Course Syllabus

1. **Course Title:** Reinforced Concrete Structure Project
2. **Course Code:** RCSP211017
3. **Credit Units:** 1 (1/0/2) (1 unit of theory/ 0 unit of practice/ 2 units of self-study)
   Duration: 15 weeks
4. **Course Instructors:**
   1/ MSc. Đoàn Ngọc Tịnh Nghiêm,
   2/ Assoc. Prof. Nguyễn Trung Kiên,
   3/ Dr. Phan Đức Hùng,
   4/ Dr. Châu Đình Thành,
   5/ MSc. Nguyễn Văn Hậu,
   6/ Dr. Lê Trung Kiên,
   7/ Dr. Lê Anh Thắng,
   8/ Dr. Ngô Việt Dũng,
   9/ Dr. Phạm Đức Thiện,
   10/ MSc. Nguyễn Ngọc Dương,
   11/ MSc. Trịnh Công Luận,
   12/ MSc. Nguyễn Thế Trường Phong.
5. **Course Requirements**
   Prerequisite: Not required
   Previous courses: Reinforced Concrete Structure (RCST240617)
   Parallel courses: Not required
6. **Course Description**

   This is one of applied courses belonging to reinforced concrete structures' courses. The project aims to help learner to be familiar with designing real structural components made of reinforced concrete. The project also reviews professional knowledge related to reinforced concrete structures. Besides, the project helps learners to develop and improve skills in analyzing and choosing appropriate structural design.

7. **Course Goals**

Goals	Goal description	Programme ELOs
G1	Professional knowledge related to real design of reinforced concrete structural components, such as: one-way slabs, joists, girders,…	1.3
G2	Ability to analyse, explain and solve technical problems in design of reinforced concrete structural components	2.1, 2.3, 2.4
G3	Drawing and writing skills, ability to read and write specialized	3.2, 3.3

	English	
G4	Ability to calculate and design reinforced concrete structures	4.4

8. Course Learning Outcomes (CLOs)

CLOs		CLO Description	Programme ELOs
G1	**G1.1**	Analyze reinforced concrete structural components	1.3
G2	**G2.1**	Solve reinforced concrete structural components	2.1
	G2.2	Design's results are realistic and economic	2.3
	G2.3	Demonstrate an ability to self-study design standards	2.4
G3	**G3.1**	Report writing and drawings are presented in standard format and logically	3.2
	G3.2	Demonstrate the ability to read and write specialized English	3.3
G4	**G4.1**	Design a reinforced concrete floor of a building, including the slab, joists and girders	4.4

9. Learning Resources

1. Assoc. Prof. Nguyễn Văn Hiệp, Reinforced Concrete Structure Project Guide Book (Monolithic Joist Slab), Vietnam National University – HCMC Publishing House, 2007 (in Vietnamese)
2. Assoc. Prof. Nguyễn Hữu Lộc, Using AutoCAD 2007, General Publishing House, 2007 (in Vietnamese)
3. Phan Quang Minh, Ngô Thế Phong, Nguyễn Đình Cống, Reinforced Concrete Structure, Part I, Science and Technics Publishing House, 2006 (in Vietnamese)
4. Nguyễn Đình Cống, Practical Calculation of Reinforced Concrete Structures according to TCXDVN 356:2005 Code, Part I, Construction Publishing House, 2008 (in Vietnamese)
5. Bộ xây dựng, TCVN 5574:2012, Reinforced Concrete Structure – Design Code, Construction Publishing House, 2012 (in Vietnamese)

10. Student Assessment

- Grading scale: **10**
- All assessment are based on rubrics and the final score of a student includes:
  - 50% score given by the instructor
  - 50% score given by reviewer
- Planning for students assessment is followed:

Assessment Type	Content	Timeline	Assessment techniques	ELOs	Rate (%)
Instructor's Assessment					**50**
	- Covers all contents delivered in the CELOs		Report and drawings	G1.1, G2.1, G2.2, G2.3, G3.1,	

				G3.2, G4.1	
Reviewer's Assessment					**50**
	- Covers all important contents delivered in the CELOs		Oral interview	G1.1, G2.1, G2.2, G2.3, G3.1, G3.2, G4.1	

11. Course Content

Week	Content	CLOs
1	***Chapter 1: Introduction (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 1.1 Course objectives 1.2 General introductions 1.3 Problem and requirements **Pedagogical methods**: + Lecture + Guide + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Draw the structural floor plan according to assigned design data	G3.2, G4.1
2	***Chapter 1: Introduction (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 1.4 Preliminary dimensions of components 1.5 Principles of calculation and design **Pedagogical methods**: + Lecture + Guide + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Study the related theory of calculation and design	G2.2
3	***Chapter 2: Design an one-way slab (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 2.1 Loads 2.2 Calculation scheme **Pedagogical methods**:	G1.1, G4.1

Week	Content	CLOs
	+ Guide design procedures + Discuss	
	***B/* Self-study content**: *(2)* + Determine the internal forces of joist slab	G2.1
4	***Chapter 2: Design an one-way slab (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 2.3 Calculate the reinforcing steel 2.4 Design the slab reinforcement 2.5 Report **Pedagogical methods**: + Guide design procedures + Discuss	G1.1
	***B/* Self-study content**: *(2)* + Calculate and design the slab reinforcing steel + Write report	G2.1, G2.2, G3.1
5	***Chapter 2: Design an one-way slab (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 2.6 Detailed drawing of reinforcing steel for slab **Pedagogical methods**: + Guide design procedures + Discuss	G1.1, G1.2
	***B/* Self-study content**: *(2)* + Draw floor reinforcing steel	G3.2, G4.1
6	***Chapter 3: Design joists (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 3.1 Loads 3.2 Calculation scheme 3.3 Resultant bending moments diagram 3.4 Resultant shears diagram **Pedagogical methods**: + Guide design procedures + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Determine internal forces of joist	G2.1
7	***Chapter 3: Design joists (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:**	G1.1

Week	Content	CLOs
	3.5 Calculate reinforcing steel 3.6 Design the reinforcement of joist 3.7 Calculate loads capacity of designed joist 3.8 Report **Pedagogical methods**: + Guide design procedures + Discuss	
	***B/* Self-study content**: *(2)* + Calculate and design the reinforcing steel of joist + Calculate loads capacity of designed joist + Write report	G2.1, G2.2
8	***Chapter 3: Design joists (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 3.9 Cutting-off of longitudinal steel 3.10 Resultant diagram of materials for joist 3.11 Report **Pedagogical methods**: + Guide design procedures + Discuss	G1.1
	***B/* Self-study content**: *(2)* + Calculate the resultant diagram of materials for joist + Report	G2.1, G3.1
9	***Chapter 3: Design joists (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 3.12 Detailed drawing of reinforcing steel for joist **Pedagogical methods**: + Guide design procedures + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Draw joist reinforcing steel	G3.2, G4.1
10	***Chapter 4: Design girders (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 4.1 Loads 4.2 Calculation scheme 4.3 Internal force combinations 4.4 Resultant bending moments diagram 4.5 Resultant shears diagram **Pedagogical methods**:	G1.1, G2.1

Week	Content	CLOs
	+ Guide design procedures + Discuss	
	***B/* Self-study content**: *(2)* + Determine girder internal forces	G2.1
11	***Chapter 4: Design girders (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 4.6 Calculate reinforcing steel 4.7 Design the reinforcement of girder 4.8 Calculate loads capacity of designed girder 4.9 Report **Pedagogical methods**: + Guide design procedures + Discuss	G1.1
	***B/* Self-study content**: *(2)* + Calculate and design the reinforcing steel of girder + Calculate loads capacity of designed girder + Write report	G2.1, G2.2
12	***Chapter 4: Design girders (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 4.10 Cutting-off and inclining of longitudinal steel 4.11 Resultant diagram of materials for girder 4.12 Report **Pedagogical methods**: + Guide design procedures + Discuss	G1.1
	***B/* Self-study content**: *(2)* + Calculate the resultant diagram of materials for girder + Write report	G2.1, G3.1
13	***Chapter 4: Design girders (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 4.13 Detailed drawing of reinforcing steel for girder **Pedagogical methods**: + Guide design procedures + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Draw girder reinforcing steel	G3.2, G4.1
14	***Chapter 5: Statistics (1/0/2)***	

Week	Content	CLOs
	A/* Content and pedagogical methods: (1)* **Content:** 5.1 Statistics of reinforcing steel 5.2 Synthesis of reinforcing steel **Pedagogical methods**: + Guide + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Report of statistics and synthesis of reinforcing steel	G2.1
15	***Chapter 6: Final report and drawings (1/0/2)***	
	A/* Content and pedagogical methods: (1)* **Content:** 6.1 Project drawing standard 6.2 Final report **Pedagogical methods**: + Guide + Discuss	G1.1, G4.1
	***B/* Self-study content**: *(2)* + Final project drawings + Final report	G3.2, G4.1

12. Learning Ethics

Calculations, report and drawings must be done by the students themselves with design's data assigned. Plagiarism found will get zero point.

13. Date of first approval:

14. Approved by:

Dean	Head of Department	Instructor
A/Prof. Dr. Nguyễn Trung Kiên	MSc. Nguyễn Văn Hậu	MSc. Nguyễn Văn Hậu

15. Date and Up-to-date content

1st time: - Rubrics (27/5/2016). - Assessment: 50% (instructor)+50%(reviewer) (01/02/2016).	Instructor: Head of Department: