



結構學（一）

STRUCTURAL THEORY(1)

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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: 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 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

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%
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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

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