結構學（一）
STRUCTURAL THEORY(1)

基本素養 Basic Literacy

☐ 人文素養
Spirit of Humanism

☐ 公民素養
Civic Concern

■ 工程倫理
Engineering Ethics

☐ 環境與社會關懷
Environmental and Social Caring

☐ 國際視野
Global vision

核心能力 Competence

■ 運用數學、科學及工程知識的能力。
The ability to apply the knowledge of mathematics, science and technology.

☐ 設計與執行實驗，以及分析與解釋數據的能力。
The abilities to design and implement experiments, as well as to analyze and interpret data.

■ 執行水利及海洋工程實務所需技術、法規及使用工具之能力。
Possessing the skills, rules and tools to execute hydraulic and ocean engineering operation.

■ 水利及海洋工程系統設計、施工與維護管理之能力。
The skills to design, construct, maintain and manage Hydraulic and Ocean systems.

☐ 有效溝通與團隊合作的能力。
The abilities of project management, effective communication and team work.

■ 發掘、分析及處理問題的能力。
The abilities to search, analyze and solve problems.

開課系所 Department/Institute: 水利系 Hydraulic and Ocean Engineering
開課教師 Instructor: 莊士賢 Chuang, Zsu-Hsin Laurence
開課學年 Academic Year: 0107
開課學期 Semester: 2
開課序號 Serial Number: 059
課程屬性碼Course No (Attribute Code): HOE 2003
課程系統碼Course System Number: E820620
分班碼 Class Code:
學分數 No. of Credits: 3
課程語言 Medium of Instruction: 中文 Chinese

課程網址 Course Website:

http://moodle.ncku.edu.tw/

先修課程或先備能力 Prerequisite Course(s):

工程力學

教師聯絡資訊 Contact with Teacher

062757575-63281
zsuhsin@mail.ncku.edu.tw

助教資訊 Contact with Tutor

☐ 認識時事議題，瞭解工程技術對人，環境、社會及全球的影響，並培養持續學習的習慣與能力。

Be aware of current global issues, understand how engineering technology influences the environment, community and the world, as well as develop self-learning habits and abilities.

☐ 理解專業倫理及社會責任。

Understanding professional ethics and social responsibility.

課程概述 Course Description

工程結構物、靜力學及材料力學之觀念、結構物之穩定及靜定問題、靜定梁及剛架靜定桁架、靜定結構之影響線、移動荷重最大應力、結構物之彈性變形：共軛梁法、單位虛載重法、卡氏定理、超靜定桁架：變形一致法、最小功法，超靜定剛架：變形一致法、最小功法、傾角變位法、變矩分配法。

課程學習目標 Course Objectives

- 建立結構靜定度與穩定度之判別能力
- 建立靜定穩定結構之靜力分析能力
- 建立靜定穩定結構影響線之繪製與應用能力
- 具備結構能量原理之學識能力

課程進度 Course Outline

週次 Week	進度說明 Progress Description
1	Introduction (Ch. 1.1 & 1.2)
2	Introduction (Ch. 1.3)
3	Introduction (Ch. 1.4)
4	Analysis of statically determinate structures (Quiz & Ch. 2.1)
5	Analysis of statically determinate structures (Ch. 2.2 & 2.3)
6	Analysis of statically determinate structures (Ch. 2.4 ~ 2.6)
7	Analysis of statically determinate trusses (Quiz & Ch. 3.1)

學習規範 Course Policy

1. 上課須簽到

2.上課勿進食

3.考試時間內不得上廁所

評量方式 Grading

方法	百分比%
出席 Participation	10
平時測驗 Quizzes	30
期中考 Midterm Exam	30
期末考 Term exam	30

教學方法 Teaching Strategies

方法	百分比%
講授 Lecture	70
實作 Workshop	20
討論 Discussion	10

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課程教材 Course Material

Structural Analysis 9th Edition in SI units by Hibbeler, R.C.

參考書目 References

備註 Remarks

8	Analysis of statically determinate trusses (Ch. 3.1 & 3.2)
9	Analysis of statically determinate trusses (Ch. 3.3 ~ 3.5)
10	Analysis of statically determinate trusses (Ch. 3.6 ~ 3.8)
11	Mid-term exam. & Discussion
12	Internally loadings developed in structural members (Ch. 4.1 ~ 4.2)
13	Internally loadings developed in structural members (Ch. 4.3)
14	Internally loadings developed in structural members (Ch. 4.4 ~ 4.5)
15	Influence lines for statically determinate structures (Quiz, Ch. 6.1 & 6.2)
16	Influence lines for statically determinate structures (Ch. 6.3 & 6.4)
17	Influence lines for statically determinate structures (Ch. 6.5 & 6.7)
18	Final Exam.

以上每週進度教師可依上課情況做適度調整。The schedule may be subject to change.

課程是否與永續發展目標相關調查 Survey of the conntent relevant to SDGs

本課程與SDGs相關項目如下：

This course is relevant to these items of SDGs as following:

- 工業、創新與基礎建設 (Industry Innovation and infrastructure)

有關課程其他調查 Other Surveys of Courses

1.本課程是否規劃業界教師參與教學或演講?

Is there any industry specialist invited in this course? How many times?

2.本課程是否規劃含校外實習(並非參訪)? 否

Are there any internships involved in the course?

How many hours? No

3.本課程是否可歸認為學術倫理課程? 否

Is this course recognized as an academic ethics course? In the course how many hours are regarding academic ethics topics? No