Course Syllabus

1. **Course Title:** Construction Management And Safety
2. **Course Code:** CMSA330419
3. **Credit Units:** 3 (3/0/6) (3 units of theory/ 0 unit of practice/ 6 units of self-study)
   Duration: 15 weeks (3 hours of theory, 0 hours of practice, and 6 hours of self-study per week)
4. **Course Instructors**
   1/ MSc Nguyễn Thanh Tú
   2/ MSc Nguyễn Văn Khoa.
   3/ Dr. Hà Duy Khánh
5. **Course Requirements**
   Prerequisite courses: None
   Previous courses: Construction Technique (COTE340319)
   Parallel courses: None
6. **Course Description**
   After having learned construction method statements, students will be provided lectures on: construction management for project tasks; ways of scheduling: i.e., bar chart, linear scheduling method, and network diagram; design of the construction site's plan; organization of supply chains; and arrangement of temporary service and utilities. The students are also provided lessons related to safety issues in the construction site.
7. **Course Goals**

Goals	Goal Description	Programme ELOs
G1	Apply core fundamental knowledge related to construction site and use advanced fundamental knowledge of construction site to design the schedule in some methods; the plan of construction site; and to supply materials as well as to give plans about safety of construction site.	1.2, 1.3
G2	Identify, analyze and give solution for some of the problems in contruction site. Understand professional practice issues in construction site including professional and ethical responsibility.	2.1, 2.3, 2.4, 2.5
G3	Development of soft skills necessary to needs of study and profession	3.1, 3.2, 3.3
G4	Select appropriate models of construction engineering performance to meet desired needs within realistic constraints such as safety, economic, environmental, social, and sustainability	4.3.

8. Course Learning Outcomes (CLOs)

CLOs		CLO Description	Programme ELOs
G1	G1.1	Ability to build the schedule for a project in many methods: Bar chart, Linear Scheduling Method, Critical Path Method and build together with modify the resource graph.	1.3
	G1.2	Apply basis rules related to construction sites to design for a new construction site.	1.2
	G1.3	Design a plan to supply materials, equipment and facilities to construction site.	1.3
	G1.4	Comprehends basis safety rules of construction site.	1.2
G2	G2.1	Evaluating about reality of schedule of project	2.1
	G2.2	Evaluating about the method of building, places of areas in construction site.	2.3
	G2.3	Update new laws of governments in designing, planning, building the construction.	2.4
	G2.4	Perceive professional skills, responsibility, and ethics	2.5
G3	G3.1	Develop experience of collaborative group-working and presentational skills.	3.1, 3.2
	G3.2	Engage in reading and communicating in English	3.3
G4	G4.1	Ability select appropriate function of construction site to meet desired needs within realistic constraints such as economic, environmental, social, and sustainability	4.3

9. Learning Resources

- Textbooks:

1. FCE, Lecture notes
2. Thiết kế tổ chức thi công, Lê Văn Kiểm, 2006
3. Lý thuyết và hỏi đáp về tổ chức và lập tiến độ thi công, Ngô Quang Tường, 2008
4. Thiết kế Tổng mặt bằng Xây dựng, Trịnh Quốc Thắng, 2000, Nhà Xuất bản Xây dựng.
5. Kỹ Thuật và quản lí an toàn trong xây dựng, Lưu trường Văn – Lê Hoài Long, 2007.

- References:

1. Construction planning for Engineers, Griffis F. H., Farr J.V., Morris M. D., 2000, McGraw-Hill
2. Construction Jobsite Management, Mincks W. R. and Johnston H., 2004, Thomson
3. Construction Jobsite Management, Levy S.M., 2004, McGraw-Hill
4. Tổ chức và kế hoạch hóa sản xuất xây dựng, Nguyễn Đình Thám, 2002

10. Student Assessment

- Grading scale: **10**
- Assessment plan:

Type	Content	Timeline	Assessment method	CLOs	Rate (%)

Assigments					**30**
BT#1	Design and modify a bar chart, resource graph for a small project	Week 2	Contest	G1.1, G2.1.	10
BT#2	Design and calculate the network diagram	Week 6	Contest	G1.1, G2.1	10
BT#3	Design a plan to supply materials to construction site (sand, cement..)	Week 8	Contest	G1.3, G2.3	10
Report - Presentation					**20**
BT#4	A group of maximum 8 students chooses one: - Design a plan of construction site of a project together with evalutations. - Make presentation about safety.	Week 15	Report or Presentation	G1.2, G1.4 G4.1.	20
Final exam					**50**
BT#8	Content of the exam includes all the outcomes of the course. Duration: 60 minutes	Week 15	Multiple choice contest	G1.1, G1.2 G1.3, G1.4, G2.1, G2.2, G3.2, G4.1	70
Total					**100**

11. Course Content

Week	Content	CLOs
1	***Chapter 1:* Overview – Bar chart** *(3h,0h,06h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 1.1 Introduce the course's goals, CLOs, content, pedagogical and assessment methods 1.2 Overview and the importance of construction management. 1.3 Role, meanings of bar chart, how to calculate the number of workers and machine in the construction site. **Pedagogical methods**: + Presentation of lecturer	G1.1, G2.1, G3.2
	B/ Self-study content: *(6h)* Logical sequence in construction phase.	G1.1
2	***Chapter 1:* Overview – Bar chart** *(3h,0h,06h)*	

	A/ Content and pedagogical methods in class*: (3h)* **Content:** 1.4 Bar chart. 1.5 Resource graph. 1.6 Modify the resource graph. **In-class practice:** Present *BT#1* **Pedagogical methods**: + Presentation of lecturer	G1.1, G2.1, G3.2
	B/ Self-study content: *(6h)* + Excises bar chart and resource graph.	G1.1
3	***Chapter 2:*** **Linear Scheduling Method** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 2.1 Construction joint. 2.2 Definition of Linear scheduling method. **Pedagogical methods**: + Presentation of lecturer + Presenting linear schedule of a project.	G1.1, G2.1, G3.2
	B/ Self-study content: *(6h)* + Single linear scheduling method and technical linear scheduling method.	G1.1
4	***Chapter 2:*** **Linear Scheduling Method** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 2.4 Linear scheduling method. 2.5 Linear scheduling method of concrete industrial building **Pedagogical methods**: + Presentation of lecturer + Group discussion	G1.1, G2.1, G3.2
	B/ Self-study content: *(6h)* + Linear scheduling method of civil building and assembled steel building. + Change schedule of a project from Linear scheduling method to bar chart.	G1.1
5	***Chapter 3:*** **Network diagram** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 3.1 Concept. 3.2 Elements of network diagram. 3.3 Principles and Calculate the network diagram. **Pedagogical methods**: + Presentation of lecturer + Presenting network diagram of a project.	G1.1, G2.1, G3.2

	B/ Self-study content: *(6h)* + Program evaluation and review technique (pert) + Time-scaled network diagram	G1.1
6	***Chapter 3:*** **Network diagram** *(3h,0h,6h) (cont.)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 3.4 Modify the network diagram based on time 3.5 Modify the network diagram based resource. 3.5 Manage the construction process by using the network diagram. **In-class practice:** Present *BT#2* **Pedagogical methods**: + Presentation of lecturer	G1.1, G2.1, G3.2
	B/ Self-study content: *(6h)* + Modify the network diagram. + Chance schedule from the network diagram to bar chart.	G1.1
7	***Chapter 4:*** **Transportation and roads** *(3h,0h,6h) (cont.)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 4.1 Determinate the transported volumes on each route. 4.2 Types of transportation and road in construction. 4.3 The problem of transportation in supplying materials to construction site. **Pedagogical methods**: + Presentation of lecturer + Group discussion.	G1.3, G2.2, G2.3, G4.1
	B/ Self-study content: *(6h)* + Students do homework and evaluate, compare to choose the best solution related to schedule and cost.	G1.3
8	***Chapter 5:*** **Material supply and Warehouse** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 5.1 Role of supply department and the method to establish the graph of input- output material. 5.2 Calculate the area of warehouse. 5.3 Types and characteristics of warehouse. **In-class practice:** Present *BT#3* **Pedagogical methods**: + Presentation of lecturer	G1.2, G2.2, G2.3, G4.1.
	B/ Self-study content: *(6h)* + Students do homework about establishing a graph of input- output material of construction site with a small size.	G1.2

9	***Chapter 6:*** **Supplying electric and water for site** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 6.1 Calculate the mount of used water in construction site. 6.2 Water quality and water resources. 6.3 Design a temporary water supply. 6.4 Calculate the demand of electrical power. 6.5 Electricity power and layout on the site. **Pedagogical methods**: + Presentation of lecturer + Group discussion	G1.2, G2.2, G2.3, G4.1.
	B/ Self-study content: *(6h)* + Students do homework.	G1.2
10	***Chapter 7:*** **Tents and Temporary housing** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 7.1 Types of temporary housing. 7.2 Estimate the number of workers on construction site. 7.3 Components of tents and temporary housing. **Pedagogical methods**: + Presentation of lecturer	G1.2, G2.2, G2.3, G4.1.
	B/ Self-study content: *(6h)* + Students collect data about tents and temporary housing of a construction site: area, types of materials…	G1.2
11	***Chapter 8:*** **Site logistic plan** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 8.1 Rule to design site logistic plan and facilities of construction site. 8.2 Problems in transportation. 8.3 An example of site logistic plan **Pedagogical methods**: + Presentation of lecturer + Group discussion + Site-visiting/ presenting a site logistic plan of a project.	G1.2, G2.2, G2.3, G4.1.
	B/ Self-study content: *(6h)* + Students collect a site logistic plan of a project and analyze, give other solutions if necessary	G1.2
12	***Chapter 9:*** **Occupational safety and health** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 9.1 The meaning and benefits of occupational safety and health. 9.2 The purpose of occupational safety and health.	G1.4, G2.4, G3.1, G3.2

	9.3 The content of occupational safety and health. 9.4 The rights and obligations of employers in the implementation of occupational safety and health. 9.5 The rights and obligations of employees in the implementation of occupational safety and health. 9.6 Occupational safety and health code and procedure according to the Vietnam legal system (concept) **Pedagogical methods**: + Presentation of lecturer + Group discussion + Presenting video clips	
	B/ Self-study content: *(6h)* + 9.7 Responsibilities of the government agencies in occupational safety and health + 9.8 The role of labor unions in occupational safety and health. + 9.9 The code and procedure of occupational safety and health. + 9.10 Occupational safety and health code and procedure according to the Vietnam legal system. + 9.11 The compensation of labors who have suffered occupational accidents or occupational diseases. + 9.12 The situation of occupational safety and health in the construction sector in Vietnam recently.	G1.4, G3.2
13	***Chapter 10:*** **Occupational safety** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 10.1 Occupational safety in construction design phase. 10.2 Electricity safety. 10.3 Lightning safety. 10.4 Safety engineering in high working places **Pedagogical methods**: + Presentation of lecturer + Group discussion + Presenting video clips.	G1.4, G2.4, G3.1, G3.2
	B/ Self-study content: *(6h)* + Safety engineering in using machines: crane, truck… + Safety engineering in operating high pressured machines.	G1.4, G3.2
14	***Chapter 10:*** **Occupational safety** *(3h,0h,6h) (cont.)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 10.5 Safety engineering in doing excavations 10.6 Fire safety. 10.7 Personal protection equipment. **Pedagogical methods**: + Presentation of lecturer	G1.4, G2.4, G3.1, G3.2

	+ Group discussion + Presenting video clips	
	B/ Self-study content: *(6h)* + The situation of occupational safety in the construction site sector in Vietnam recently	G1.4, G3.2
15	***Chapter 12:*** **Some issues in preventing accidents and ensuring safety** *(3h,0h,6h)*	
	A/ Content and pedagogical methods in class*: (3h)* **Content:** 12.1 The human factors and safety issues. 12.2 Who is responsible for safety issues. 12.3 Costs for safety work. 12.4 Safety Training. 12.5 Collect accidental data. 12.6 Safety Program. 12.7 The responsibility of companies. 12.8 Safety Program for projects **Pedagogical methods**: + Presentation of lecturer. + Group discussion. + Presentation of groups of students	G1.4, G2.4, G3.1, G3.2
	B/ Self-study content: *(6h)* 12.9 Components of a effective safety program. 12.10 Safety standards. 12:11 Analysis danger situations. 12.12 Performance Evaluation of safety. 12.13 Accident report. 12.14 Accident investigation	G1.4, G3.2

12. Learning Ethics

Students must do homework by themselves. If plagiarism is found students will get zero point.

13. Date of first approval: August 1st, 2012

14. Approved by

Dean	Head of Department	Instructor
A/Prof. Dr. Nguyễn Trung Kiên	**MSc. Nguyễn Văn Khoa**	**MSc. Nguyễn Thanh Tú**

15. Date and Up-to-date content

1st time: Date:	Instructor: Head of Department: