clearly specified in the module's syllabus.

8. The Rector shall make regulations pertaining to the preservation of answer sheets, the grading process and archive of answer sheets after grading.

9. Exam prohibition, absence, delay and late arrival:

   a) For theoretical modules, students who are absent for more than 20% of the course duration will be prohibited from taking the final exam and receive a zero (0) for that course. For practical modules, students who are absent (with or without reason) for more than 20% of the practice sessions (defined as seminars, experiments, homework) and 50% of the quizzes shall receive a zero for both the practical and theoretical parts; the list of students prohibited from taking the final examination shall be compiled by the lecturer and announced publicly at lab rooms and the office of the Department/school right after the module ends;

   b) Students who are absent from lab sessions, practice sessions, in-class quizzes, non- centralized tests shall submit a petition clearly specifying the justifications for such absence to the lecturer. The deadline for submission is one day after the date of absence (excluding Sundays and holidays). If the justifications are accepted the student will be arranged for a makeup test by the lecturer. If the justifications are not accepted or the students fail to present the justifications for their absence, they will receive 0s for the absent sessions.

   c) Students who are absent from the centralized final exam shall submit a petition specifying the justifications for such absence to

their respective Department/school within 05 days from the date of examination (excluding Sundays and holidays). If the justifications are not accepted or the students fail to present the justifications for their absence, they will receive 0 for that exam session. Only after the School/department has approved the petition and the OUAA has issued an approval, the absence will be accepted as legitimate and, in the score sheet, the score will be marked as 'incomplete'.

d) Students who arrive any later than 15 minutes after the start of the exam will not be allowed to enter the test room and considered "absent" for that exam session.

10. The score of an academic component is calculated by multiplying the component scores with their respective weightages and rounding the result to the nearest unit. The performance will be ranked by using the following systems:

a) The classification of pass marks, which is used for modules whose scores are included in the GPA:

Rank	100-point scale	Letter grade	4-point scale
Excellent	90 to 100	A+	4,0
Very good	80 to near 90	A	3,5
Good	70 to near 80	B+	3,0
Rather good	60 to near 70	B	2,5
Fair	50 to near 60	C	2,0

b) The non-classified pass system, which is used for modules that only require a pass and are not counted towards the GPA (P-scale).

c) The classification of non-pass marks:

Rank	100-point scale	Letter grade	4-point scale
Weak	40 to near 50	D+	1,5
Poor	30 to near 40	D	1,0
	Under 30	F	0,0

d) Special cases where special letters are used for classification and not counted towards the GPA:

I: Incomplete with permission to be absent from the test/exam; X: Incomplete due to insufficient data.

WH: exempted modules and credits; PC: prohibited from taking the exam.

11. Conditions and procedures to request an "I" mark

a) Students have to fulfill all of the following conditions to qualify for an "I" mark:

- Attended the course, completed all exams and quizzes during the course and activities related to the module such as experiments, practice sessions, homework etc.
- Paid for the module's tuition fee.
- Have not got an "I" for the course they want to apply for (students may only receive one "I" for every module);
- The course is one that organizes exam sessions. Practical courses, experiment-oriented courses, PE courses, internship, in-class quizzes, graduation thesis, graduation internship are therefore not eligible.
- Absent due to *force majeure* reasons, such as funeral, hospitalization, etc.
- The student is currently not under exam prohibition or barred from taking the exam due to late arrival. Students who are under

academic admonition, suspension, disciplined for violations as regulated in this decision, or currently pausing their study are also disqualified.

b) Procedures to request an "I" mark:

- In case a student requests an "I" mark before the exam day: the student submits a petition with valid justifications and proof to the lecturer. Based on the opinion of the lecturer and the approval of the Department/school, the OUAA will consider approving the student's request for an "I" mark.

- In case where the university dispatches a student for competition, work-related trips or student exchange: the student submits a petition with the dispatch decision of the Board of Rectors or the admission letter of the partnering university to the OUAA.

- In case of emergency (funeral, hospitalization): the student or his/her relative submits a petition to the OUAA with the justifications and proof (in case of hospitalization, it shall be the hospital admission record, medicine prescriptions, health booklet, social security paper etc.); in case of a close relative's (grandparents, parents, siblings) funeral, students shall submit a copy of the death certificate within 05 days from the date of absence. Based on the opinion of the lecturer and the approval of the school/department, the OUAA will consider approving the student's request.

- In case of natural disasters and pandemics, the deadline for proof submission may be extended by up to 30 days.

- Other special circumstances: students shall submit the petition to their respective school/department. The school/department shall make a letter of suggestion for the Board of Rectors to approve. The letter of suggestion shall then be sent back to the

OUAA for update.

c) Procedures to cancel an "I" mark:

- Students who are approved for an "I" mark do need to enroll in the course for which they receive an "I." Instead, they shall submit a petition to re-take the examination within 01 week after the exam date is announced. If students do not re-take the exam to cancel the "I" mark one year after the date of approval, the "I" mark will be automatically converted into a zero (0). In case where the school/department does not open the course, the deadline to cancel the "I" mark may be extended at the behest of the school/department. In case where students decide to enroll in the course for which they receive an "I," the "I" will be automatically converted into a 0.

12. Students are exempted from taking a module if the module is equivalent to one of the modules they have completed and successfully accumulated during the study process:

a) The percentage of exempted modules does not exceed 50% of all modules.

b) Students eligible for module exemption include:

(1) students who have successfully completed equivalent/commutative modules during their learning period at IU (automatically exempted based on IU category of equivalent/commutative modules).

(2) students who have received a certificate and/or completed all political/ME modules.

c) students who have completed modules at other universities which IU considers to be equivalent upon comparing the curricula of the two universities (in order to qualify as equivalent, a module needs to have the same or longer study duration as its counterpart at IU and the content of the module needs to be at least 70% similar to

the content of its IU counterpart).

d) Students who want to be considered for module exemption shall submit a petition and supply all necessary proof. The OUAA shall decide whether some courses are equivalent or commutative based on the list of equivalent or commutative courses, which is presented by the School/Department and approved by the Board of Rectors.

e) When a module has been considered to be equivalent and the request for exemption is approved, the OUAA will use the letters "WH" to differentiate the exempted module from the other accumulative modules. If students aspire to receive a higher score, they will have to enroll in that module again.

f) The scores of equivalent modules at IU will not be counted towards that semester's GPA but will be included in the accumulated GPA. In case the students transfer from other universities to IU, the scores of equivalent modules will be reserved and not included in either the semester's GPA or the accumulated GPA.

g) The scores of equivalent modules will not be used for scholarship consideration.

h) Credits from equivalent modules will not be counted towards that semester's accumulated credits but included in the number of accumulated credits at that time.

i) For students switching majors or programs, the score sheet will display the scores of all academic modules starting from freshman year (including those that are not from the students' current majors). However, the accumulated GPA will be calculated based on the modules of the students' current majors while the other modules are excluded.

13. Re-taking courses, taking courses and tests to improve scores.

a) Students who fail to complete a module shall re-take that module as prescribed in Article 3 of this Decision; the score of the latest attempt shall be the official score for that module; the scores of all attempts shall be archived in full in the students' respective databases.

b) Students who pass a module may re-take that module to improve their scores, according to the university's current regulations. The highest score shall be the official score for that module; the scores of all attempts shall be archived in full in the students' respective databases.

14. Announcing the module evaluation results:

a) Within 02 weeks from the test date (for mid-term and final exams), lecturers shall announce the scores on the university's academic affairs software according to current regulations and submit 02 official score sheets (with the signatures of the lecturers and the School/Department): a copy is saved at the Department/school and the other is saved at the OUAA. For subjects that do not have an exam date, the deadline for score sheet submission is the end of the last exam week for that semester.

b) If there are any errors in the original score sheet, the lecturers shall send in a score modification sheet (with the signatures of the lecturers and the School/Department) to the OUAA, then print and re-submit a new score sheet by following the same procedures within 02 months from the end of the semester.

c) Schools/Departments shall announce the module evaluation results every semester. The OUAA is liable for announcing the module evaluation results for general modules.

15. Re-marking:

a) For in-class quizzes and mid-term exams, students shall contact the lecturer if they have any concerns about the scores. The

deadline to make a re-marking request is 01 week from the announcement of the results. If there are any changes in the results, the lecturer will announce the new results to the students and send the new scores to the OUAA in the appropriate form.

b) For final exams, students reserve the right to make a re-marking request. The re- marking request for final exams shall be sent to the OUAA or responsible Schools/Departments within 02 weeks from the date of result announcement. Past this deadline, students reserve no right to petition for a re-marking request. The re-marking results will be announced publicly within 01 week from the request deadline.

16. Re-taking courses to improve scores:

a) If students wish to improve their scores for successfully completed courses, they will need to enroll in that course again and pay for the tuition fees according to current regulations.

b) Based on the current teaching situation, IU shall specify which courses are not eligible for re-taking (if applicable).

c) The scores of re-taken courses are not considered for scholarship consideration but they are included in that semester's GPA and the accumulated GPA.

Article 10: Evaluation of academic performance by semester and academic year

1. The academic performance of students is evaluated every semester and every academic year based on the results of all curricular modules they have accumulated. The evaluation is based on the following criteria:

a) The number of credits that a student fails to accumulate in a semester or academic year, or the number of credits in arrears from the beginning of the enrollment course.

b) The number of credits that a student has accumulated from the beginning of the enrollment course (accumulated credits), including exempted and commutative credits.

c) The average score of all modules in a semester (semester's GPA), in an academic year (yearly GPA) or from the beginning of the enrollment course (accumulated GPA), calculated based on the official score of that module and its weightage (the number of credits that module carries).

2. The semester's GPA and the accumulated GPA is calculated as follows:

$$A = \frac{\sum_{i=1}^{N} a_i n_i}{\sum_{i=1}^{N} n_i}$$

In which:

A is the semester's GPA or the accumulated GPA

n_i is the number of credits of i^{th} module

a_i is the number of credits of i^{th} module N is the total number of credits

a) The scores from intensive English, Physical Education and Military education courses are not included in the semester's, yearly or accumulated GPA. The scores of reserved and exempted modules are not included in the semester's GPA and accumulated GPA.

b) The semester's GPA is used for scholarship and commendation consideration but also serves as a basis for allowing a student to study beyond their level and embark on a multi-disciplinary and multi-university track. The GPA is calculated by averaging the scores of first-attempt modules in the corresponding semester. The accumulated GPA is used for classifying academic

performance, issuing academic disciplinary measures and classifying academic degrees.

c) The addition of bonus points for prize-winning scientific projects to the semesters and accumulated GPA shall be decided by the Rector and publicized to all students.

3. Letter grades that are not included in clause 10, article 9 will not be included in the semester's, yearly or accumulated GPA. Modules that are outside of the curriculum will not be included in the academic assessment.

4. The students' academic performance (semester's, yearly or accumulated GPA) is classified as follows:

Rank	100-point scale	Letter grade	4-point scale
Excellent	90 to 100	A+	4,0
Very good	80 to near 90	A	3,5
Good	70 to near 80	B+	3,0
Rather good	60 to near 70	B	2,5
Fair	50 to near 60	C	2,0
Weak	40 to near 50	D+	1,5
Poor	30 to near 40	D	1,0
	Under 30	F	0,0

5. Students' yearly academic performance is classified based on the number of credits they have accumulated from the beginning of the enrollment course (hereby referred to as N) and the average number of credits for a standard academic year (hereby referred to as M). The details are as follows:

a) For first-year students: N<M.

b) For second-year students: M ≤N <2M.

c) For third-year students: 2M ≤N < 3M.

d) For fourth-year students: 3M ≤N <4M.

e) For fifth-year students: 4M ≤N < 5M.

6. During the study duration, students may request a transcript of their academic performance. In order to receive a transcript, students will need to fill out a form and pay the required fees. The transcript will be available after 05 working days at the latest. The transcript contains the information for all academic modules.

Article 11: Issuing disciplinary measures based on academic credits

1. At the end of each semester, students may receive academic warnings for the following violations:

   a) The number of unsuccessfully completed credits exceeds 50% of that semester's total number of registered credits, or the number of arrears credits from the beginning of the course exceeds 24.

   b) The GPA of that student is below 35 (out of 100) or the GPA of two consecutive semesters is below 40 (out of 100).

   c) Students fail to pay for the tuition, the health insurance cost and other fees as required by the university.

2. Students will be dismissed from the university in these circumstances:

   a) The student has received academic warnings more than twice.

   b) The study duration exceeds the maximum study duration as regulated in clause 10, Article 2 of this Decision.

   c) The student has paused their study for 02 consecutive main

semesters or for longer than permitted.

d) The student has dropped out of university for more than 01 semester or has not done the procedures to enroll in an academic module.

e) The student has violated academic affairs, disciplinary, and other IU regulations to the point of dismissal.

f) Other special circumstances which shall be decided by the Rector.

3. Students who have received more than 02 academic warnings may be temporarily re- accepted if the following criteria are satisfied:

   a) The student has been evaluated and accepted by his/her department or school.

   b) The student has completed all procedures at his/her department or school in a timely manner and signed up for a salvaging semester.

   c) Other special circumstances shall be taken into consideration by the Rector at the behest of the OUAA. After the student has been temporarily re-accepted, he or she may be officially re-accepted if he or she does not commit any violations in the following semester.

4. Academic advisors are responsible for tracking the progress of students and reporting to their school/department to issue academic warnings by semester. This is done in order for low-performing students to correct and adjust their academic schedules so that they may be able to graduate within the prescribed timeframe.

5. Every year, the university will issue academic disciplinary measures in two batches: after the first semester and after the

summer semester. Academic performance during the summer semester will be considered an extension of the second semester's performance and calculated jointly. The OUAA will process the statistics and compile a list of students considered for disciplinary measures. The final verdict shall be issued by an Academic affairs council, which is comprised of representatives from all schools/departments. The verdict shall then be announced to the students and their respective schools/departments as well as sent to their permanent residencies.

6. In case the student is expelled from the university, his/her accumulated academic results will be reserved for 3 years from the date of the decision for expulsion.

7. The calculation, evaluation and classification of training points will be conducted in accordance with the framework for evaluating students' training points.

Article 12: Outcome standards and recognition for fulfilling the foreign language outcome

1. Students will have to satisfy the input conditions for English fluency in order to start studying specialized modules; students who are accepted into IU will have to take an English placement test under the formats of IELTS or TOEFL iBT, after which they will be classified into English classes that correspond to their English fluency; alternatively, students may submit their valid international certificates in lieu of taking the English placement test; the input conditions for English fluency, the conversion between different scales and the list of accepted certificates shall be decided by the Rector.

2. The English fluency outcome in order to be considered for graduation shall be modified by the Rector at the suggestion of the

Science and Education panel but the outcome shall not be lower than that of VNU-HCM or the MOET.

3. In order to be recognized for fulfilling the foreign language outcome, students shall submit their international English certificates according to the regulations. The OUAA will present to the Rector the Decision on recognizing the fulfillment of the foreign language outcome several times a year, which is valid throughout the study period.

Article 13: Graduation internship and graduation thesis

1. In order to register for a graduation internship module, students have to satisfy all prerequisites such as previous courses and the number of accumulated credits. The prerequisites may vary between schools/departments due to the characteristics of each school/department. Students may only do a graduation internship if their names appear on the approved list of all students who will do a graduation internship that semester. The prerequisites for the graduation internship module shall be publicly announced on the school/department's website.

2. In order to do a graduation thesis, students have to satisfy all prerequisites for doing the graduation thesis, which varies between schools/departments; accumulate at least 90% of all credits in their respective curriculum; receive a recognition for fulfilling the foreign language outcome; appear on the approved list of all students who will do a graduation thesis that semester.

3. The Rector shall decide: the prerequisites for doing a graduation thesis; form and duration of the thesis; requirements for thesis advisors; the establishment of a thesis evaluation panel and the form of evaluation; the maximum number of students an advisor can take on at the same time.

Article 14: Recognition of academic results and credit transfer

1. The academic results that a student has accumulated from another training level, in another specialty, during another program or at another university shall be considered for recognition and credit transfer.
2. The Rector shall establish a professional council at the suggestion of a school/department in order to consider the academic results for recognition and credit transfer. The consideration shall be done on the basis of comparing the outcome standards, academic workloads, methods of evaluation and quality assurance measures. There are several levels of recognition:
   a) Recognition and transfer of individual academic modules.
   b) Recognition and transfer of individual groups of modules.
   c) Recognition and transfer of the entire training program.
3. In order to be considered for credit transfer, academic modules from a previous training program shall fulfill the following criteria:
   a) The module is from a current formal undergraduate program and the outcome result of the module is classified as “Pass” according to Article 9 of this Decision.
   b) The module has similar content to the module in comparison and the number of credits it carries has to be equal to or greater than the number of credits the module in comparison carries.
4. Modules that are not considered for credit transfer: graduation internship, graduation thesis and other modules that do not meet the requirements of clause 3 in this Article.
5. The university shall be liable for certifying the academic results of students when they complete their study process.

Article 15: Recognition of graduation and granting graduation degrees

1. Students are considered and recognized for graduation once they have fulfilled the following conditions:
   a) Accumulated sufficient modules and credits; completed all compulsory modules as required by the curriculum; met the outcome standard of the curriculum.
   b) The accumulated GPA is classified as "Average" or above.
   c) Met the foreign language outcome; completed the ME and PE modules, as well as other compulsory modules according to the regulations of VNU-HCM and IU (including political courses and citizens' activities sessions).
   d) At the time of consideration, students are not being examined for penal liability or under academic suspension.
   e) Students have fulfilled all responsibilities and obligations according to current IU regulations.
2. Students who have fulfilled all of the aforementioned conditions will be recognized for graduation and issued graduation degrees or temporary graduation certificates within 03 months from the date of condition fulfillment.
3. Graduation classification is determined based on the final accumulated GPA as decreed in clause 4 Article 10 of this Decision. The classification of students who have "very good" or "excellent" GPA shall be reduced by one rank if they belong to one of the following cases:
   a) The weightage of re-taken modules (due to unsuccessful completion, not including modules that are re-taken to improve grades) exceeds 5% of all required credits for that claim

b) The students have received disciplinary measures above warning.

4. Students who have exhausted the maximum study duration but have not fulfilled the graduation conditions due to uncompleted ME/PE modules or failure to meet the foreign language outcome may fulfill the unmet criteria and request for graduation consideration within 03 years from dropping out.

5. Students who fail to graduate will be granted certificates for modules accumulated during their study duration.

6. The procedures for considering and recognizing graduation are as follows:

7. Every year, IU establishes a council for graduation consideration in 02 batches: May and September. Based on the criteria for graduation, the council will make a list of all students who have fulfilled the conditions for graduation and request approval from the Rector.

a) During the processing time, qualified students may be issued a temporary certificate. This certificate is valid from the date of issuance to the date of the issuance of the official degree and does not replace the degree.

8. Academic results of students who fail to graduate will be reserved and recognized according to MOET's and VNU-HCM's regulations.

4. CHAPTER IV OTHER REGULATIONS FOR STUDENTS

Article 16: Hiatus and suspension

1. Students may take a hiatus and have their academic results reserved if they belong to one of the following cases:

a) Inducted into the armed forces.

b) Inducted by a competent agency to represent the nation in an international competition or other contests.

c) Sickness, pregnancy or long-term rehabilitation after an accident with the recognition of competent medical establishments as decreed by the Ministry of Health.

d) Other personal reasons, on the condition that the student has studied at least one semester on campus and is not being considered for disciplinary measures or academic suspension. The Rector will consider and approve these reasons on a case-by-case basis.

2. Academic pauses taken for personal reasons as specified at point d clause 01 of this Article will be included in the total study time as decreed in clause 10 Article 02 of this Decision.

3. Students who want to drop out due to personal reasons, except for being considered for disciplinary measures or academic suspension, will have to partake in the admission process like any other candidates should they wish to return to IU. Other special cases shall be considered and decided by the Rector.

4. Students may only take a hiatus with the permission of the Rector. The hiatus shall not span 02 consecutive main semesters, and the total amount of time reserved for academic pauses shall be equivalent to 04 main semesters for 4- to 6-year programs.

5. Students who return from a hiatus shall have to complete the required admission procedures in a timely manner. The deadline is 04 weeks before the start of a semester.

6. Students who take a hiatus for military duty shall submit the discharge decision/confirmation of duty accomplishment.

7. In order to perform the procedures for taking a hiatus, dropping out, getting readmitted, reserving and having academic results certified, students shall fill out a form provided by the OUAA and

submit the form back to the OUAA. The requests will be processed no longer than 07 days from the date of request reception.

Article 17: Switching majors, changing universities, changing campuses, changing forms of learning

1. Students may change programs or switch majors if they fulfill the following conditions:
   a) The student is not in the first or final academic year, not being considered for academic suspension and still has enough study time as decreed in clause 10 Article 2 of this Decision.
   b) The student has met the admission requirements of the program and the major in the same enrollment course.
   c) The receiving major or program fulfills all conditions for quality assurance and has not surpassed its training capacity according to current MOET's regulations.
   d) The student has received permission from the head of that major, program and the Rector.
2. Students who are in joint programs with foreign universities and wish to switch to another joint program in the same major will need to fulfill the following conditions:
   a) The student is not in the first or final academic year, not being considered for academic suspension and still has enough study time as decreed in clause 10 Article 2 of this Decision.
   b) The student is currently not in an intensive English class to meet the foreign language requirements.
   c) The program has not surpassed its training capacity.
   d) The student has met the admission requirements of the program and the major in the same enrollment course.

e) The student has received permission from the head of that major, program and the Rector.

3. Procedures to switch majors: students will submit the form for major change consideration between the fifth and eighth week in a main semester and between the first and second week in a summer semester. The form will be processed for no longer than 15 days from the date of reception.

4. The maximum study duration for students who switch majors or programs is the maximum study duration decreed in clause 10 Article 2 of this Decision.

5. Students may change universities if they fulfill the following conditions:

   a) The student is not in the first or final academic year, not being considered for academic suspension and still has enough study time as decreed in clause 10 Article 2 of this Decision.

   b) The student has met the admission requirements of the program and majored in the same enrollment course at the new university.

   c) The receiving university fulfills all conditions for quality assurance and has not surpassed its training capacity according to current MOET's regulations.

   d) The student has received permission from the Rector of the receiving university and the Rector of IU.

6. Procedures to change universities:

   a) The student who wishes to change university shall fill out a form for university transfer and submit the form with necessary proof. The form shall then be sent to the Rector of the receiving university for approval and additional conditions (if applicable).

b) If the receiving university accepts the request, the student will send the form with his/her academic profile to the receiving university. The Rector of IU shall issue a decision on accepting the university transfer, supply the academic transcript and verify the academic profile of the student at the request of the receiving university.

c) The Rector of the receiving university shall issue a decision on accepting the student and begin recognizing the accumulated academic modules at the recommendation of the department/school-in-charge.

d) The deadline for these procedures is 15 days from the reception of the request.

Article 18: Student exchange and cooperation in training

1. "Student exchange program" is the reception of students from a partnering university or the dispatch of IU students to a partnering university for a short period of time, with the aim of short-term training (with or without credit) and socializing within a framework designed by IU and its partnering universities.
2. The procedures for participating in a student exchange program and other related regulations are conducted according to IU regulations for managing and organizing student exchange programs.
3. In training cooperation between IU and a partnering university, the two rectors may agree on certifying each other's credits and using a shared evaluation method. In that case, the number of credits a student may accumulate at a partnering university shall not exceed 25% of the workload in the curriculum.
4. Audit students: students who wish to supplement their knowledge in one or several subjects and satisfy all academic, personal

requirements may be considered to become audit students:

a) Audit students shall have to pay 100% of the tuition fee for each enrolled module.

b) Audit students will be provided with a certificate of completion and have their results recognized if they strictly follow all regulations on training and academic affairs and meet the requirements of the lecturer throughout the course.

c) Audit students may not do projects, graduation thesis or be considered for a degree. Audit students who are foreigners will not be supported for passport application.

Article 19: Studying two curricula at the same time

1. For education applying academic credit system, students may register for courses from another major or program when facility conditions permit, but they may only enjoy the official benefits and be considered for graduation in the second program once they have successfully enrolled in the second program, as regulated in clause 2 of this Article.

2. Students may enroll in the second program as soon as they are in the second year of the first program. At the time of enrollment, students shall satisfy the following conditions:

   a) Possess suitable academic aptitude and entry score, which shall be defined as satisfying one of the following two conditions:

      - The accumulated GPA is classified as “good” or above and meets the quality assurance threshold of the second program for that enrollment year; or

      - The accumulated GPA is classified as “fair” or above and

meets the admission requirements of the second program for that enrollment year.

b) The specialty of the second program shall differ from the specialty of the first program.

c) There are no differences in the form and level of training between the two programs.

3. During the study duration, if the accumulated GPA of the first program falls below "fair" or becomes subject to academic warning, the student shall suspend the second program in the following semester: the student will also be eliminated from the list of enrolled students in the second program.

4. The maximum study duration for students enrolling in two programs is also the maximum study duration for the first program, as decreed in clause 10 Article 2 of this Decision. The results of equivalent or commutative programs in the first program will be recognized for the second program.

5. Students may only be considered for graduation in the second program if they have met the requirements for graduation in the first program and enrolled in the second program for at least 02 years from the date of consideration.

Article 20: Handling students' violations

1. Students who cheat during quizzes, exams and academic evaluations will be subject to disciplinary measures for every affected module, according to the current regulation on High school graduation exam promulgated by MOET, except for cases regulated in clause 2 of this Article.

2. Students who take exams for other students or ask other people to take exams on their behalf will be academically suspended for 01 year for the first violation and dismissed from the university for

the second violation.

3. Students who use forged profiles, documents and certificates to meet the admission or graduation requirements will be dismissed from the university; any issued degrees will be recalled and nullified.

5. CHAPTER V ORGANIZING THE IMPLEMENTATION OF THIS DECISION

Article 21: Formulating and implementing training regulations

1. The OUAA has the responsibility to advise the Board of Rectors on formulating, updating, issuing and organizing the implementation of training regulations at the suggestions of the council of science and training and on the basis of internal regulations.
2. IU schools and departments will publicize and instruct their students in the matters of regulations and provisions on students' rights and obligations from the beginning of the enrollment course.
3. The OQAT is liable for monitoring the teaching quality, collecting feedback from students, advising the Board of Rectors on maintaining the teaching quality.
4. The Office of Inspection and Legal affairs is liable for supervising and conducting internal inspections on the implementation of this Decision as well as other training-related matters.
5. In case of necessity, the Rector may make amendments or supplementations to this Decision in accordance with the actual situation.

Article 22: Reporting, archiving, and publicizing information

1. Before the 31st day of December every year, the OUAA reports to the MOET and VNU- HCM the following statistics: newly admitted students, graduated students, suspended students, in-training students, students expected to graduate next year, graduated students that have found a job within 12 months from the date of graduation; as well as classify the statistics by enrollment demographics, majors, enrollment courses and forms of training.
2. Documents pertaining to the training process shall be archived and preserved in a secure manner by the OUAA, according to the MOET's regulations:
    a) Admission decisions, original score sheets, recognition of graduation decisions, the original version of booklets used for degree issuance shall be preserved permanently.
    b) Other documents pertaining to the admission and training process shall be preserved throughout the training process.
    c) The disposal of documents pertaining to the admission and training process whose archival time has expired shall be conducted in accordance with current MOET's regulations.
3. IU shall publicize the following information on its website at the latest 45 days before organizing the admission procedures:
    a) Regulations on academic affairs and other related regulations on managing the training process.
    b) Decisions on opening new departments and decisions on organizing the training process in accordance with current regulations.
    c) Quality assurance conditions according to current MOET's regulations.

d) Proof that the training programs attain the quality promulgated by current MOET's regulations.

e) Admission notification according to current regulations on admission./.