



# *National Chiayi University*

## **Department of Civil and Water Resources Engineering**



Introduction by Ching-Tien Chen

# Department of Civil and Water Resources Engineering at NCYU

- **faculty members: 11**

  - Professor: 4

  - Associate Professor: 3

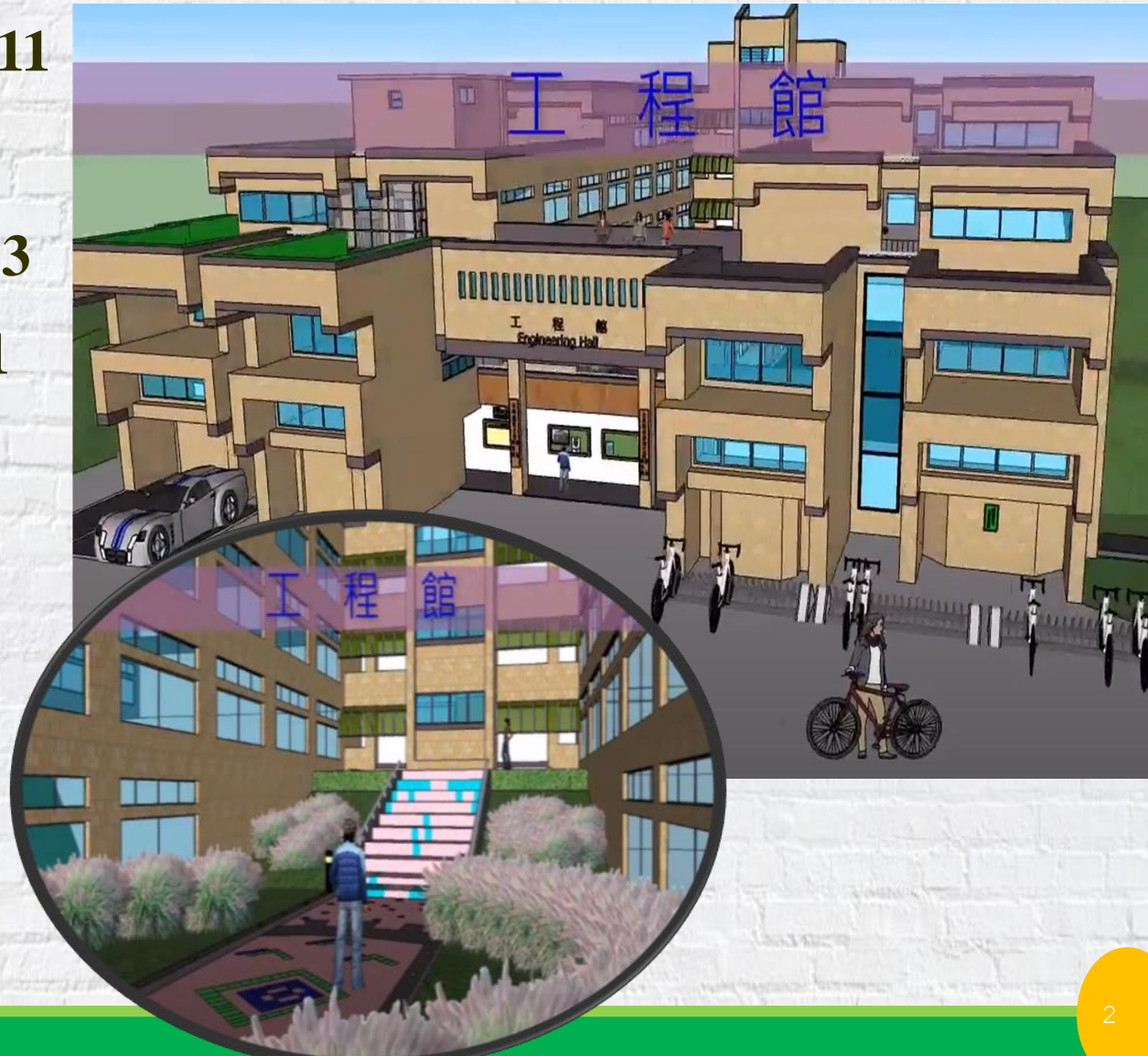
  - Assistant Professor: 1

  - Instructor: 3

- **Students: 338**

  - under: 303

  - master: 35



# Facilities & Instruments



Engineering Pavilion



Hydraulic and Engineering  
Materials Testing  
Laboratories



Computer Classroom



Audiovisual Classroom



Survey storeroom measuring  
instrument storage



Fluid Mechanics Lab.

# Facilities & Instruments



Soil Mechanics Lab.



Universal testing machine



Concrete compressive strength machine



Consolidation test



Eddy current test



Venturi tube test



Orifice test



Surveying Practice(Total station)

陳清田 副教授 Associate Professor

Ching-Tien Chen, Ph.D.

Research Area: Irrigation and Drainage/Water Resources  
Planning and Management

Tel: 886-271-7713, E-mail: [ctchen@mail.ncyu.edu.tw](mailto:ctchen@mail.ncyu.edu.tw)

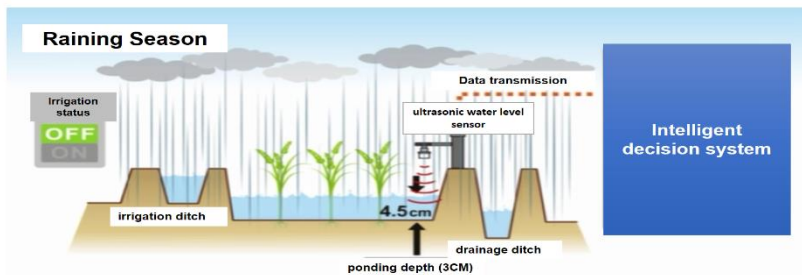


## Research Interests

1. The limit boundaries of water management practice in paddy field
2. Study on Irrigation Water Allocation in Paddy Field during the water-shortage Environment.
3. Improvement of Irrigation Project in Taiwan
4. Study on Rice Yield and Water Saving Efficiency for Irrigation Management Practice
5. Smart Irrigation

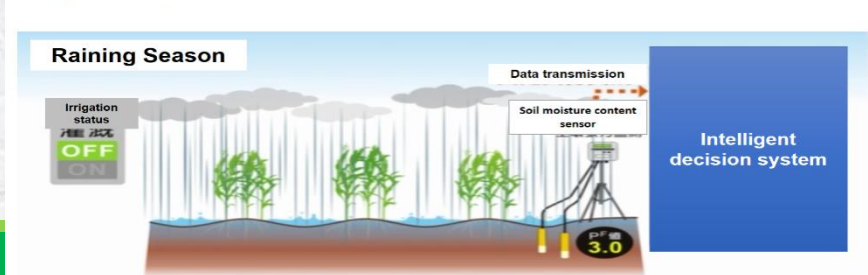
The concept of the irrigation system

• Paddy field



The concept of the irrigation system

• Upland Crop





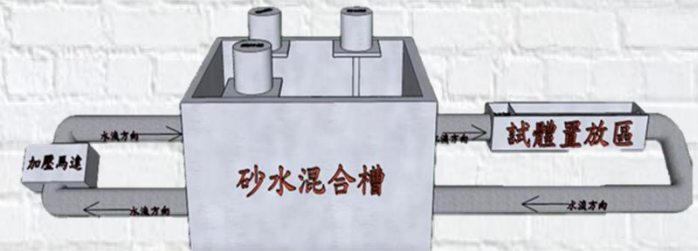
劉玉雯 教授 Professor Yu-Wen Liu, PhD.

**Research Area:** Green Concrete and Structure

Tel: 886-5-2717716, E-mail: [yuwen@mail.ncyu.edu.tw](mailto:yuwen@mail.ncyu.edu.tw)

## Research Interests

- New material development and application
- Cement Composite Material
- Reinforced Concrete Engineering



- Fiber-Reinforced Concrete Sluice Gates



- Mass Concrete Engineering



- Wear-Resistant Materials for Hydraulic Structures



陳建元 教授 Professor  
Chien-Yuan Chen, Ph.D.

**Research Area:** Earth-rock flow disaster prevention/  
Soil-structure interaction simulation/ Simulation of slope disaster  
situation/

**Tel:** 886-271-7686

**E-mail:** [chienyuc@mail.ncyu.edu.tw](mailto:chienyuc@mail.ncyu.edu.tw)

## Research Interests:

1. Large-scale collapse and sliding
2. Shallow avalanche rainfall warning reference and inspection and monitoring technology
3. Simulation Analysis of Soil Interaction Behavior
4. Climate and earthquake drastic changes on the evolution mechanism and disaster prevention of dammed lakes



林裕淵 教授 Professor  
Yu-Yuan Lin, Ph.D.

**Research Area:** Structural seismic design/  
Earthquake resistance evaluation and reinforcement/  
Structural energy dissipation and seismic isolation/  
Water and Soil Conservation Engineering

Tel: 886-271-7692,

E-mail: [tltsai@mail.ncyu.edu.tw](mailto:tltsai@mail.ncyu.edu.tw)

## ● Research Interests:

1. Kinematic Soil-Structure Interaction Effects on Maximum Inelastic Displacement Demands of SDOF Systems
2. Evaluation of Damping Reduction Factors for Estimating Elastic Response of Structures with High Damping
3. Estimation of Maximum Roof Displacement Demands in Regular Multistory Buildings
4. Research on the Teaching of Building Structure Design
5. Water and Soil Conservation Engineering





**蔡東霖 教授** Professor  
Tung-Lin Tsai, Ph.D.

**Research Area:** Environmental mechanics simulation/  
Surface water and groundwater simulation/  
Landslides stability analysis/  
Water conservancy

**Tel:** 886-271-7692,

**E-mail:** [tltsai@mail.ncyu.edu.tw](mailto:tltsai@mail.ncyu.edu.tw)

● **Research Interests:**

1. Examination of Influences of Rainfall Patterns on Shallow Landslides due to Dissipation of Matric Suction
2. A Coupled One-Dimensional Viscoelastic-Plastic Model for Aquitard Consolidation Caused by Hydraulic Head Variations in Aquifers
3. Effects of Soil Parameter Variation and Grid Deformation on the Numerical Simulation of Aquitard Consolidation

陳文俊 副教授 Associate Professor

Wen-Juinn Chern, Ph.D

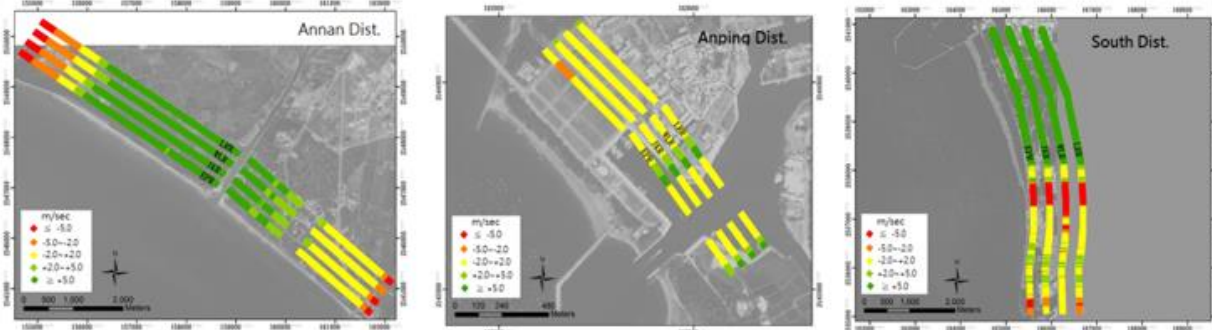
**Research Area:** Coastal Morphodynamics, Hydraulic Engineering and Hydraulic model experiment

Tel: 886-271-7685, E-mail: [wjchen@mail.ncyu.edu.tw](mailto:wjchen@mail.ncyu.edu.tw)

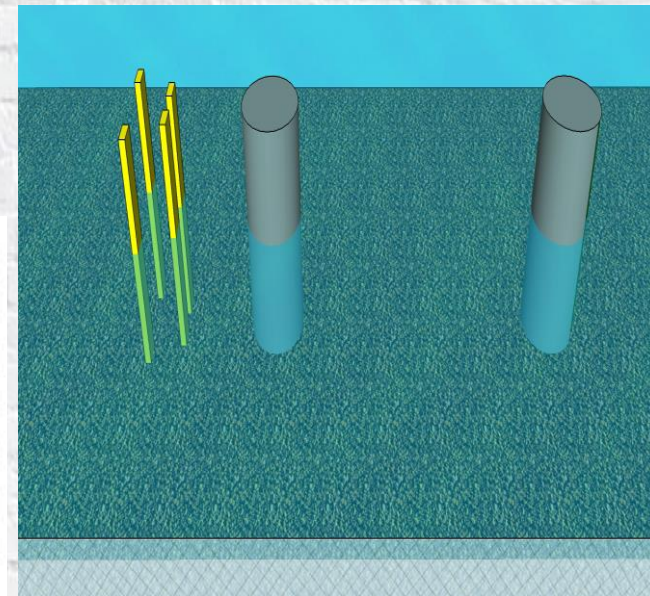


### Research Interests :

1. Experimental study on the bridge scouring reduction by staggered pillars and MICP
2. Optimal formula of closed depth on sandy coast obtained by big data analytics
3. An advanced method for coastal risk assessment



Coastal stability status in Tainan village





周良勳 副教授

Associate Professor, Liang Hsing Chou, Ph.D

Research Area:

Waste Management & Research

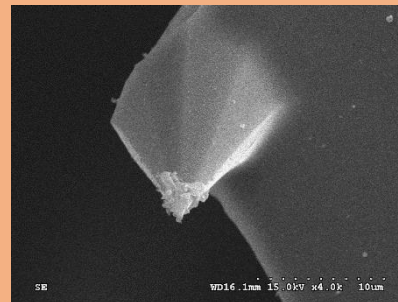
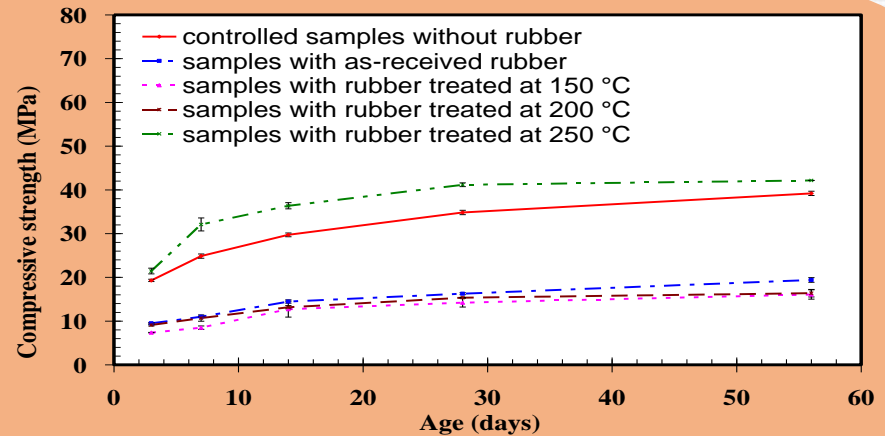
Investigation of Soil and Water Resources

TEL: +886-5-2717690

E-mail: [lhchou@mail.ncyu.edu.tw](mailto:lhchou@mail.ncyu.edu.tw)

## Research Interests

1. Use of Waste Rubber as Concrete Additive
2. Removal of Refractory Pollutants of Swine Wastewater by Waste Concrete
3. PVA Used as a Soil Conditioner: Aging and Interaction Forces with Soils
4. Regenerable adsorbent for removing ammonia evolved from anaerobic reaction of animal urine
5. The effect of intermolecular forces on the preparation of the organic water-cement pastes
6. Effect of polymer soil conditioners on seeds germination





吳南靖 專案助理教授

Project Assistant Professor

Nan-Jing Wu, Ph.D.

Research Area: Civil engineering/  
Computational Fluid Dynamics/  
Wave numerical simulation

Tel: 886-271-7684

E-mail: [njwu@mail.ncyu.edu.tw](mailto:njwu@mail.ncyu.edu.tw)

## 近三年相關著作

### 期刊論文

1. Tai-Wen Hsu, Shin-Jye Liang, Nan-Jing Wu\* (2020, Dec). A Two-Dimensional Shallow-Water-Equation Meshless Model with Fictitious Water Level at Dry Nodes. *Journal of Hydraulic Research*, Accepted. (Accepted). (SCI). MOST 107-2221-E-415-005-MY2. 本人為通訊作者.
2. Shin-Jye Liang, Chih-Chieh Young, Chi Dai, Nan-Jing Wu\*, and Tai-Wen Hsu (2020, Oct). Simulation of Ocean Circulation of Dongsha Water Using Non-Hydrostatic Shallow-Water Model. *Water*, 2020, 12, 2832. (SCI). MOST 109-2221-E-019-043-1. 本人為通訊作者.
3. Yung-Chuan Chiou, Nan-Jing Wu\*(2019, Feb). A GE/BC imbedded local polynomial collocation method for two dimensional multivariable problems. *Engineering Analysis with Boundary Elements*, 100: 185-194. (SCI). 本人為通訊作者.
4. Tai-Wen Hsu, Shin-Jye Liang, Nan-Jing Wu\* (2019, Jan). Application of Meshless SWE Model to Moving Wet/Dry Front Problems. *Engineering with Computers*, 35:291-303. (SCI). MOST 106-2221-E-415-007. 本人為通訊作者.
5. Shih-Chun Hsiao, Ming-Yang Shih and Nan-Jing Wu\* (2018, Apr). Simulation of Propagation and Run-Up of Three Dimensional Landslide-Induced Waves Using a Meshless Method. *Water*, 10, 552. (SCI). 本人為通訊作者.

研究主題：  
洪水災害預測與防治之洪水模擬





吳振賢 講師 Instructor  
Chen-Hsien Wua, master

**Research Area:** Construction management/ Quality management/  
Building automation

**Tel:** 886-271-7715,

**E-mail:** [shyen@mail.ncyu.edu.tw](mailto:shyen@mail.ncyu.edu.tw)

## **Research Interests:**

1. Project quality inspection and supervision
2. Application of Value Engineering in Short Bridge Widening Project



陳永祥 講師 Instructor

**Yung-Hsiang Chen**, Master of Civil Engineering

**Research Area:** Structural Dynamics/Seismic Strong  
Motion

Tel: 886-271-7718, E-mail: [chenys@mail.ncyu.edu.tw](mailto:chenys@mail.ncyu.edu.tw)

### Course of Teaching

- Engineering Mathematics
- Engineering Mechanics — Statics
- Engineering Mechanics — Dynamics
- Structural Dynamics
- Structural Steel Design
- Matrix Analysis of Structures



陳錦媽 講師 Lecturer  
Chin-Yen Chen



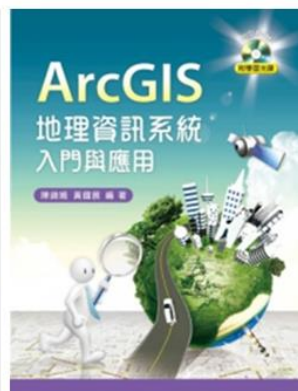
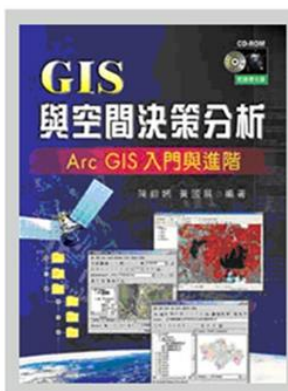
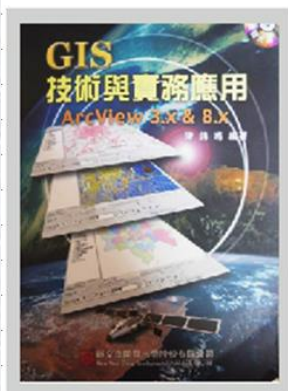
**Research Area:** Geographic Information Techniques  
Soil and water conservation  
Water resources development

Tel: 886-271-7710, E-mail: [annie@mail.ncyu.edu.tw](mailto:annie@mail.ncyu.edu.tw)

## Research Interests :

1. Geographic Information Systems

2. Computer-Aided Engineering Drawing



# Selected Publications

## Construction and Building Materials

- Study on application of fiber-reinforced concrete in sluice gates

## Mathematical Problems in Engineering

- Automatic Calibration of an Unsteady River Flow Model by Using Dynamically Dimensioned Search Algorithm

## Advances in Meteorology

- Applications of Cluster Analysis and Pattern Recognition for Typhoon Hourly Rainfall Forecast

## Water

- Simulation of Propagation and Run-Up of Three Dimensional Landslide-Induced Waves Using a Meshless Method
- Threshold of Slope Instability Induced by Rainfall and Lateral Flow

## Engineering with Computers

- Application of Meshless SWE Model to Moving Wet/Dry Front Problems

## Engineering Analysis with Boundary

- A GE/BC imbedded local polynomial collocation method for two dimensional multivariable problems



# Selected Publications

## Journal of Flood Risk Management

- Flood hazard mitigation in land subsidence prone coastal area by optimal groundwater pumping

## Terrestrial, Atmospheric and Oceanic Sciences

- Effects of Soil Parameter Variation and Grid Deformation on the Numerical Simulation of Aquitard Consolidation

## Environmental Monitoring and Assessment

- Debris flow-induced topographic changes: effects of recurrent debris flow initiation

## IOP Conf. Series: Materials Science and Engineering

- Modeling of Batter Pile Behavior under Lateral Soil Movement.
- Assessment of Ecosystem Impacts by Engineering Measures Using the Concept of Building
- Applications of UAS-obtained thermal images for vegetation coverage ratio monitoring of mudstone areas

## International Journal of Engineering and Technology

- Construction of 3D Rainfall Threshold Surface for Debris Flow Warning

# Selected Publications

## International Journal of Engineering and Technology

- Combined Effect of Rainfall Seepage and Seismic Shaking on Slope Stability by Using a Three-Dimensional Stability Analysis

## Journal of Mountain Science

- Exploring landslide erosion volume–area scaling relationships by slip depth using changes in DTMs for basin sediment volume estimation

## Taiwan Agricultural Engineering

- The Effects of Irrigation Management Practice on Growth Period and Irrigation Water Use Efficiency in Paddy Rice

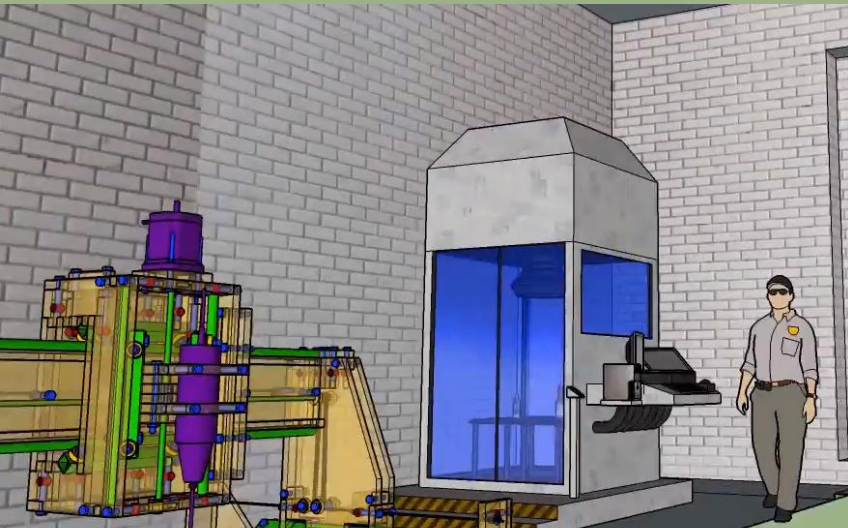
## Active Learning in Higher Education

- Pausing the classroom lecture: The use of clickers to facilitate student engagement

## IEEE Transactions on Learning Technologies

- Implementing On-Call-Tutor System for Facilitating Peer-Help Activities

# 水工與材料試驗場



***WELCOME to NCYU!!***