

COURSE SPECIFICATION

1. COURSE IDENTIFICATION

1.1	Course title: Code: CENG5204	STEEL STRUCTURES 2
1.2	Faculty:	Faculty of Civil Engineering
1.3	Credits:	02 (1 Theory, 1 Practice)
1.4	Pre-requisites: Material 1 &2, Structural Mechanics	Steel Structures 1, Strength of
1.5	Self-study:	8 hours/week

2. COURSE DESCRIPTION

This course introduces the basic principles and calculated methods of one-story steel industry buildings with crane. Introducing to large-span buildings, steel high-rise buildings.

3. LEARNING OUTCOMES

3.1 General objectives

Details of one-story steel industry buildings with crane.
Loads and effects on one-story steel industry buildings with crane.
Formulations, methods, and load combinations.
Understand steel structures of large-span buildings, high-rise buildings

3.2 Specific objectives

3.1.1. *Knowledge*

Understanding the details of one-story steel industry buildings with crane;
Calculating the loads and effects, load combinations.

3.1.2. *Skill*

Selecting the structures of one-story steel industry buildings with crane;
Calculating the loads and effects, load combinations;
Analyzing the structures;
Design of beams, columns, roof, purlins, connections, ..., of the buildings.

3.1.3. *Interpersonal Skill and Responsibility*

Student will take the responsibility to solve given assignments on their own and submit the solution on time;
Read more books, put many questions at class for discussion.

4. COURSE CONTENT

No.	Topics	Content	Class Hours				References
			Total	Theory	Assignment	Experiment	
1	Syllabus Chapter 1: Introduction about Steel Industry Buildings	Introducing this course 1.1 Introduction of steel structures of industry buildings 1.2 Truts system of the building	4.5	4.5			[1], [2], [3], [7]
2	Chapter 2: Design of one-story one-bay 2D Steel Frames with Hollow Columns	2.1 Main details of frames 2.2 Effects and loads 2.3 Solving the internal forces using finite element methods 2.4 Load combinations 2.5 Column design 2.6 Truss design Main homework	18.0	9.0	4.5	4.5	[2], [4]
3	Chapter 3: Design of Pre-Engineering Buildings	3.1 Introduce to pre-engineering buildings 3.2 Structural details of pre-engineering buildings 3.3 Loads and effects 3.4 Solving the internal forces using finite element methods 3.5 Stability of steel frames 3.6 Structural design	9.0	4.5	4.5		[3], [4]
4	Chapter 4: Steel Structures of Large-Span Buildings	4.1 Scope and feature 4.2 Planar large-span structures 4.3 Space large-span structures 4.4 Roof structures	4.5	4.5			[1], [6]
5	Chapter 5: Steel Structures of High-Rise Buildings	5.1 Introduce 5.2 Structural system of high-rise buildings 5.3 Basic principles in design 5.4 Load and effects	4.5	4.5			[1], [6]

No.	Topics	Content	Class Hours				References
			Total	Theory	Assignment	Experiment	
		5.5 Design of high-rise buildings 5.6 Fabrication of elements 5.7. Details of connections					
	Review		4.5				[1], [2], [3], [4]

5. REFERENCES

- Textbook:

- [1] Nguyễn Quang Viên (chủ biên), *Kết cấu thép Nhà dân dụng và Công nghiệp*, NXB Khoa học và Kỹ thuật, 2013.
- [2] Ngô Vi Long, *Hướng dẫn Đồ án môn học Kết cấu thép Khung nhà công nghiệp một tầng*, NXB Đại học Quốc gia Tp.HCM, 2011.
- [3] Trần Thị Thôn, *Design of Steel Pre-Engineering Buildings (Based on AISC-2005/ ASD & LRFD)*, NXB Đại học Quốc gia Tp.HCM, 2009.

- Recommended References:

- [4] TCVN 2737:1995, *Tải trọng và tác động – Tiêu chuẩn thiết kế*.
- [5] Ronald D. Ziemian, *Guide to Stability Design Criteria for Metal Structures 6th Edition*, Hoboken, New Jersey: John Wiley & Sons, 2010.
- [6] Bungale S. Taranath, *Tall Building Design: Steel, Concrete, and Composite Systems 1st Edition*, Boca Raton, Florida: CRC Press/Taylor & Francis Group, 2017.
- [7] <https://www.zamilsteel.com>.

6. ASSESSMENT

No	Assessment task	Proportion	Remarks
01	Midterm Exam	50%	
02	Final Exam	50%	

7. SCHEDULE: 4.5 hours/session

No.	Day	Content	Remarks
1	Day 1	Syllabus Chapter 1: Introduction about Steel Industry Buildings	

No.	Day	Content	Remarks
2	Day 2	Chapter 2: Design of one-story one-bay 2D Steel Frames with Hollow Columns	
3	Day 3	2.1 Main details of frames	
4	Day 4	2.2 Effects and loads	
5	Day 5	2.3 Solving the internal forces using finite element methods	
		2.4 Load combinations	
		2.5 Column design	
		2.6 Truss design	
		Main homework	
6	Day 6	Chapter 3: Design of Pre-Engineering Buildings	
		3.1 Introduce to pre-engineering buildings	
		3.2 Structural details of pre-engineering buildings	
		3.3 Loads and effects	
7	Day 7	3.4 Solving the internal forces using finite element methods	
		3.5 Stability of steel frames	
		3.6 Structural design	
8	Day 8	Chapter 4: Steel Structures of Large-Span Buildings	
9	Day 9	Chapter 5: Steel Structures of High-Rise Buildings	
10	Day 10	Review	