

E444600 地質資源探勘與開發原理

Principal of Geo-Resources Exploration and Exploitation

Course Overview: Provide basic physical and mathematical knowledge of geo-resources exploration and exploitation. The content includes Introduction, Examples of application, Fluid mechanics, Partial differential equation, Numerical method, Multivariate analysis, Solid mechanics, Statistical analysis, Groundwater flow, Well hydraulics, Solute transport.

Department: Resources Engineering

Lecture: Monday 9:10-11:00, Wednesday 9:10–10:00, RE4353

Instructor: Kuo-chin Hsu 徐國錦, RE43403, 06-2757575 ext 62837, kchsu@mail.ncku.edu.tw

Office hour: Monday 15:00-17:00.

Textbook:

R. C. Hibbeler, Mechanics of Materials, 10th edition (Taiwan adapted version), Pearson, 2017, ISBN 978-986-280-374-5

Young, Munson, Okiishim and Huebschmm, Introduction to Fluid Mechanics, Wiley, 2012

R. A. Freeze and J. A. Cherry, Groundwater, Prentice-Hall, Inc., 1979.

Jiao, J., and V. Post, Coastal Hydrogeology, Cambridge University Press, 2019.

Cheng, A. H.-D., Poroelasticity, Springer, 2016

Class material and homework submission: MOODLE system

Supplement material: 序率地下水文研究室

<https://sites.google.com/view/kchsu-lab/%E9%A6%96%E9%A0%81%E4%B8%AD%E6%96%87%E7%89%88?authuser=0>



Date of Examine:

- . 1st examine Mon. 6th week (2023/3/20)
- . 2nd examine Mon. 13th week (2023/5/8)
- . 3rd examine Mon. 18th week (2023/6/12)

Assignments of Grades:

The highest scoring examine (1, 2, or 3) will be 40% of the final grade, and the two lowest

scoring midterms will each be 20% of the final grade.

Class attendance, quiz, homework and programming, 10%

Final group Report, 10%

General outline :

Week	Dates	Monday	Wednesday	Note
1	2/12-2/18	0 課程介紹 1 資源、環境、文明	1 資源、環境、文明	
2	2/19-2/25	2-0 地質資源工程案例	2-0 地質資源工程案例	
3	2/26-3/4	Holiday	2-0 地質資源工程案例	
4	3/5-3/11	3-1 基礎流體力學	3-3 流體動力學	
5	3/12-3/18	3-3 流體動力學	3-3 流體動力學	
6	3/19-3/25	First examine	5-1 線性代數與 ODE	
7	3/26-4/1	5-1 線性代數與 ODE	5-3 擴散微分方程	
8	4/2-4/8	Holiday	Holiday	
9	4/9-4/15	5-3 擴散微分方程	6.有限差分	
10	4/16-4/22	6.有限差分	9.固體力學	
11	4/23-4/29	8.多變量分析	2-7 應用範例	
12	4/30-5/6	10-1 孔彈性力學	10-1 孔彈性力學	
13	5/7-5/13	Second examine	10-1 孔彈性力學	
14	5/14-5/20	10 地質力學	10-2 水力開裂	
15	5/21-5/27	12 水文地質	文獻報告	
16	5/28-6/3	12 水文地質	13-1 水井力學	
17	6/4-6/10	14-1 地下污染傳輸	14-1 地下污染傳輸	
18	6/11-6/17	Third examine		