

VIETNAM NATIONAL UNIVERSITY, HCMC

INTERNATIONAL UNIVERSITY

School of Civil Engineering and Management



STUDENT HANDBOOK

CONSTRUCTION MANAGEMENT

2023

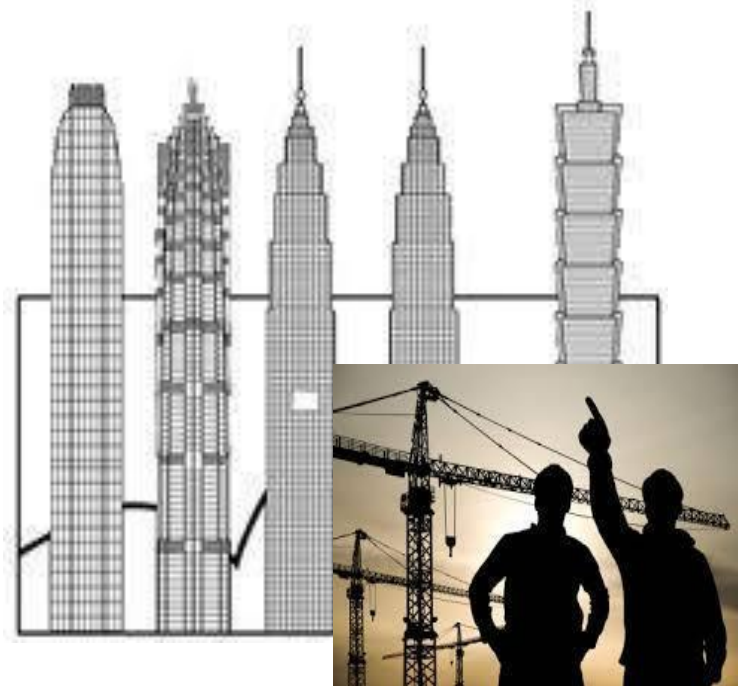


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A. OVERVIEW

1. International University

International University (IU), one of six member universities of Vietnam National University HCMC, was established in December 2003. As an interdisciplinary university, it is the first public university in Vietnam that uses English as the primary language in teaching and researching.

IU and its partner universities currently offer undergraduate and graduate accredited programs. The focus has been on offering academic majors that are aligned with the growing demand for human resources in such fields as economics, management, science, and technology. IU's overall model adheres to the international standards in developing syllabi or curricula in collaboration with several top universities in the United States, Europe, and Asia.

- **Vision**

International University – Viet Nam National University Ho Chi Minh City (IU-VNU) will become one of the leading research universities in Asia, with the aim of nurturing talent and providing high quality labor for both domestic and international workforces.

- **Missions**

- To become an international higher education institution with a Vietnamese cultural identity.

- To pioneer in adopting an advanced and autonomous higher education governance model.
- To offer higher education programs in a wide range of areas, all accredited by regional and international accreditation organizations.
- To enhance internationalization by using English as the medium of instruction. Students are trained to become global citizens with a high self-awareness of their social responsibility for a long-term, sustainable development.
- To pursue excellence in basic and applied research in order to meet the demand for innovative and sustainable development of industries, provinces and regions; to promote connectiveness by means of collaboration activities and social services.

2. School of Civil Engineering and Management

● Missions

The mission of the School of Civil Engineering and Management is to provide quality education to prepare undergraduate students for a successful career in civil engineering; to provide advanced skills and knowledge in research and design of civil engineering for graduate students; and to provide service to the university, engineering profession, and the public.

Consistent with the mission of the university, the mission of School of Civil Engineering and Management is:

- ✓ To deliver a high level of research for both academic and practical use;
- ✓ To educate a “new” generation of civil engineers, who are able to tackle challenging problems in engineering practice and have comprehensive English communication skills to be used in both technical and daily-life situations;
- ✓ To provide state-of-the-art services to industry and society.

- **Educational Objective**

The objectives of School of Civil Engineering and Management were developed according to the regional, national and industrial demands and needs:

- Established a mastery of fundamental knowledge, problem solving skills, engineering experimental abilities, and design capabilities for a civil engineer.
- Established the knowledge and skills necessary for identifying and assessing design alternatives and the related social, economic, environmental, and public safety impacts.
- Demonstrated ability to deal effectively with ethical and professional issues.
- Contribute to the economic and social development of the region and country by maintaining mutually beneficial partnerships with the public and private sectors.

● **Job Opportunities**

After graduating, Construction Management engineers can work in project management units or departments, quantity surveying, cost control, procurement organizations, contract management, financial planning, project appraisal, and real estate businesses. Construction Management engineers are offered various opportunities in companies such as:

- Government agencies: Ministry of Construction, Ministry of Planning and Investment, Ministry of Finance, Ministry of Transport, banks, treasury, and other state agencies related to urban and construction management.
- Real estate development investors.
- Construction companies (Contractors) involved in project implementation.
- Professional consulting firms (Project Management, Design, Procurement, Contracts).
- Project Management Boards at District/Province/City levels.
- Construction material supply companies.
- Engagement in teaching and research at universities and research institutes in related fields.

Furthermore, after graduation, students also have the opportunity to pursue higher education such as Master's and Ph.D. degrees at universities both domestically and internationally.

- **Academic Program**

School of Civil Engineering and Management offers a type of training program:

- **The training program at International University (4.5 years)**

The 4.5-year undergraduate program in Construction Management is educated at International University. On completion of this course, students are awarded the degree of Bachelor of Engineering in Construction Management by Vietnam National University, HCMC.

- **Expected Learning Outcomes**

- 1) An ability to acquire and apply the foundation knowledge in terms of natural and social science to understand principles of construction management.
- 2) An ability to understand basic principles of economy management, business management models, digital transformation in construction (BIM, AI), and utilize statistical tools and techniques for economic analysis.
- 3) An ability to understand and utilize mathematical tools, problem-solving methods including technical and economic tasks and problems, and professional knowledge in construction management for managing and controlling variety aspects of construction projects.
- 4) An ability to identify project objectives, scope and legal documents required as well as to be able to evaluate social-

economic benefits of construction project investments; conduct literature research, collect and interpret data based on the methods of academic research.

- 5) An ability to grasp, analyse and evaluate methods and processes in construction management to solve complex problems across time, cost and quality management as well as apply artificial intelligence and building information modelling to improve the project management performance.
- 6) An ability to use tools and techniques required for identifying, analysing, and evaluating the problems as well as thinking independently, logically, and critically in seeking appropriate solutions; to work on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- 7) An ability to communicate effectively with a range of audiences and actively work individually and as part of an international group as well as become accustomed to the responsibilities of leadership
- 8) An ability to comprehensively use English language in construction management, express themselves in a logical and convincing way both orally and in writing and communicate with their specialist colleague.
- 9) An ability to recognize ethics and professional responsibility in civil engineering and construction management; and have suitable communication and interaction with people.
- 10) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

- **Contact us**

School of Civil Engineering and Construction Management

Construction Management Department

A1.506 – Block A1, International University Building

Quarter 6, LinhTrung Ward, Thu Duc District, Ho Chi Minh
City, Viet Nam.

Phone: (84-8) 37244270 Ext. 3425

Fax: (84-8) 37244271

Website: <https://cem.hcmiu.edu.vn/>

B. CONSTRUCTION MANAGEMENT PROGRAM

1. Overview

The Bachelor of Engineering in Construction Management requires at least **150 credits** for graduation including required and elective courses. In addition to these required credits, students need to complete (1) two courses of physical training and (2) the certificate of military training. The English outcome requirement for graduates is TOEIC of 600 (Listening + Reading) & 270 (Speaking + Writing); or TOEFL (iBT) of 61; or IELTS of 5.5; or equivalence (Decision No. 98/TB-DHQT issued on the 27th of March, 2023).

The curriculum specification as the following table:

Freshman Year							
<i>Semester 1</i>				<i>Semester 2</i>			
EN007IU	Writing AE1	2	3.09	EN011IU	Writing AE2	2	3.09
EN008IU	Listening AE1	2	3.09	EN012IU	Speaking AE2	2	3.09
MA001IU	Calculus 1	4	6.18	CM205IU	Introduction to Construction Management	2	3.09
PH013IU	Physics 1	2	3.09	PE015IU	Philosophy of Marxism and Leninism	3	4.64
CE105IU	Engineering Mechanics and Mechanics of Materials	3	4.64	CE209IU	Structural Analysis 1	2	3.09
CE103IU	Computer-Aided Design and Drafting	3	4.64	CE210IU	Construction Materials	3	4.64
CE104IU	Computer-Aided Design and Drafting Practice	1	2.45	PT001IU	Physical Training 1	3	4.64
Total Credits/ECTS		17	27.18	Total Credits/ECTS		17	26.28

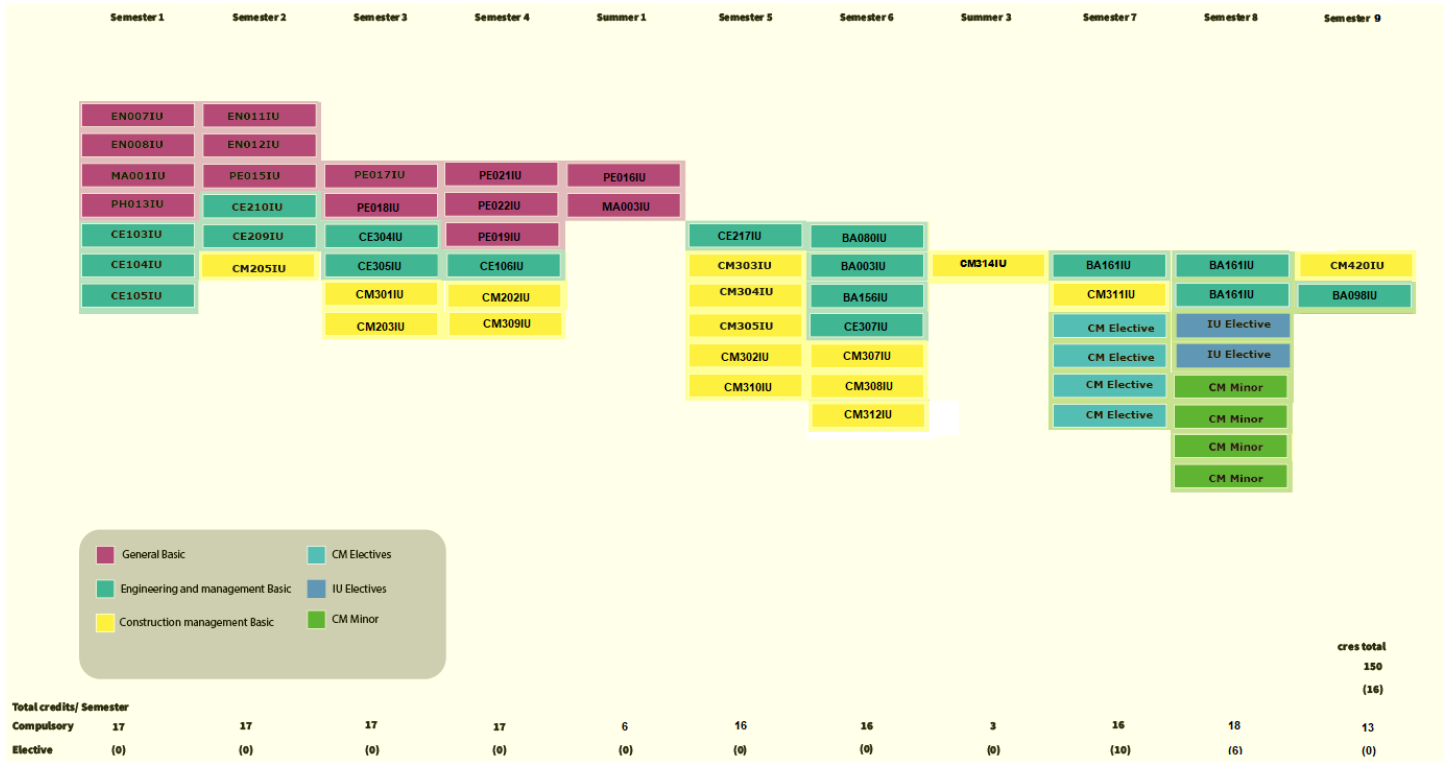
Summer Semester 1							
MA003IU - Calculus 2		4	6.18				
PE016IU - Political Economics of Marxism and Leninism		2	3.09				
Total Credits/ECTS		6	9.27				
Sophomore Year							
Semester 3				Semester 4			
CE305IU	Steel structures	3	4.64	CE106IU	Soil mechanics and foundation	3	4.64
CE304IU	Reinforced Concrete 1	3	4.64	CM309IU	Construction Economics	3	4.64
CM301IU	Operation Management in Construction	3	4.64	PE019IU	Ho Chi Minh's Thoughts	2	3.09
PT002IU	Physical Training 2	3	4.64	PE021IU	General Law	3	4.64
CM203IU	Construction Management Project	1	2.45	CM202IU	Construction Measurement and Cost Estimating	3	4.64
PE018IU	History of Vietnamese Communist Party	2	3.09	PE022IU	Engineering Ethics and Critical Thinking	3	4.64
PE017IU	Scientific Socialism	2	3.09				
Total Credits/ECTS		17	27.19	Total Credits/ECTS		17	26.29
Summer Semester 2							
MP001IU Military Training							
Junior Year							
Semester 5				Semester 6			
CM310IU	Building Information Modelling	3	4.64	CM307IU	Construction Planning and Scheduling Project	1	2.45
CM303IU	Construction Planning and Scheduling	3	4.64	CE307IU	Surveying	2	3.09
CM304IU	Construction measurement and Cost Estimating Project	1	2.45	BA080IU	Statistics for Business	3	4.64

CM305IU	Construction Cost Management	3	4.64	CM308IU	Project Feasibility Study and Appraisal	3	4.64
CM302IU	Construction Procurement and Tendering	3	4.64	CM312IU	Building Information Management Project	1	2.45
CE217IU	Artificial Intelligence in Civil Engineering and Construction Management	3	4.64	BA156IU	Human Resource Management	3	4.64
				BA003IU	Principles of Marketing	3	4.64
Total Credits/ECTS		16	25.65	Total Credits/ECTS		16	26.55
Summer Semester 3							
CE314IU Summer Internship (3 crds/ 7.36 ECTS)							
Senior Year							
Semester 7				Semester 8			
BA161IU	Business Research Methods	3	4.64	BA171IU	Risk Management	3	4.64
CM311IU	Construction project management (PMBOK extension)	3	4.64	BA168IU	Quantitative method for Business	3	4.64
CM....._	CM Elective 1 (list A)	3	4.64	..... IU	IU Elective 1 (list C)	3	4.64
CM....._	CM Elective 2 (list A)	3	4.64	..... IU	IU Elective 2 (list C)	3	4.64
CM....._	CM Elective 3 (list A)	3	4.64	Construction Management Project Minor			
CM....._	CM Elective 4 (list B)	1	2.45	CM402IU	Construction Jobsite Management	3	4.64
				CM404IU	Contract Management – FIDIC contracts	3	4.64
				Construction Management Minor			
				CM403IU	Value Engineering	3	4.64
				CE311IU	Construction Engineering	3	4.64
Total Credits/ECTS		16	25.65	Total Credits/ECTS		18	27.84

<i>Semester 9</i>							
BA098IU	Leadership	3	4.64				
CE420IU	GRADUATION THESIS	10	24.6	24.6			
Total Credits/ECTS		13	29.24				

Total Credits/ECTS: 150/ 249.17 (not including Physical Training 1 and 2)

2. Curriculum Map



3. Curriculum Distribution

Freshman Year							
<i>Semester 1</i>				<i>Semester 2</i>			
EN007IU	Writing AE1	2	3.09	EN011IU	Writing AE2	2	3.09
EN008IU	Listening AE1	2	3.09	EN012IU	Speaking AE2	2	3.09
MA001IU	Calculus 1	4	6.18	CM205IU	Introduction to Construction Management	2	3.09
PH013IU	Physics 1	2	3.09	PE015IU	Philosophy of Marxism and Leninism	3	4.64
CE105IU	Engineering Mechanics and Mechanics of Materials	3	4.64	CE209IU	Structural Analysis 1	2	3.09
CE103IU	Computer-Aided Design and Drafting	3	4.64	CE210IU	Construction Materials	3	4.64
CE104IU	Computer-Aided Design and Drafting Practice	1	2.45	PT001IU	Physical Training 1	3	4.64
<i>Total Credits/ECTS</i>		17	27.18	<i>Total Credits/ECTS</i>		17	26.28
<i>Summer Semester 1</i>							

MA003IU - Calculus 2		4	6.18				
PE016IU - Political Economics of Marxism and Leninism		2	3.09				
Total Credits/ECTS		6	9.27				
Sophomore Year							
Semester 3				Semester 4			
CE305IU	Steel structures	3	4.64	CE106IU	Soil mechanics and foundation	3	4.64
CE304IU	Reinforced Concrete 1	3	4.64	CM309IU	Construction Economics	3	4.64
CM301IU	Operation Management in Construction	3	4.64	PE019IU	Ho Chi Minh's Thoughts	2	3.09
PT002IU	Physical Training 2	3	4.64	PE021IU	General Law	3	4.64
CM203IU	Construction Management Project	1	2.45	CM202IU	Construction Measurement and Cost Estimating	3	4.64
PE018IU	History of Vietnamese Communist Party	2	3.09	PE022IU	Engineering Ethics and Critical Thinking	3	4.64
PE017IU	Scientific Socialism	2	3.09				
Total Credits/ECTS		17	27.19	Total Credits/ECTS		17	26.29
Summer Semester 2							

MP001IU Military Training							
Junior Year							
Semester 5				Semester 6			
CM310IU	Building Information Modelling	3	4.64	CM307IU	Construction Planning and Scheduling Project	1	2.45
CM303IU	Construction Planning and Scheduling	3	4.64	CE307IU	Surveying	2	3.09
CM304IU	Construction measurement and Cost Estimating Project	1	2.45	BA080IU	Statistics for Business	3	4.64
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CE217IU	Artificial Intelligence in Civil Engineering and Construction Management	3	4.64	BA156IU	Human Resource Management	3	4.64

				BA003IU	Principles of Marketing	3	4.64
Total Credits/ECTS		16	25.65	Total Credits/ECTS		16	26.55
Summer Semester 3							
CE314IU Summer Internship (3 crds/ 7.36 ECTS)							
Senior Year							
Semester 7				Semester 8			
BA161IU	Business Research Methods	3	4.64	BA171IU	Risk Management	3	4.64
CM311IU	Construction project management (PMBOK extension)	3	4.64	BA168IU	Quantitative method for Business	3	4.64
CM.....	CM Elective 1 (list A)	3	4.64	..... IU	IU Elective 1 (list C)	3	4.64
CM.....	CM Elective 2 (list A)	3	4.64	..... IU	IU Elective 2 (list C)	3	4.64
CM....._	CM Elective 3 (list A)	3	4.64	Construction Project Management Minor			
CM....._	CM Elective 4 (list B)	1	2.45	CM402IU	Construction Jobsite Management	3	4.64
				CM404IU	Contract Management – FIDIC contracts	3	4.64

				Construction Management Minor			
				CM403IU	Value Engineering	3	4.64
				CE311IU	Construction Engineering	3	4.64
Total Credits/ECTS		16	25.65	Total Credits/ECTS		18	27.84
Semester 9							
BA098IU	Leadership	3	4.64				
CM420IU	GRADUATION THESIS	10	24.55				
Total Credits/ECTS		13	29.19				

Total Credits/ECTS: 150/ 249.17 (not including Physical Training 1 and 2)

*List A, B, C: see Part C. ACADEMIC INFORMATION

IE – Intensive English Program

Students, who are not qualified with the entrance English requirement (TOEFL iBT 60; TOEFL PBT 500; or IELTS 6.0), have to study the Intensive English Program before starting the academic curriculum. The table of English proficiency equivalency is as

Level	TOEFL iBT	TOEFL PBT	IELTS
IE1	< 24	< 373	< 4.0
IE2	24 – 35	374 – 417	4.5
IE3	36 – 48	418 – 460	5.0
IE4	49 – 60	461 – 500	5.5
AE1, AE2	61 – 79	501 – 550	6.0

English Program Distribution

	SEMESTER 1		SEMESTER 2	
Level	IE1	IE2	IE3	IE4
Skill Taught	4 skills	4 skills	4 skills	4 skills
Credits	11	11	11	11
Periods	165	165	165	165
Weeks	7	7	7	7

	SEMESTER 3	SEMESTER 4
Level	AE1	AE2
Skill Taught	Listening & Notetaking Academic writing 1	Effective presentations Academic writing 2
Credits	4	4
Periods	60	60
Weeks	15	15

Academic English (Study Skills)

C. ACADEMIC INFORMATION

1. Specialization Selection

After completing the first two years of the program, students are allowed to choose their specialization. Specialization is the research area which students are interested in and wish to continue with for the final thesis. School of Civil Engineering and management currently offers three specializations:

ELECTIVE PROFESSIONAL KNOWLEDGE (16 credits/ 25.65 ECTS)				
I	Construction Management Elective - List A (Select three of following courses)			
1	CM405IU	Project communication Management	3	4.64
2	CM406IU	Construction Management Quality	3	4.64
3	CM407IU	Project Management Integration	3	4.64
4	CM408IU	Construction Management Financial	3	4.64
5	CM403IU	Value Engineering	3	4.64
6	CE311IU	Construction Engineering	3	4.64
7	CM404IU	Contract Management – FIDIC contracts	3	4.64
8	BA006IU	Business Communications	3	4.64
9	BA016IU	Fundamental of Financial Management	3	4.64

10	BA018IU	Quality Management	3	4.64
11	BA115IU	Introduction to Business Administration	3	4.64
12	CE412IU	Advanced Artificial Intelligence in Civil Engineering and Construction Management	3	4.64
13	CE310IU	Reinforced Concrete 2	3	4.64
14	CE407IU	Tall Buildings	3	4.64
15	CE415IU	Sustainable Construction	3	4.64
II	Construction Management Elective - List B (Select one of following courses)			
16	CE403IU	Construction Project	1	2.45
17	CM401IU	Feasibility Study and Appraisal Project	1	2.45
III	IU Elective Courses - List C (Select two of the following courses)			
18	BA130IU	Organizational Behavior	3	4.64
19	BA120IU	Business Computing Skills	3	4.64
20	BA005IU	Financial Accounting	3	4.64

Once specialization is chosen, students have to take the required courses for each specialization, relevant elective courses and final thesis.

2. Summer Internship Registration

Students are allowed to register for summer internship before the academic year when they aim to apply for a thesis.

- **Objectives:**

- To develop skills in the application of theory to practical work situations.
- To develop skills and techniques directly applicable to their careers.
- To provide students the opportunity to get involved with a company before graduation.

- **Internship duration:** minimum 8 weeks (full-time working)

3. Thesis Registration

- **Criteria:**

- Successfully accumulate at least 90% of credit numbers of the academic curriculum and finish all projects.
- Do not under any academic admonishment.

- **Duration:** minimum 12 weeks

4. Graduation Criteria

Students have to complete all of the following requirements for graduation:

- Successfully complete the academic curriculum (150 credits) with GPA ≥ 50
- Meet the minimum English requirement of TOEIC of 600 (Listening + Reading) & 270 (Speaking + Writing); or TOEFL (iBT) of 61; or IELTS of 5.5
- Military Education Certification
- Meet other requirements in accordance with the regulations for graduation set by the IU

5. Scholarship Information

- **University Scholarship (Decision No 99 & 100/DHQT-ĐT)**

Each semester, top 10% of students with highest GPA will receive scholarship from the IU. 4% of students will receive full scholarship (12.620.000 VND for Fall/Spring semester or 6.310.000 VND for Summer semester) and 6% of students will receive half scholarship (6.310.000 VND for Fall/Spring semester or 3.165.000 for Summer semester).

- **Minimum requirements:**

- Complete the Academic English 1 (AE1)
- Register at least 12 credits for Fall/Spring semester or 6 credits for Summer semester
- Semester GPA ≥ 70 (with no course fails in that semester)

- **Admission Scholarship 2016**

- **Full scholarship** (full tuition exemption for 4 years – equivalent to 168.000.000 VND): Students have entrance examination scores ≥ 24.5
- **Partial scholarship** (half tuition exemption for 4 years – equivalent to 84.000.000 VND): Student have entrance examination scores ≥ 23.5
- **Condition to maintain Scholarships:** Students must have GPA each semester ≥ 70 and the score of every subject ≥ 50 .

6. 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.

- Students do online course registration on the website: <https://hcmiu.edu.vn/edusoftweb/> (username and password for student will be created by the university).
- The registration time will be informed at the School of Civil Engineering and Management.

● **Adjusting Student Timetable**

When receiving the timetables, students must check the information including the number of registered courses, tuition fees, etc... If there should be any errors, students must report to the School within three days of the timetable announcement.

The School must check (through the academic advisors) and give their opinions on the students' file of documents, and then send them to the Office of Academic Affairs for settlement.

● **Adding and Dropping Courses**

In the first week of teaching, based on their timetables, ability and learning conditions, students can file for adding and dropping courses.

7. Academic Probation

The University Academic Committee will consider to settle the academic matters after the first and summer semester annually. The result of the summer semester will be added to that of the second semester of the corresponding year upon academic settling.

Student violating the below regulation will be admonished academically:

- Those who acquire insufficient credits as required by the specialization in one semester;
- Cumulative GPA < 3.5.
- Having two consecutive cumulative GPA < 3.0.

The duration for academic probation will last in the succeeding formal semester.

8. Academic suspension

Students violating one of the below regulations will be suspended academically:

- The ultimate time for studying has finished;
- To drop out of university more than one semester without approval of IU;
- Students are warned more than 2 times;
- Do not register courses for each semester;
- Do not finish tuition fees in the prescribed time.

9. Academic Information

- Students can see all studying results in each semester and training results at the School of Electrical Engineering.
- In the studying process, students can ask for a student's transcript at the Office of Academic Affairs.

- For students who are warned or suspended, the university will send the information to the student's family.

10. Grading Classification

GPA Classification	100 Point Grading Scale	Point Grading Scale in letters
PASSING		
Excellent	$90 \leq \text{GPA} \leq 100$	A+
Very good	$80 \leq \text{GPA} < 90$	A
Good	$70 \leq \text{GPA} < 80$	B+
Fair	$60 \leq \text{GPA} < 70$	B
Average	$50 \leq \text{GPA} < 60$	C
NO PASSING		
Weak	$40 \leq \text{GPA} < 50$	D+
Rather weak	$30 \leq \text{GPA} < 40$	D
Too weak	$\text{GPA} < 30$	F

11. List of Academic Advisors

Following is the list of Academic Advisors, please contact your advisors for academic advice.

Year 2021 : PhD. Phạm Thanh Tùng

Year 2022 : PhD. Nguyễn Văn Tiếp

Year 2023 : PhD. Nguyễn Hoài Nghĩa

D. FACULTY DIRECTOR

NGUYỄN HOÀI NGHĨA, Ph.D. – Lecturer Degree

(Dean of School of Civil Engineering and Management)

- Ph.D., Sirindhorn International Institute of Technology, Thammasat University, Thailand, 2018.
- M.E.M., Ho Chi Minh University of Technology, Viet Nam, 2008.
- B.Eng., Ho Chi Minh University of Technology, Viet Nam, 2002.

Teaching

- Construction management.
- Construction Engineering.
- Professional ethics and professional work skills.
- Construction Economics.
- Construction Cost Management.
- Construction Measurement and Cost Estimating
- Construction Planning and Scheduling
- Contract Management – FIDIC contracts.
- Project Feasibility Study and Appraisal

Research Interest

- Project cost/ finance management.
- Project schedule management.
- Quantitative analysis.
- Project procurement management.
- Project contract management.
- Real estate business strategies.
- Project legal disputes.

Email: nhnghia@hcmiu.edu.vn

E. LECTURERS

Nguyễn Bá Quang Vinh, PhD – Lecturer

Degree: Ph.D, Pukyong National University, Korea, 2021.
M.Eng, Ho Chi Minh University of Technology, Viet Nam, 2015.
B.Eng, Ho Chi Minh University of Technology, Viet Nam, 2013.

Teaching
:
Soil Mechanics and Foundation.
Engineering Mechanics and Mechanics of Materials.
Computational Method for Civil Engineering.

Research
Interest: Landslide risk assessment
Probabilistic risk analysis
Hazard analysis

Email: nbqvinh@hcmiu.edu.vn

Nguyễn Văn Tiếp, PhD – Lecturer

Degree: Ph.D, University of Adelaide, Australia, 2019.
M.E.M, University of Adelaide, Australia, 2015.
B.Eng, Ho Chi Minh City University of Transport, Viet Nam, 2009.

Teaching
:
Introduction to Construction Project Management
Construction project management
Evaluating the feasibility of construction investment projects

Research
Interest: Assess the feasibility of investment in transport infrastructure projects.
Investigate potential risks affecting the implementation of transport infrastructure projects.
Research the governance mechanism of complex projects.

Email: nvtiep@hcmiu.edu.vn

Phạm Thanh Tùng, PhD – Lecturer

Degree: Ph.D, RMIT, Australia, 2022.
B.Eng, Ho Chi Minh University of Technology, Viet Nam, 2015.

Teaching: Engineering Mechanics.
Mechanics of Materials Laboratory.
Computer-Aided Design and Drafting

Research Interest: Human Resource and Development.
Project Management.
Sustainability..

Email: [pttung @hcmiu.edu.vn](mailto:pttung@hcmiu.edu.vn)

Nguyễn Phạm Duy Phương, MSc – Lecturer

Degree: MS, California State University, Fullerton, USA, 2019.
B.Eng, Ho Chi Minh University of Technology, Viet Nam, 2015.

Teaching : Construction management.
Construction Engineering.
Professional ethics and professional work skills.

Research: Project cost/ finance management.

Interest: Project schedule management.
Quantitative analysis.

Email: [npdphuong @hcmiu.edu.vn](mailto:npdphuong@hcmiu.edu.vn)

Phạm Văn Bảo, MSc – Lecturer

Degree: M.Eng, Chulalongkorn University, Thailand, 2019.
B.Eng, Ho Chi Minh University of Technology, Viet Nam, 2016.

Teaching: Construction management.
Construction Engineering.
Professional ethics and professional work skills.

Research Interest: Material management.
Construction Automation.
Productivity Improvement

Email: [pvbao @hcmiu.edu.vn](mailto:pvbao@hcmiu.edu.vn)

Trần Thanh Hà, PhD – Lecturer

Degree: Ph.D, Sirindhorn International Institute of Technology, Thammasat University, Thailand, 2020.

M.Sc, Sirindhorn International Institute of Technology, Thammasat University, Thailand, 2015.
B.Eng, Ho Chi Minh University of Technology, Viet Nam, 2011.

Teaching: Construction Engineering.
Construction Jobsite Management.
Building Information Management.

Research Interest: Building Information Modelling (BIM) and Mixed Reality (AR/VR).

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Ms BUI THI HOP– Secretary

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F. COURSE DESCRIPTION

1. Course name: Philosophy of Marxism and Leninism

Course code: PE015IU

Number of credits: 3 theories

Condition: Prerequisite subjects: none

Previous subjects: no

Description of course content: The course provides basic content about the worldview and methodology of Marxism-Leninism.

2. Course name: Political economics of Marxism and Leninism

Course code: PE016IU

Number of credits: 2 theories

Condition: Prerequisite subjects: none

Previous subjects: no

Brief description of content: The course equips students with core contents of Marxist-Leninist Political Economy, including: Commodities, markets and the role of subjects in the market economy; produce surplus value in a market economy; competition and monopoly in the market economy; socialist-oriented market economy and economic interest relationships in Vietnam; industrialization, modernization and international economic integration in Vietnam.

3. Subject name: Scientific Socialism

Course code: PE017IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subjects: Marxist-Leninist philosophy, Marxist-Leninist political economy

Description of course content: The main content of the course is to provide students with a basic systematic understanding of scientific socialism.

4. **Course name: Ho Chi Minh's Thoughts**

Course code: PE019IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subjects: Marxist-Leninist philosophy, Marxist-Leninist political economy, Scientific socialism

Description of course content: The course equips students with basic knowledge about: Subjects, research methods and the meaning of studying Ho Chi Minh's ideology; about the basis, process of formation and development of Ho Chi Minh's ideology; about national independence and socialism; about the Communist Party and State of Vietnam; about great national unity and international solidarity; about culture, ethics, and people.

5. **Course name: History of Vietnamese Communist Party**

Course code: PE018IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subjects: Marxist-Leninist philosophy, Marxist-Leninist political economy, Scientific socialism

Description of course content: Provides systematic and basic knowledge about the birth of the Communist Party of Vietnam (1920-1930), the Party's leadership of the Vietnamese revolution during the period of struggle for power (1930-1930). 1945), in the two civil wars against the French colonialists and the American imperialist invaders (1945-1975), in the cause of building and defending the fatherland during the country's transition to socialism, carrying out the innovation (1975-2018).

6. **Subject name: Calculus 1**

Course code: MA001IU

Number of credits: 4 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: Functions, Limits, Continuity, Derivatives, Derivatives for basic functions, Rules for calculating derivatives, Applications of derivatives, L'hospital Rule, Optimization, Methods Newton's method, Integral integration, Definite integrals, Basic theorems of analysis, techniques for calculating integrals.

7. Subject name: Calculus 2

Course code: MA022IU

Number of credits: 4 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Description of course content: Sequences and strings; Check for convergence; Hat chain; Taylor and Maclaurin series; Cartesian coordinate system; Lines, Faces and Planes; Derivative and integral of Vector functions; Curve length; Parametric plane; Contact surface; Vector Gradient; Extreme; Lagrange Multiplier; Multiple integration: two-layer integration, three-layer integration, techniques for calculating integration; Vector field, line integral, surface integral.

8. Subject name: Physics 1

Course code: PH013IU

Number of credits: 2 theories

Requirements: Prerequisite subjects: none

Previous subjects: no

Description of course content: Investigation of kinematics, dynamics, and energetics of the motion of points and solid objects.

9. Course name: Statistics for Business

Course code: BA080IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: Math 1, Math 2

Course content description: This course helps students cover most of the theories and applications of Statistics in Business and Economics

10. Subject name: General Law

Course code: PE021IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with general knowledge, basic concepts, principles, and main legal branches that serve the foundation of the Vietnamese legal system. Throughout the course, students will also be introduced to legal language; engage in critical thinking; and exposure to legal reasoning and problem-solving skills to develop students' abilities, applying them to real-life situations.

11. Subject name: Construction economics

Course code: PE020IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course aims to provide students with general knowledge of micro and macro economics including: market operating mechanism, supply and demand theory, market structure of the construction industry, macroeconomic goals, state policy tools, inflation. The impact of micro and macro economics on the construction industry is also covered in this subject.

12. Course name: Principles of Marketing

Course code: BA003IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The course is an introduction to the language and issues of marketing with a focus on learning how to develop marketing strategies that meet customer needs. The course focuses on basic marketing concepts, the role of marketing in organizations, and the role of marketing in society. Topics include market segmentation, product development, promotion, distribution, and pricing. Other topics, which will be included in the course, include the impact of the external environment (economic, political, governmental and natural), marketing research, marketing information. International/global marketing deals with cultural diversity, ethics, impact of technology on marketing.

13. Course name: Engineering Ethics and Critical Thinking

Course code: PE020IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description : This subject provides students with knowledge related to professional ethics. Students will study issues of human values, organizational values, social ethical trends, and professional ethics relevant to the decision making of an organization. Students will also be equipped with basic theories of ethics, social values, and the role of engineers in organizational and social behavior.

14. Subject name: Writing AE1

Course code: EN007IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none.

Previous subjects: no

Course content description: The course aims to improve writing skills at the pre-advanced level. The program focuses on building essays based on writing skills such as: making an outline, writing a thesis statement, connecting and arranging the order of paragraphs, words and connecting phrases to create coherence for the essay. literature. Genres include: describing people, objects, processes, presenting opinions, comparing and contrasting, cause - effect, stating problems - solutions, argumentative

15. Subject name: Listening AE1

Course code: EN008IU

Number of credits: 2 theories

Requirements: Prerequisite subjects: none.

Previous subjects: no

Course content description: Academic English listening, note-taking, and discussion skills will help students become familiar with the difficulties of learning English at university. Students will learn essential skills for international university students, including: actively listening to lectures, taking effective notes, and participating in discussions confidently. Along with listening skills, students will also improve their academic vocabulary.

16. Subject name: Writing AE2

Course code: EN011IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subject: English for major 1 (writing skills)

Course content description: The course aims to provide an overview of the structure of a research report, step by step helping students complete a specific article in their field. The content of the course includes: components of a report, skills in choosing and limiting topics, writing thesis statements, making outlines, finding and citing documents, taking notes, writing introductions, and

content, main and conclusion, writing and editing drafts. Students will practice on topics related to their subjects.

17. Subject name: Speaking AE2

Course code: EN012IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subject: English for major 1 (listening skills)

Course content description: The course provides students with practical strategies to use in presentations. In addition, students are helped to develop listening skills, comment and give feedback to other presentations in class.

18. Subject name: Engineering Mechanics and Mechanics of Materials

Course code: CE105IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Description of course content: Classification of force systems and combined forces; geometrical and analytical conditions for the balance of force systems, frames and trusses; friction, center of gravity, distributed load, moment of inertia, diagram of internal forces in beams.

19. Subject name: Construction Materials

Course code: CE210IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Engineering mechanics and material strength

Course content description: Basic concepts and properties of construction materials. Chemical, physical properties and mechanical and non-mechanical behavior of construction materials; Methods of design and distribution of materials for Portland cement concrete, mortar, aggregate, and asphalt concrete

20. Subject name: Computer Aided Design and Drafting

Course code: CE103IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: Principles of computer-aided design drawing; graphic entities, fill patterns, layers, file creation, and information extraction. 2D drafting and drawing using CADD system. Introduction to 3D simulation and surface rotation. CADD application in construction engineering.

21. Subject name: Computer Aided Design and Drafting Practice

Course code: CE104IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: Principles of computer-aided design drawing; graphic entities, fill patterns, layers, file creation, and information extraction. 2D drafting and drawing using CADD system. Introduction to 3D simulation and surface rotation. CADD application in construction engineering.

22. Subject name: Soil Mechanics and foundation

Course code: CE106IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Engineering mechanics and material strength

Course content description: The course provides students with knowledge about the mechanical characteristics of soil including: stress in soil; Compaction, consolidation and settlement properties; shear resistance; horizontal earth pressure; slope stability; and bearing capacity. The course also provides basic concepts of foundation analysis and design.

23. Course name: Structural Analysis 1

Course code: CE209IU

Number of credits: 2 theories

Requirements: Prerequisite subjects: none

Previous subject: Engineering mechanics and material strength

Course content description: Analysis of static structures such as trusses, frames, cables and arches. Calculate the deflection of the truss and flat frame. Influence lines of beams and trusses. Introduction to hyperstatic structures.

24. Course name: Reinforced Concrete 1

Course code: CE304IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Structural analysis 1

Course content description: Research on behavior and design of reinforced concrete structures according to the requirements of ACI Standards for beams, floors, columns, frames and foundations.

25. Course name: Steel Structures

Course code: CE305IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Structural analysis 1

Course content description: The course introduces the method of steel structure design based on the principle of load and bearing capacity factor design (LRFD). The course presents basic topics related to tension members, columns, beams, beam-column, and simple connections.

26. Subject name: Surveying

Course code: CE307IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Description of course content: Concept of topographic maps; Accuracy of map scale; How to represent terrain and terrain. Errors in surveying and measurement values. Tools and methods for measuring angles, lengths, and heights. Coordinate grid: Elevation grid; Correction method. Measuring, drawing and using maps and terrain sections: detailed measurement methods using electronic total stations. Project layout: Prepare data; Switch angles and lengths; Mark moving; Conversion of elevation and plane; Transfer the curve to the scene. Introduction to Remote Sensing and GPS geographic information system.

27. Course name: Introduction to Construction Management

Course code: CM205IU

Number of credits: 2 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The course provides students with basic knowledge of construction management. Coverage includes an introduction to the construction industry, basic functions of

construction management, scheduling techniques, cost estimating, contract management, equipment management, quality and productivity. productivity, and labor safety management...

28. Subject name: Construction Management Project

Course code: CM302IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subject: Introduction to construction management

Course content description: The course helps students apply basic knowledge of construction management. Coverage includes an introduction to the construction industry, basic functions of construction management, scheduling techniques, cost estimating, contract management, equipment management, quality and productivity. productivity, and labor safety management...

29. Course name: Quantitative method for business

Course code: BA168IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides the quantitative tools needed to analyze and model problems in decision making. The course includes many tools: game theory, risk analysis techniques, linear planning, goal planning, multi-criteria decision making techniques, hierarchical analysis, networks, ranking theory products and simulations.

30. Subject name: Human Resource Management

Course code: BA156IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The examination course mainly covers the theory and practice of human resource management. It aims to provide an overview of the HR department, both strategic and day-to-day, to enable the business to have the right people in place for smooth operations in the short and long term. The main topics of the research include: strategic human resource environment; human resources and organization; enhance motivation and performance; workforce compensation and rewards; and career management and work environment and labor relations. In general, the course presents students with standard human resources management procedures and some best practices for performing tasks effectively.

31. Course name: Operation Management in Construction

Course code: CM404IU

Number of credits: 3 theories

Requirements: Prerequisite subjects: none

Previous subjects: no

Course content description: The course is designed to provide students with knowledge related to the management and operation of construction projects. Students will understand construction site organization, plan contract signing, and conduct research on work norms. Students are also equipped with knowledge about labor safety, waste management, materials and warehousing, supply chain, and quality on construction sites.

32. Course name: Project Feasibility Study and Appraisal

Course code: CM308IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: Construction cost management, Construction planning and progress

Course content description: The course is designed to provide students with knowledge related to construction project planning

and appraisal. The requirements of an investment project include: analysis of needs, goals, scale, legality, financial and economic analysis techniques... introduced in this subject. Students are also equipped with tools and techniques including systems engineering, SWOT analysis, strategic analysis, risk... to appraise and evaluate the feasibility of construction projects.

33. Course name: Risk Management

Course code: BA171IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course is a study of the risk management process, focusing on insurance. The course provides learners with essential knowledge of key concepts and terms used particularly in the Insurance and Risk Management industry. Learners will learn methods and techniques that can be used to deal with different types of risks. Policies including Life Insurance and Property and Accident Insurance are analyzed. Learners will have a deeper understanding of Life Insurance, Health Insurance, Social Insurance, Property Insurance, Auto Insurance, etc. The course also covers Risk Management work and functions. their skills at the company, can create opportunities for some learners in choosing their future career.

34. Subject name: Construction project management (PMBOK extension))

Course code: CM311IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides general knowledge about construction project management including issues: integrated management, goal management, progress management, cost management , quality management, .. .

35. Course name: Construction Measurement and Cost Estimating

Course code: CM301IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: Construction materials, Reinforced concrete structures 1

Course content description: The course provides students with basic knowledge about measuring, calculating volumes and estimating costs of construction work. The quantities are used to estimate costs and develop contract documents and procurement and bidding plans.

36. Subject name: Construction Planning and Scheduling

Course code: CM303IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Quantity measurement and cost estimation.

Description of course content: The course is designed to provide students with knowledge related to progress management of construction projects. Progress management is one of the important issues of construction management. Students are provided with knowledge and applications of planning functions, scheduling techniques: horizontal diagrams, network schedules, PERT, etc. Students are also introduced to the applications and practice of the software. MS Project software.

37. Subject name: Construction Planning and Scheduling Project

Course code: CM402IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subjects: Quantity measurement and cost estimation, Construction planning and progress.

Course content description: The course is designed to help students apply knowledge related to progress management of construction projects learned in the subject Construction planning and progress.

38. Subject name: Construction Measurement and Cost Estimating Project

Course code: CM304IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subject: Quantity measurement and construction cost estimation

Course content description: The course helps students apply basic knowledge of measuring, calculating quantities and estimating costs of construction work that have been learned in the subject Quantity Measurement and Construction. Estimated construction costs. The quantities are used to estimate costs and develop contract documents and procurement and bidding plans.

39. Course name: Construction Cost Management

Course code: CM305IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Quantity measurement and cost estimation.

Course content description: The course is designed to provide students with knowledge related to cost management of construction projects. Manage implementation costs from the pre-bid, bidding, contract signing, and post-bid stages to ensure project budget according to the scale and quality of the project

40. Course name: Construction Procurement and Tendering

Course code: CM401IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The course is designed to provide students with knowledge related to bidding and procurement methods in construction projects. Students will master the advantages and disadvantages, processes and scope of application of different bidding and procurement methods. The process of preparing and conducting bidding and procurement is also introduced in the course.

41. Course name: Building Information Management

Course code: CM310IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with basic knowledge of the Construction Information Management System and its applications in the construction industry corresponding to each subject of activity (main topic). private sector, consulting, contractor, ...) in the construction industry .

42. Course name: Construction Jobsite Management

Course code: CM402IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with knowledge about the roles, responsibilities, and rights of parties involved in construction projects. Students will also study how to manage participants, materials and equipment, labor safety, waste, and the environment . Design, layout, and control of construction site premises are also the content of this subject .

43. Course name: Contract Management – FIDIC contracts

Course code: CM404IU

Number of credits: 3 theories

Requirements: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with knowledge about construction contract management, FIDIC contracts and related issues .

44. Subject name: Feasibility study and appraisal project

Course code: CM401IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subject: Establishing and appraising investment projects

Description of course content: The course is designed to help students apply the knowledge they have learned in the course Establishing and appraising investment projects to create an investment project including the following contents: needs, Objectives, scale, legal, technical, total investment, finance, economics, environment.

45. Subject name: Building Information Management Project

Course code: CM312IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subject: construction information management system

Course content description: The course is designed to provide necessary skills for students on how to build information models for a real project. Based on the knowledge and skills they have learned, students understand the applicability of BIM models in the construction industry.

46. Subject name: Artificial Intelligence in Civil Engineering and Construction Management

Course code: CE217IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: None

Course content description: The course is designed to help students understand how to apply artificial intelligence in construction techniques and construction management. Some typical problems of artificial intelligence applied in CE and CM are introduced including regression, classification, segmentation, anomaly detection in experimental data, monitoring data, etc.

47. Subject name: Value Engineering

Course code: CM403IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The course is designed to provide students with valuable technical knowledge. Value engineering is a process that identifies opportunities to eliminate unnecessary costs while still ensuring quality, reliability, productivity and other factors that customers expect.

48. Subject name: Construction Engineering

Course code: CM311IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Description of course content: The course introduces basic concepts of construction works, including earthworks, foundation construction, construction of wood structures, concrete, brick, stone and steel.

49. Subject name: Construction Project

Course code: CE403IU

Number of credits: 1 practice

Conditions: Prerequisite subjects: none

Previous subjects:

Course content description: The course is designed to help students apply the knowledge they have learned in Construction Engineering to create construction methods including design of formwork, columns, beams, floors, and construction. piles and set construction site progress .

50. Subject name: Leadership

Course code: BA098IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course Description: This course prepares students for leadership roles in their communities and professions. It will provide students with the knowledge, skills and requirements to become an effective leader. Students will understand the factors for successful leadership. Students will also grasp the theory and practical applications to succeed in both their personal and professional lives.

51. Course name: Project communication Management

Course code: CM405IU

Number of credits: 3 theories

Requirements: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with knowledge about project information management and project-related documents .

52. Course name : Construction quality management

Course code: CM406IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with theories on quality management and planning for quality assurance and quality control. Requirements and notes for ensuring and controlling construction quality are also mentioned in this subject .

53. Course name: Project Integration management

Course code: CM407IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with knowledge about integrated management throughout the project life cycle .

54. Course name: Construction financial management

Course code: CM408IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with general knowledge of project financial management including concepts of financial indicators, debt-to-equity ratio, equity ownership, assets, revenue, profits, etc. Students are also provided with management knowledge related to costs, cash flow and tools to support financial decision making .

55. Subject name: Business Communication

Course code: BA006IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with a comprehensive view of communication, its scope and importance in business and the role of communication in establishing favorable external environments. solid environment, as well as an effective internal communications program. Types of business media covered. This course also develops awareness of the importance of succinct written expression for modern business communication.

56. Course name: Fundamental of Financial Management

Course code: BA016IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: The purpose of this course is for students to access and become familiar with the theoretical frameworks and practical issues of financial management. Course content includes: introduction to financial management; time value of money; techniques for pricing financial instruments such as bonds and stocks; evaluate major projects; the relationship between risk and return; introduction to the Capital Asset Pricing Model (CAPM) and portfolio theory; and cost of capital and capital structure.

57. Course name: Quality Management

Course code: BA018IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course introduces quality management principles, focusing on cross-functional problem solving; provides a basic understanding of the philosophy,

conceptual framework and tools of Total Quality Management

58. Subject name: Advanced Artificial Intelligence in Civil Engineering and Construction Management

Course code: CE412IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Artificial Intelligence in Construction Engineering and Management

Course Description: This course provides students with advanced knowledge of machine learning (ML) and analytics tools along with their applications in engineering and construction management. The course will emphasize 1) traditional supervised algorithms such as support vector machines, 2) machine learning algorithms including bagging and boosting, 3) deep learning algorithms, 4) fundamentals of tools used for large-scale data processing and 5) tools used for processing ML algorithms.

59. Course name: Introduction to Business Administration

Course code: BA115IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: Course objective introduces students to the complex and multidimensional aspects of business. The subject helps students become familiar with the knowledge of core content: Marketing, management, human resources. The subject also aims to enhance students' understanding of international issues.

60. Subject name: Organizational Behavior

Course code: BA130IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description : This course examines theories and how they are applied and why organizations and businesses behave the way they do. In addition, the course analyzes the factors that cause specific behaviors in an organization, and presents related conceptual support diagrams to show how behaviors influence decision making and How effective is the organization? Key topics include: Individual and organizational dynamics, communication management, social systems and organizational culture, compensation, leadership and empowerment, attitudes and consequences, individual and group behavior, team building, change management, stress and stress reduction consulting.

61. Course name: Business Computing Skills

Course code: BA120IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course Description: This course aims to provide thorough instruction on various applications of computers, important accessories, networking principles. In addition, students will be introduced to the introductory skills, knowledge and attributes required to perform a range of routine tasks and procedures in an office using computers. Furthermore, this course is intended to provide participants requiring retraining in computerized applications for clerical occupations with an introduction to a minimum of one software package used in clerical room.

62. Course name: Financial Accounting

Subject code: BA005IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subjects: no

Course content description: This course provides students with basic principles of financial accounting systems and issues related to the management of corporate financial accounting systems .

63. Course name: Business Research Methods

Course code: BA161IU

Number of credits: 3 theories

Conditions: Prerequisite subjects: none

Previous subject: Business statistics

Course content description: This course covers important topics related to research methods. It introduces the entire research process, from formulating research questions to research design and ending with writing the report. The course content emphasizes two main approaches to research design: qualitative and quantitative, it also provides techniques for data collection methods, instrumentation and measurement design, and screening. , prepare and analyze data. The course also addresses ethical issues in research.

64. Course name: Internship

Course code: CM306IU

Number of credits: 3 practices

Conditions: Prerequisite subjects: none

Previous subjects: Construction planning and progress, Construction cost management

Course content description: Internships provide students with the opportunity to practically apply the knowledge gained during their studies. Students will intern at foreign construction companies, state enterprises or agencies, and private business sectors. Students work under the supervision of the internship unit and IU faculty. The role of the supervisor at the company is to supervise and advise students throughout the internship period. Supervisors and mentors will complete a performance evaluation form at the conclusion of the internship. Students will present their internship experiences

through weekly reports and one-on-one discussions.

65. Course name: Graduation Thesis

Course code: CM420IU

Number of credits: 10 practices

Conditions: Prerequisite subjects: none

Previous subjects: Accumulate at least 120 credits, Internship, Research Methods.

Course content description: In the thesis, students design construction methods, draft related documents including: bidding documents, technical instructions, contracts for foundation components, columns, beams, floors, total plan, etc. Students can also apply the knowledge they have learned to carry out research topics related to construction management.