



結構學（一） STRUCTURAL THEORY(1)

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: 0106

開課學期 Semester: 1

開課序號 Serial Number: 109

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

課程網址 Course Website:

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

zsusin@mail.ncku.edu.tw

助教資訊 Contact with Tutor

學習規範 Course Policy

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

討論 Discussion	10
實作 Workshop	20

※請遵守智慧財產權觀念 不得非法影印

Please follow the Intellectual Property instruction and No illegal copy

課程教材 Course Material

Structural Analysis by Hibbeler, R.C.

參考書目 References

備註 Remarks

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.
- ☐ 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 & 1.4)
3	Analysis of statically determinate structures (Quiz, Ch. 2.1 & 2.2)
4	Analysis of statically determinate structures (Ch. 2.3 & 2.4)
5	Analysis of statically determinate structures (Ch. 2.4 & 2.5)
6	Analysis of statically determinate trusses (Quiz, Ch. 3.1 & 3.2)
7	Analysis of statically determinate trusses (Ch. 3.3 ~ 3.5)
8	Analysis of statically determinate trusses (Ch. 3.6 ~ 3.8)
9	Mid-term exam. & Discussion
10	Internally loadings developed in structural members (Ch. 4.1 ~ 4.3)
11	Internally loadings developed in structural members (Ch. 4.3 ~ 4.5)
12	Influence lines for statically determinate structures (Quiz, Ch. 6.1 & 6.3)
13	Influence lines for statically determinate structures (Ch. 6.4 & 6.7)
14	Approximate analysis of statically indeterminate structures(Quiz, Ch.7.1 & 7.2)
15	Approximate analysis of statically indeterminate structures(Ch.7.3 & 7.5)
16	Approximate analysis of statically indeterminate structures(Ch.7.5 & 7.7)
17	Revision
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.

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? 否
Is there any industry specialist invited in this course? How many times? No
- 2.本課程是否規劃內含校外實習 (並非參訪)? 否
Is there any in (out of) school practicum involved in this course? How many hours? No