水土保持系

Department of Soil and Water Conservation

一、必修科目 Required Courses

372001 實務專題 2 必 吳嘉俊

本課程係由教師輔導學生選定其有興趣之試驗題目，進行實際的處理、管理調查、技術之操作或實驗室內之試驗與分析等，並將實驗分析結果撰寫成報告發表。

372001 Special Project 2 R C. C. Wu

This course is conducted through one-on-one advisory that maximum of three students with common interests are grouped and are taught by an appointed faculty member. Each study group is required to conduct scientific research on a specific topic. Through hand-on experiences, students are required to present their research results by oral presentation. Therefore, this course covers basic skills of literature review, experiment design, information mining or data acquisition, and data analysis.

372002 測量學 2 必 江介倫

本課程之目的為使學生學習修得有關農林、工程方面之基本測量學術與技術和應用，以培養學生測量技術而達學以致用之目的。其內容包括：基本概念、各種測量儀器之特性及使用、距離角度方向之測量、高程差之測量原理、水準測量、土方、誤差與誤差分配、製圖 9. 三角測量、導線測量、土地面積計算、地型測量、路線測量。

372002 Surveying 2 R J. L. Chiang

The purpose of this course is to make the students understand the basic knowledge and technique of surveying about the agriculture, forest , and engineering . So the students can be trained to know the how (the practice) and the why (the theory) to use the art of surveying. The contains include fundamental concept, essential feature and use of principal surveying instruments, measurement of distant and angles and direction, measurement of difference in elevation, differential leveling, volumes of earthwork, errors and error compared, map drafting, triangulation, traverse surveying, calculation of area of land, topographic surveying, route surveying.

372003 測量學實習 1 必 江介倫

本課程之主要目的為使學生熟練各種測量儀器之操作法及測量資料之整理、統計與製圖，而收理論與實際配合之效。

372003 Surveying Lab. 1 R J. L. Chiang

The purpose of this course is to let the students practice the operations of all instruments, the computation of the surveying data, the map plotting, so that the practice and the theory can be unanimous.

372004 水土保持概論 2 必 唐琦

為研究土地之利用，並保護土地，防止劣化，重建被沖蝕及貧瘠之土地，而且使土壤能保持適當之水分供作物利用，以維持農地之永續生產及收益。其內容包括：沖蝕之原因及沖蝕之過程，再介紹合理利用土地為基礎之水土保持方法，諸如覆蓋、敷蓋、綠肥、等高耕作、輪作、間作、平台階段、山邊溝等農地水土保持方法。

372004 Introduction to Soil and Water Conservation 2 R **C. Tang**

This course is study the proper land use, protecting the land against all forms of soil deterioration, rebuilding eroded and depleted soil, conserving moisture for crop use, proper agricultural drainage and irrigation where needed and increasing yield and farm income. The contents are: Principle of soil erosion, erosion process, practices of soil and water conservation, excovering, mulching, green manure, contour farming, rotation, interplanting, terrace and hillside ditch etc.

372005 環境與生態 2 必 **謝杉舟**

本課程為生態學簡介、生態學概念簡述、嵌塊體、廊道、基質與網絡、總體結構、景觀發育之自然過程、人類在景觀發育中的作用、相鄰景觀要素間之「流」、動植物在景觀中的運動、景觀功能、景觀變化、異質性和類型學、景觀管理。

372005 Environment and Ecology 2 R **S. C. Hsieh**

Introduction、General ecology concept、Patch、Corridors、Matrix and networks、Configuration、The natural process of landscape development、Human effect on landscape development、The flows between landscape units、The movement of plants and animals in landscape、Landscape function、Landscape variation、Landscape heterogeneity and typology、Landscape management。

372006 環境地質學 2 必 **陳天健**

本課程旨在講述根據地質學的知識來分析及解決吾人生活環境上的種種問題。其主要內容在介紹環境地質之意義及其與人類環境之關係後，依序原生地質構造、次生地質構造及地質環境因素如地形、板塊運動、活動斷層，尚有地震災害、颱洪災害、及坡地災害與環境地質之關係之探討，亦本課程中論及。

372006 Environmental Geology 2 R **T.C. Chen**

The goal of the course is comprehension the analysis and resolve problems of human environments with geological knowledge to learners. Contents are concerned with the introduction on environmental geology definition and the relationships with human environments, and show effects of geological structures such as geological structures, material factor, and the environmental factors of geology such as geomorphology, fault and plate tectonics. In addition, earthquake hazard, typhoon and flood disaster, and slopeland hazard is also discussed in the course.

372007 環境地質學實習 1 必 **陳天健**

本實習課程著重在實際瞭解環境地質學基本特性辨識與量測方法，實習內容編排涵蓋基本量測及定位工具使用，岩石礦物觀察，火成岩、沉積岩、變質岩分類，沉積構造，岩層位

態量測，地質構造，地震斷層觀察，淹水災害，山崩與土石流災害，與環境地質野外調查等，以增進學習者對環境地質之基本智識。

372007 Environmental Geology Lab. 1 R T.C. Chen

Goal of the course is to improve the understanding and the description methodology of environmental geology. Exercises include instrument operation, observation of mineral of rock, igneous rock, sedimentary rock, and metamorphic rock, sedimentary structure, strike and dip of formation, structure feature, earthquake fault, flood disaster, landslide and debris flow disaster, as well as field reconnaissance to establishing the fundamental knowledge in environmental geology.

372008 電腦繪圖 2 必 謝杉舟

電腦圖學是電腦科學中令人感到興趣且發展迅術速的領域之一，現已被廣泛應用於商業、工業、政府、藝術、娛樂、廣告、教育、研究訓練、以及醫藥方面。本課程講授重點包含電腦繪圖之輸出入設備屬性、二度空間、三度空間之繪圖概念及處理製作之方法,電腦繪圖軟體之應用。

372008 Computer Drafting 2 R S. C. Hsieh

The lecture portion of this course examines the theory and application of computer graphics Topics covered include required equipment of computer features of device. The graphic computer software.

372009 電腦繪圖實習 1 必 謝杉舟

圖軟體，內容包含電腦繪圖之輸出入設備屬性、二度空間、三度空間之繪圖概念及處理製作之方法、巨集指令及 LISP 程式語研之設計等。本課程之實習內容係配合電腦繪圖之授課進度，實際上機操作練習繪圖。

372009 Computer Drafting Lab. 1 R S. C. Hsieh

Computer Graphic, and online operation of graphic packages is the main theme of the course. This course covers hardware/software Input / Output central, concepts of 2 dimensional and 3 dimensional graphic, image processes, macro commands and LISP language design. The course is arranged to cooperate with the schedule of Geographic Graphic.

372010 土壤學與土壤物理 3 必 簡士濠

土壤為主要自然資源之一，亦為環境生態主要根基。土壤除了提供生物維生物質及生態環境生境外，並與水土保持具有密切關係，其中包括山坡地土壤抗蝕能力、邊坡穩定及植生綠化基材等。本課程主要內容涵蓋土壤之生成及化育過程、土壤調查與分類、機械組成與質地、構造形態、土壤有機物質、粘土礦物與離子交換特性、土壤水分含量與勢能、土壤水分與溶質移動特性，以及其他一般土壤理化性質。

372010 Soil Science and Soil Physics 3 R S.H. Jien

Soil is one of the major natural resources and important basis of environmental ecology. It not only supply the vital substances for living organisms and the crucial niche of ecology, but also influences slopeland soil erosivity, stability, and vegetative in soil and water conservation. This course deals with processes of soil formation, soil classification and

survey, mechanical analysis and texture, structure and morphology, soil organic materials, clay mineral and ion exchange properties, water content and potential of soil, soil water and solutes mobility characteristic, and the other common chemical and physical properties.

372011 土壤學與土壤物理實習 1 必 簡士濠

本實習課程為配合土壤學與土壤物理教學，使學習者能確實瞭解土壤性質及如何操作各項試驗，其內容編排由土壤樣品採取技術及實驗室儀器介紹開始，依序進行土壤基本化學及物理性質之測定分析，包括以下 4 單元。第 1 單元包括篩分析、機械分析、容重、土粒密度、孔隙率等基本土壤性質之測定；第 2 單元包括土壤有機質含量、凱氏氮、有效性磷及土壤反應等土壤基本化學性質之測定；第 3 單元包括交換性陽離子、團粒安定度及團粒分析；第 4 單元則包括田間含水量、水分特性曲線及水力傳導度之測定。

372011 Soil Science and Soil Physics Lab. 1 R S.H.Jien

The purpose of this course is to get learners pertinent understanding what's basic properties of soil and how to measure them. The exercises contents begin at soil sampling, and the others could be divided into four parts. At first, is a series exercises of soil basic properties such as sieving, mechanical analysis, bulk and particle density, and porosity measurement. Secondary, measures soil major chemical properties such as organic matter, total nitrogen, available phosphorus and soil reaction. Part three focuses on exchangeable cations, aggregate stability measurement and analysis. At last, intended to measure field capacity, moisture potential characteristic curve, and hydraulic conductivity.

372012 水土保持植物 2 必 謝杉舟

植物有涵養水源、國土保安、防止災害、淨化空氣及提供遊憩場所等功能。植物覆蓋地表可防止地表沖蝕與淺層之崩塌災害，因此利用植物以防止災害時，對於水土保持用植物之特徵、習性、繁殖法及防災效果需充分了解，以達適木適地，使選用之植物能正常生長，發揮植物最大之防災功能。

372012 Plants for Soil and Water Conservation 2 R S. C. Hsieh

The functions of vegetation are to cherish and nourish the water resources, to prevent the damage of soil erosion and collapse, to purify the air and to offer n amusement parks. This course is contains plant foxonomy, plant morphology haracters, propagation methods and it control damage ability.

372013 水土保持植物實習 1 必 謝杉舟

本課程能使甲組本系之同學，在短時間內認識植物根、莖、葉之構造外，加強水土保持用植物之鑑別及注重植物繁殖法等實務性操作，以習得選適地適種之能力及純熟的種植技巧。

372013 Plants for Soil and Water Conservation Lab. 1 R S. C. Hsieh

This course introduces the structure of root, stem, flower of plants and its function. Training students the technique of classification plants and propagate methods.

372014 統計學 2 必 江介倫

本課程旨在使學生獲得機率與統計之相關知識，使其具有分析資料之能力。內容包括：統計概念、敘述統計、機率、機率分配、抽樣、估計、假設檢定、卡方檢定、迴歸分析、相關資料、變異數分析。

372014 Statistics 2 R **J. L. Chiang**

The objective of this course is designed to teach the related knowledge of probability and statistics, and let students have the ability to analyze data. The main subjects are summarized as follows: Descriptive statistics, Probability, Probability distribution, Sampling, Estimation, Hypothesis test, Chi-square test, Analysis of variance, Regression analysis. Correlation analysis.

372015 統計學實習 1 必 **江介倫**

本實習目的係配合統計學教授課程內容與進度，學習資料搜集、轉換、軟體使用及統計推論等，利用電腦練習資料統計的分析過程，使學生有實際操作電腦使用軟體分析研究之資料。

372015 Statistics Lab 1 R **J. L. Chiang**

The objective of this practice is designed for students to use computer or electrical calculator for statistical analysis of investigation data. It includes the practice of data collection, transformation, statistical package used and statistical inference.

372016 氣象學 2 必 **唐 琦**

本課程先介紹各種氣象要素（如日射、日照、溫度、氣壓、風、雲、霧、降水、蒸發等），其次對於大氣主環流、次環流（季風、氣團、鋒、氣旋）、局部環流（海風、陸風、山風、谷風）、劇烈天氣（雷暴、龍捲風）、颱風、農業氣象災害、農地微氣候形成過程、台灣之氣候加以逐章闡述。

372016 Meteorology 2 R **C. Tang**

This course will introduce the meteorological elements such as solar radiation, sun shine, temperature, humidity, air pressure, wind, cloud, fog, precipitation and evaporation in the initial stage. Then the main circulation of the atmosphere, secondary circulation (monsoon, air masses, front, cyclone), local circulation (sea breeze, land breeze, mountain wind, valley wind), violent weather (thunder storm, tornado), typhoon, agricultural meteorological disaster, process of microclimate formation on farm land, climate of Taiwan will be explain chapter by chapter.

372017 氣象學實習 1 必 **唐 琦**

本課程先介紹天氣預報術語、氣象觀測站種類、觀測坪之佈置，爾後逐週就各氣象要素（如日射、日照、氣溫、地溫、濕度、氣壓、風、蒸發、雲、降水等）之觀測方法，使用儀器加以實際操作，分析所得資料，使學生熟析氣象觀測。

372017 Meteorology Lab. 1 R **C. Tang**

This course will introduce the technical terms for weather forecast and meteorological observatories in the initial stage. Then the observation method and there applied instruments for meteorological elements such as solar radiation, sun shine, air temperature, earth temperature, humidity, air pressure, wind, evaporation, cloud and precipitation will be

introduce and give a practice training to the students.

372018 工程力學 3 必 **陳天健**

本課程介紹靜力學基本原理，學生修習後可獲得結構物與材料力學的基本分析技能。講授課程以解說力學概念為主；並輔例題印證學理。課程內容包括力系、平衡、摩擦力、分佈荷重、及應用實例。

372018 Engineering Mechanics 3 R **T.C.Chen**

The objective of this course introduces the basic concepts of Engineering Mechanics, in which only Static is covered. In the course, the students are anticipated to realize fundamental skills and the requirement for engineering aspect students, which can be applied to the analysis of a variety of structures and material mechanics. Emphasis of the course is to be placed on interpreting principles in Static state; in addition, examples will be illustrated for demonstrating the related principles. The topics being presented include force system, equilibrium, trusses, distributed force, and Friction.

372019 土壤沖蝕 3 必 **吳嘉俊**

本課程先介紹土壤沖蝕的過程、現象與種類及影響土壤沖蝕之各因素後，再從實際與理論觀點分別詳細討論降雨與風所造成土壤沖蝕之原理，並教導學生如何應用通用土壤流失公式，進行土壤流失量的估算。除此之外，本課程亦簡單介紹目前國際間有關土壤沖蝕研究與數值模擬程式發展的現況，使學生與國際動態接軌。

372019 Soil Erosion 3 R **C. C. Wu**

The theme of the course covers the brief introduction of erosion processes, phenomena, and affecting factors; followed by the discussion of water and wind erosion mechanics. The application of Universal Soil-Loss Equation is an important topic taught in this course so that students are able to estimate amount of soil loss. In order to facility students with international perspective, the latest development worldwide in the profession of erosion research as well as numerical simulation models is also covered in the course.

372020 流體力學 3 必 **李明熹**

本課程主要介紹流體力學之基本性質及流體運動之原理，內容包括：流體基本性質、流體靜力學、系統與控制體、流體運動基本定律--積分型、理想流體運動基本定律--積分型

372020 Fluid Mechanics 3 R **M. H. Lee**

Fluid Mechanics is the study of fluids in motion or at rest and subsequent effects of the fluid on the boundaries, which may be either solid surfaces or other fluids. The essence of the subject of fluid flow is that of a judicious compromise between theory and experiment. Since fluid flow is a branch conservation laws and thus a great deal of theoretical however, because it applies mainly to certain idealized situations which may be invalid in practical problems.

372021 植生工程 2 必 **謝杉舟**

坡地開發常造成大面積的裸露，破壞自然景觀，影響國土保安，急需復舊，植生復舊法具防災之功能外，兼有美化、綠化之效，廣被採用。本課程介紹綠化技術之體系，植生復舊

之作業流程，綠化基礎工事之種類與施工法，植生方法之種類與導入法，使用植物之選定，以及植生的保護與管理等，使學生習得不同立地環境經濟有效的植生綠化法，俾利參加山坡地資源保育工作，減少人工及天然災害，確保國土之安全。

372021 Vegetation Engineering 2 R **S. C. Hsieh**

This course contains as follows：Introduction of vegetation technique.、Systems of vegetation technique、Kinds of mechanical methods and their field practice、Kinds of vegetative methods and their field practice、Protecting and managing the vegetation.

372022 植生工程實習 1 必 **謝杉舟**

綠化用植物之選擇與採種、發芽試驗、生長情形與習性調查，各種植植生方法 (土壤袋法、植生帶法、植生盤法、噴播法、ON 法栽植法等) 之認識與材料之製作，綠化基礎工事用材 (鐵製編柵、篩圈、固定用水泥框等) 之製作以及實地邊坡坡之綠化處理 (播種法、栽植法、ON 法、噴播法) 使學生熟練各種綠化工技術。

372022 Vegetation Engineering Lab. 1 R **S. C. Hsieh**

This course contains as follows:

1.Choice of plants and collecting seeds.

2.Germination test.

3.Investigation the growth and characteristics of plants used in vegetation

4.Methods of vegetation.

Vegetation methods

Seeding：soil bag , nonfabric-mat, straw-mat with seeds.

Planting.

Mechanical methods

Cement structure：cover with iron nets or concrete

Precast frame：concrete frame , concrete free frame, plastic frame, mesh ring.

Fence：iron fence, woody fence, plastic fence.

Drainage

5.Field practice.

372023 材料力學 2 必 **陳天健**

本課程旨在教導學生基本之材料力學觀念，以做為未來結構、力學方面課程之基礎。課程內容包括：應力、應變及其關係、軸向荷載、扭轉荷載、撓曲荷載（應力與變位）、應力與應變之轉換方程式、組合荷載、結構穩定度。

372023 Mechanics of Materials 2 R **T.C. Chen**

The purpose are to develop an understanding of the relationship between loads applied to a deformable body and the internal stress, strain, and deformations induced in the medium, Contents also show the proficiency in the mathematics and basic sciences required solving structural engineering and mechanics problems. The topics of course include: concepts of stress and strain, axial loading, torsion, pure bending(bending deformations and bending stresses), shear forces and bending moment, stresses in beams, analysis of stress and strain, combined loadings, and stability of structures.

372024 土壤力學　　2　必　　陳天健

針對土壤之生成結構，基本性質與其受外力之行為變化，加以詳細說明，並教導學生對其力學特性有初步的認識及瞭解其在工程上所扮演的角色，其主要內容涵括：土壤之生成結構 、土壤之基本力學特性、土壤之分類 、土壤之粘土礦物之組成 、土壤滲流理論 、土壤之有效壓力、土壤之壓密 、土壤之夯實 、土壤之剪力強度與破壞理論、土壤之塑性平衡與側向土壓力等各章節。

372024 Soil Mechanics　　2　R　　T.C. Chen

The course will detail on the soil structures, basic mechanic characters, and mechanism of soil. In order to fulfill the understand of soil mechanics in civil engineering's, the course contains ：formation and structure of soil,、basic mechanic properties of soil, 、soil classification, 、constituent of clay minerals, 、 seepage flow in soil、effective stresses in soil,、consolidation of soil, 、compassion of soil, 、shear strength and yielding theory of soil, and 、slope stability analysis.。

372025 土壤力學實習　　1　選　　陳天健

使學生經由實際操作之經驗，獲悉土壤之各項物理特性與工程性質俾使其能深切瞭解各項土壤工程鑑定分析與試驗管制，其主要內容涵括： (1)土壤含水比 (2)土壤之液限與塑限試驗 (3)土壤之比重 (4)土壤之機械分析 (5)土壤之夯實試驗 (6)野外工地密度試驗(7) 單向度壓密試驗(8) 直接剪力試驗(9) 土壤滲透性(室內定水頭) (10) 變水頭土壤滲透性試驗(11) 工程土壤試驗報告之撰寫說明。

372025 Soil Mechanics Lab.　　1　S　　T.C. Chen

Providing students on-hand training on experiment of the physical and engineering properties, the laboratory experiment consists of (1)moisture content, (2)liquid and plastic limits, (3)soil particle gravity, (4)sieve analysis, (5)compaction, (6)field unit weight test, (7) one dimensional consolidation test, (8) direct shear test,, (9) permeability test(constant head), (10) permeability (falling head), (14)writing a soil test report.

372026 水文學　　2　必　　李錦育

本課程主要授課內容包括：氣象因子概述、降水成因，及降雨量資料分析、蒸發散量之估計、入滲因子，入滲分析、河川水流、逕流歷線，單位歷線、洪水演算、暴雨，洪水頻率分析。

372026 Hydrology　　2　R　　C. Y. Lee

This course contents the following subjects:Climatological factor introduction、Types of precipitation and analysis Rain、Estimating Evaporation、Infiltration and methods of determining infiltration、Stream flow、Runoff and unit Hydrograph、Flood routing、Flood frequency probability and stochastic methods

372027 水文學實習　　1　必　　李錦育

本課程主要授課內容包括：氣象因子概述、降水成因，及降雨量資料分析、蒸發散量之估計、入滲因子，入滲分析、河川水流、逕流歷線，單位歷線、洪水演算、暴雨，洪水頻率分析。

372027 Hydrology Lab.　　1　R　　C. Y. Lee

This course contents the following subjects: Climatological factor introduction、Types of precipitation and analysis Rain、Estimating Evaporation、Infiltration and methods of determining infiltration、Stream flow、Runoff and unit Hydrograph、Flood routing、Flood frequency probability and stochastic methods

372028 集水區經營 3 必 李錦育

該課程為協助學生瞭解集水區經營的基本概念（包括重要水源集水區經營方式的認識、水資源經營重要計畫之樹立、集水區內降雨資料之收集、地形、地質、土地利用資料之數值化、集水區內發生崩塌危險地帶之預測、集水區內流量與年洪水量之推定、本流與支流水文歷線之算定等）。

372028 Watershed Management 3 R **C. Y. Lee**

The objective of this course is to assist the students develop the basic concepts of watershed management, including management and setting up important planning of watersheds watershed, rainfall data collection, qualification of geomorphologic, geologic and land use data, predicting the risk of landslides areas, evaluating the discharge and annual flood's amount of watershed, and hydrograph of mainstream & branches of watersheds.

372029 坡地保育規劃 2 選 許中立

本課程先介紹自然資源之意義、分類、保育目的與觀念，然後傳授土地資源、水資源、食物資源、天然保育地、野生動植物資源之保育技術。最後也談到礦物與能源資源之保育。

372029 Conservation Planning on Slope Land 2 S **C. L. Hsu**

To provide teaching flexibility, this course is divided fall into seven major parts: Humans and natural resources: An overview.

1. Soil resources.
2. Water resources.
3. Land resources.
4. Wild plant and animal resources.
5. Nonrenewable resources.
6. Other natural resources.

372030 坡地保育規劃實習 1 選 許中立

本課程先介紹自然資源之意義、分類、保育目的與觀念，然後傳授土地資源、水資源、食物資源、天然保育地、野生動植物資源之保育技術。最後也談到礦物與能源資源之保育。

372030 Conservation Planning on Slope Land Lab. 1 S **C. L. Hsu**

To provide teaching flexibility, this course is divided fall into seven major parts: Humans and natural resources: An overview.

1. Soil resources.
2. Water resources.
3. Land resources.
4. Wild plant and animal resources.

5. Nonrenewable resources.
6. Other natural resources.

372031 水土保持工程　　2 必　　許中立

本課程講解水土保持工程法規劃、設計與施工之原理與方法，主要內容包括：坡地排水、蝕溝控制、邊坡穩定等實用技術之應用。

372031 Soil and Water Conservation Engineering　　2 R　　C. L. Hsu

The principle and methodology of planning, design, and construction of soil and water conservation structures are discussed in this course. The subjects include: slope land drainage, gully control, and slope stabilization.。

372032 水土保持工程實習　　1 必　　許中立

本實習課程著重於水土保持工程法規劃、設計、施工之實務練習。內容包括各單項工程之設計與施工管理（防砂壩、坡地排水溝、擋土牆等），及系統之規劃與分析。

372032 Soil and Water Conservation Engineering Lab.　　1 R　　C. L. Hsu

The subject of this laboratory study is to practice of individual soil and water conservation structure design and construction management. The subjects of the practice include :Check dam, slope land drainage, and slope stabilization.

二、選修科目 Elective Courses

372033 應用測量學　　2 選　　江介倫

使學生學習有關坡地方面之基本測量技術，達到將地形測繪應用於水土保持處理規劃上，內容包含：地形測量應用之概況；距離、角度兩因子之關係及測法；水準、羅盤、平板、經緯儀四大主要測量儀器之種類、構造及各種測法；測量誤差、修正及精度檢驗；計算及製圖。

372033 Applied Surveying　　2 S　　J. L. Chiang

This course could give the students familiar in the basic technical of surveying especially concentrating on slope land, which could perform the geomorphologic mapping, and apply it to the soil and water conservation treatment and planning. The main courses included application of Topographic Surveying, the relationship and measurement of distance and angle, the kinds, the structure and the survey method of the major survey interment comprise of level, compass, plane table and transit, revised the error and examined the precision of surveying, calculation and mapping.

372034 應用測量學實習　　1 選　　江介倫

配合授課內容實習以達相輔相成之效果，項目包含：距離測量、羅盤儀測量、平板儀測量、水準儀測量、經緯儀測量、.儀器檢驗及校正、面積計算、製圖、誤差修正。

372034 Applied Surveying Lab.　　1 S　　J. L. Chiang

The actual practice coordinated with the Geomorphology of Survey could apprehend

complement each other. Items of the course included： Distantance surveying, Compass surveying, Plane table surveying, Leveling, Transit surveying, Calculation of area, Examine and adjusted the surveying instrument, Mapping, Revised error.

372035 地形學 2 選 待聘

本課程討論地表各種型態和作用力的關係，並討論各種小地形的特徵及其演化過程。課程內容係以地球表面的形貌、分類、特性、來源及其演變等之探討為主，並就山地、丘陵、平原、河口、海岸與特殊地區之地形特性分別進行介紹、比較與分析，同時亦將地景保育等課題納入討論。

372035 Geomorphology 2 S TBA

This course introduce the relationship between trigger forces and the topography change characteristics from slopeland to coast. The main content required for this course includes: the earth movement model, geomorphic processes, geomorphic cycle concept, primary surveying techniques, topography characteristic analysis, landscape analysis and protection,etc.

372036 工程數學(一) 3 選 吳嘉俊

工程數學在使學生具備更微積分為高深的數學能力，以協助解決熱流或力學等工程上的問題。本課程基於授課時間僅一學期，因此授課重點著重於介紹如何解低階及高階微分方程式以及線性方程式的基本技巧等。

372036 Engineering Mathematics (I) 3 S C. C. Wu

The purpose of the course is to equip students with more advanced mathematics skills beyond the level of Calculus so that students can apply the basic skills learned to solve engineering problems in thermodynamics, fluid mechanics, engineering mechanics, etc. Due to the limitation in class period, this course will concentrate on skills of solving 1st order and higher order ordinary differential equations as well as linear algebra.

372037 航空測量與遙感探測 1 選 江介倫

航遙測為資源保育之基本技術。故本課程係講授地圖之認識、量測及其在土地利用、集水區經營、水土保持等操作上之應用判釋技術，其內容包括：航遙測基本概念、比例尺與距離、立體像對、地形地貌判釋、坡度測定、土地利用類型判釋、面積計算、方向之判釋、像片基本圖之應用。

372037 Aerial Photo Interpretation and Remote Sensing 1 S J. L. Chiang

The practice on map interpretation is the basic technique in natural resources conservation. It will be introduced to land use, watershed management, soil and water conservation. he following items will be practiced: remote sensing fundamental concept, the land form interpretation, the scale and distance, measuring the slope of land, land use type interpretation, estimation of area of land, the direction interpretation, interpretation of photo base map.

372038 航空測量與遙感探測實習 1 選 江介倫

航遙測為資源保育之基本技術。故本課程配合航空測量與遙感探測課程進度，結合理論與實務技術進行各單元之實做如立體鏡之使用，以利應用於地圖之認識、量測及其在土地利用、集水區經營、水土保持等操作上之應用判釋技術。

372038 Aerial Photo Interpretation and Remote Sensing Lab **1 S J. L. Chiang**

The purpose of this course is to let the students practice the operations of remote sensing images, the computation of the surveying data, the map plotting. The following items will be practiced: remote sensing fundamental concept, the land form interpretation, the scale and distance, measuring the slope of land, land use type interpretation, estimation of area of land, the direction interpretation, interpretation of photo base map.

72039 程式語言 3 選 江介倫

本課程的目標是教導學生瞭解電腦程式設計的基本原理、設計原則、及程式撰寫邏輯與技巧及基本的一般演算法並熟悉語法，課程內容主要包括:程式語言簡介、程式設計之概念與流程、不同語言入門指引、資料型別與敘述、輸入、輸出介面設計、陣列、副程式、等主題。訓練同學可依不同需求撰寫所需程式的能力，為利用電腦輔助研究或工作所需之基本技能。

372039 Computer Programming 3 S J. L. Chiang

The purpose of this course is to teach students to understand the basic principles of computer programming, design principles, programming logic, programming skills and general algorithms. The course contents include: computer language introduction, programming concepts and processes, data type and description, input and output format, output interface design, array, subroutine, etc.

372040 工程數學(二) 3 選 吳嘉俊

工程數學在使學生具備更微積分為高深的數學能力，以協助解決熱流或力學等工程上的問題。本課程乃接續本系工程數學(一)必修已教過的部份，針對於拉普拉斯轉換、特徵值、特徵向量、傅立葉級數與轉換等進行介紹。

372040 Engineering Mathematics (II) 3 S C. C. Wu

The purpose of the course is to equip students with more advanced mathematics skills beyond the level of Calculus so that students can apply the basic skills learned to solve engineering problems in thermodynamics, fluid mechanics, engineering mechanics, etc. This course will continue the topics that covered in Engineering Mathematics (I) but concentrates on the topics of Laplace transform, eigen value, characteristic equations, Fourier series and its transform.

372041 地理資訊系統 2 選 江介倫

從地理資訊系統之基本概念、組成及應用，講述系統內資料庫建立之設計與資料處理之方法與原則，並述及遙測影像資料與地理資訊系統之技術與關聯性。詳加討論地理資訊系統之重要功能、地圖編製、建立資料庫及資料處理分析，並以山坡地土地可利用限度等級資系管理為例，討論地理資訊系統建立之實務與考量因素，對即將建立類似系統單位或機械提供最佳之參考依據。

372041 Geographic Information 2 S J. L. Chiang

System

The design of GIS database, principle, and methodology of database processing are taught from the view point of basic concept, construction, and application of Geographic Information System. The relation between GIS and remote sensing is also covered in the course. The course also covers prominent functions of GIS, map compilation, database establishment, and data analysis. An example of land use classification using GIS will be given in the class to discuss the important factors need to consider prior to the GIS establishment.

372042 地理資訊系統實習　　1　選　　江介倫

配合講授課程內容設計實習項目包括：介紹 GIS 軟体之種類及特性、GIS 軟体之基本概念與操作、地理資料庫之取得與前期處理、地理資料庫之建立與編輯、地理資料庫處理與套疊分析、實例演練：製作山坡地可利用限度等級資訊管理系統。

372042 Geographic Information System Lab.　　1　S　　J. L. Chiang

To coordinate the GIS course, lab exercises were designed to include: introduction of GIS software, basic concept and operation of GIS software, collection and pre-process of GIS database, establishment and editing of GIS database, process and overlay of GIS database, Lab exercise: land use classification geographic information management system.

372043 農路工程　　2　選　　唐　琦

本課程為使學生習得農路相關設計及養護方法，以利於坡地資源保育與利用。課程內容包括：農路種類、農路路線測量、挖填土方計算、農路繪製、路基工程設計、道路排水設計、道路養護方法。以純熟技術參加資源保育工作之行列。

372043 Farm Road Engineering　　2　S　　C. Tang

This course can teach students to design and preserve the measures of farm road. It's good for resources conservation and use for slpoeland. The contents of this course are listed as follows: Classification for farm road、Surveying and design for road line.、Cutting and filling soil volume calculation.、 Farm road drawing.、 Design for road basic engineering.、Design for road drainage engineering.、Road preserving and protecting methods.

372044 農路工程實習　　1　選　　唐　琦

本課程採系列實習協助學生能在實習中對農路之設計及養護有實務經驗，其內容：農路路線勘查、道路中心線測設、農路縱橫斷面測量、展開導線、土方計算、平曲線測設、農路設計圖之繪製、農路排水設計、農路養護實務。

372044 Farm Road Engineering Lab.　　1　S　　C. Tang

This course can assist students to comprehend the pragmatic experience for designing, preserving and protecting of farm road with a series of practice. The contents of this course are listed as follows: Route investigation、Surveying and design for central road line.、Survey vertical and cross section of farm road、Open traverse、 Volume calculation.、Farm road drawing.、Survey farm road curve.、Design for farm road drainage.、 Farm road

preserving and protecting practice.

372045 特殊環境植生 2 選 謝杉舟

開發山坡地常造成大面積之裸露地，影響自然生態環境及國土保安，急需加以植生復舊。植生復舊時若遇到風衝地、豪雨、乾旱、硬質土、岩壁或強酸性強鹼性等惡質土壤及急陡坡地，需用特殊的綠化法恢復植生，以有效防止地表沖蝕，及淺層崩塌，進而達美化、綠化之效果。本課程介紹特殊地區之立地環境，可能引發的災害種類和可行的植生方法外，經試驗研究研製新的植生材料，推薦各種特殊地區適宜之綠化植物，藉以開發、推廣不良環境地區，經濟有效的植生方法。

372045 Greenery Methods in Special Environment 2 S S. C. Hsieh

It always makes large bared slope that influence the ecology of nature environment and soil conservation when developed the nature resource, constructed the farm road, or collected lime stone on mineral district. Thus special areas are very difficult to vegetate by common method. This course contains: How to vegetate the difficult areas slopes during, pouring rain or drought period, or rock slope, coarsely soils.、Introduce suitable plants.、To manufacture the newly material for to vegetate the special environment slope.

372046 特殊環境植生實習 1 選 謝杉舟

道路邊坡之開挖、採礦及坡地資源利用時，往往會遇到特殊環境之地區，需用特殊的植生工法，以恢復植生，穩定坡面或綠化、美化環境，本課程使學生熟悉岩壁、惡劣土壤、急陡地及乾、旱、豪雨地區之植生方法，於參加實際工作時，遇到植生困難地或困難期時，能迎刃而解。

372046 Greenery Methods in Special Environment Lab. 1 S S. C. Hsieh

This course is training the students conversant with the technique of vegetative method for the special areas such as: rock slopes, steeps lope, coarsely soils, and during the pouring rain or drought period.

372047 明渠水力學 3 選 李明熹

水可依管路系統或渠道系統輸送。本課程主要依講述水在渠道中流動時之各種渠流類型及其水理以作為渠道輸水系統水理設計之基礎。內容包括：渠道分類及性質，能量與動量原理及其應用，臨界渠流之計算與應用，等速渠流，定量續變速渠流等。

332047 Open Channel Hydraulics 3 S M. H. Lee

This course contents the following subjects：Basic concepts of open channel flow; The energy principle in open channel flow; The momentum principle in open channel flow; Flow resistance; Channel controls; Channel transitions; Unsteady flow; The dam-break problems.

372048 邊坡穩定分析 3 選 許中立

本課程從地形學、地質學及土壤學的觀點，介紹陡坡地經常發生災害的誘因及型態；例如崩塌及滑動。隨後以土壤力學的觀點介紹應力、應變與摩爾庫倫破壞理論。邊坡穩定分析為本課程的重點工作，旨在教導學生邊坡穩定分析的技術。

372048 Slope Stability and Analysis 3 S C. L. Hsu

This course is mainly designed for the senior students with the major in Soil and Water Conservation. It starts with the introduction of common slopeland disasters; such as landslides, from the viewpoints of geomorphology, geology, and soil science. The concepts of stress and strain, as well as Mohr-Column failure theory are then fully discussed. The slope stability analysis covers most part of the course.

372049 地下水學 3 選 待聘

概述：使學生瞭解地下水在飽和帶與不飽和帶的分布特性；並探討含水層的物理性質，達西定律及水力傳導度，水井系統、水井鑽探、抽水試驗，地下水水質及地下水污染模式等內容。

372049 Groundwater 3 S TBA

Physical properties of ground water distribution in aquifers and vadose zones were emphasized. Also, Darey's law and hydraulic conductivity, well-flow system, groundwater exploration and well construction, pumping test , groundwater quality, and groundwater contamination were discussed in the class.

372050 微氣候調查 2 選 唐 琦

本課程內容先說明微氣候的定義與其時間、空間之範圍，先對於小地域的地形與地表狀態與微氣候之關係加以討論，再訓練習者熟悉近地氣層內微氣象之觀測技術，其內容包括：日射、淨輻射、顯熱通量、潛熱通量、地中熱傳導量、濕度分布、風速分布等項之測定方法與使用儀器，以利對坡地氣候資源深入了解。

372050 Microclimate Investigation 2 S C. Tang

This course will explain the definition of microclimate and its limits of time and space. The primary discussion is the microclimate relationship between topography and ground surface in a small area, then to give the students more experience in their techniques for micro-meteorological observation nearby the ground surface, which the measurement and instrument were contained as solar radiation, net radiation, sensible heat flux, latent heat flux, soil heat flux, vertical profiles of air temperature, vapor pressure and wind. By the course will give the student a more realization of climatic resources in the slopeland.

372051 微氣候調查實習 1 選 唐 琦

本課程內容能訓練習者於現地熟悉操作包括：全天日射量、淨輻射量、顯熱通量、潛熱通量、地中熱傳導量、濕度、風速等微氣象觀測項目，再以實觀數據進行各氣象要素之時間、空間分布，以利進一步了解坡地氣候資源。

372051 Microclimate Investigation Lab. 1 S C. Tang

This course will train the students to practically measure microclimatic observation in slopeland. There are solar radiation, net radiation, sensible heat flux, latent heat flux, soil heat flux, humidity and wind speed in the micro-meteorological observations nearby the ground surface. All data were used to analysis the distribution of time and space. Then will give the student a more realization of climatic resources in the slopeland.

372052 生態工程　　2　選　　謝杉舟

本課程為環境科學中應用生態學與土木工程之觀念，目的在於提供學生有關環境、自然生態系統與人類開發行為三者間密切關係之瞭解與認知，結合土木工程之技術，以達到水土保持生態規劃設計與治理之目標。本課程將以生態工法之基本概念為起始，再分別就法規面、水理分析、生態環境調查、生態工法介紹、工料分析、景觀綠美化、生態工法管理與維護等內容之加以說明，並介紹人類活動對環境之影響及自然資源保育之關念。

372052 Ecological Engineering Methods　　2　S　　S. C. Hsieh

This course is a part of Environment Science, which is concentrated on Applied Ecology. The objectives of this course are to offer the relationships between environment, nature ecosystem and human activities to students. We will begin with teaching the basic concepts of Ecological Engineering Methods, describing the Aspect of law, Hydrology analysis, Basic data of environmental, Ecological engineering methods, Analysis of material price, and Maintain of Ecological Engineering Methods then and introducing the influences of human activities on environment and concepts of natural resources conservation.

372053 土地利用調查與規劃　　3　選　　簡士濠

研討與土地利用有關因素之調查，其項目包括調查方法、土地特徵之評價、分類等，進而利於規劃利用土地，以促進本省土地合理使用，而達永續生產之目的。其內容包括：緒論、調查之種類與方法、土地特徵與評價　　、土地可利用限度、分類、水土保持規劃　　、灌溉排水系統規劃、運輸系統規劃　　、土地利用規劃。

372053 Land Utilization Investigation and Planning　　3 S　　S.H.Jien

The course is to study the related elements of land use and it's surveys. The contents of this course consists of:Introduction、The kinds and met、 The land characteristics and its estimate.、The land use capability classification.、Planning of soil and water conservation.、Planning of irrigation and drainage system.、 Planning of transportation system.、Planning of land use.

372054 鋼筋混凝土　　2　選　　待聘

本課程主要之目標在於讓學生了解鋼筋與混凝土性質，訓練學生基本的工程靜力學理論與經由實驗結果所發展之規範公式為基礎下，對於不同形態的鋼筋混凝土結構承受不同的負荷時之分析與設計能力。課程大綱：設計簡介，樑抗彎矩分析及設計，樑抗剪力分析及設計，鋼筋錨定設計，短柱分析及設計。

372054 Reinforced Concrete　　2　S　　TBA

The main objective of the course is to proportion reinforcement and concrete mixtures, develop, the engineering student, the ability to analyze and design a reinforced concrete member subjected to different types of forms in a simple and logical manner using the basic principles of statics and some empirical formulas based on experimental results. It contains the following sections: introduction, analysis and design of beams under bending, analysis and design of beams under shear, development of reinforcement, analysis and design of

short columns.

372055 崩塌地防治工程 2 選 許中立

本課程之內容：

1.緒論與意義
2.崩坍地之分類與型態
3.崩坍地之理論分析
4.崩坍地之判斷
5.崩坍地之調查與分析
6.崩坍地之安定分析
7.崩坍地之處理

372055 Engineering of Landslide Control 2 S C. L. Hsu

The contents of this course included are:

1. Introduction and Definition of Landslide
2. Classification and Type of Landslide
3. Theoretical Analysis of Landslide
4. Judgement of Landslide
5. Surveying and Analysis of Landslide
6. Stability Analysis of Landslide
7. Reatment of Landslide

372056 環境影響評估 2 選 謝杉舟

概述：環境影響評估乃是『就自然環境與人文環境觀點對人類活動所以造成與所將造成的影響或沖擊加以評價與預防』，尤其在自然資源之開發利用或保育技術過程中，環境影響評估更顯其重要性。本課程授課內容重點如下：環境影響評估之基本概念、環境影響評估之發展、資源保育與開發對環境衝擊之評估、環境影響評估之方法體系與制度之建立、環境衝擊評估之方法與比較、環境影響評估之執行技術、各種評估方法之實習演練與討論。

372056 Environmental Impact Assessment 2 S S. C. Hsieh

Environmental Impact Assessment is to assess and prevent the possible impact on environment caused by human activities, especially during the early development or conservation stage on natural resources. The course covers the following:basic concept of environmental impact assessment、development of environmental impact assessment、assessment of environmental impact caused by natural resources conservation and development、method and system establishment of environmental impact assessment、method and comparison of environmental impact assessment、excution of environmental impact assessment、lab exercises and discussion of various assessment techniques

372057 結構學 2 選 待聘

講授結構力學原理及結構分析方法。課程內容包括：結構學概論、結構之穩定度與靜定度、靜定梁及桁架、靜定剛架、結構之彈性變形、諧合變位法分析靜不定結構、最小功法分析靜不定結構、彎矩分配法分析靜不定結構、斜角撓度法分析靜不定結構、結構之影響線。

372057 Structural Analysis 2 S TBA

In this course principles of structural theory are studied and various methods which are used to analyze every kind of structures are studied as well. The main contents of this

course include: introduction and fundamentals of theory of structures, stability and determinacy of structures, statically determinate beams and trusses, statically determinate rigid frames, elastic deformations, method of consistent deformations,method of least work, moment distribution method, slope-deflection method,and influence lines.

372058 水土保持法規 2 選 待聘

講解有關水土資源保育法規之演變，並對目前有關部門之資源保育法規加以研究探討，俾使資源保育法規能因應時代與社會之需求達到資源合理利用與保育之目的。其內容包括：有關山坡地保育條例、中華民國水土保持法草案台灣省水庫集水區治理辦法、山坡地開發建築管理辦法等及其他有關山坡利用有關之法規之探討研究。

372058 Regulations in Soil and Water Conservation 2 S TBA

This course is dealing with the developing history of regulation in soil and water resources conservation, and to let the students understand a basic concepts of law and reg-ulation on the soil and water resources conservation. This course includes as follow: the Rules of Conservation and Utilization of Slope land Resources, the Draft Law of Soil and Water Conservation of the Republic of China, the Management Law of Reservoir Watershed of Taiwan and the Management Law of Slope land Building etc.

372059 坡地工程 2 選 許中立

本課程旨在訓練學生瞭解山坡地特性及解決開發利用時所遇到的工程問題，以逕流分析、渠道水力學、土壤力學、道路工程與邊坡穩定等基本原理，引導學生以安全、經濟的渠道斷面規劃合理的灌溉、排水系統以及調節池、沉砂池等築壩工程，並依地形、坡向、地質與岩層走向，選擇安全路廊坡面，配合流量需求，規劃合理路寬與坡度，兼顧環境景觀與觀光發展。

372059 Slope Land Engineering 2 S C. L. Hsu

This course is designed to offer students to realize the slopeland characteristics and to solve the problems in the agriculture production,which are related to the civil engineering. The principles of runoff analysis, open channel hydraulics, soil mechanics, and transportation engineering will be covered in this course. Base on that knowledge,students will have ability to design rational irrigation and drainage systems. The routing of road design, environmental landscape, and tourism development will also include in the course.

372060 土石流防治 2 選 陳天健

土砂災害一直是山高水急的台灣必須面臨的問題，因此本課程首先從地形學、地質學的觀點介紹土砂災害的種類與成因；其中包含崩塌、地滑與土石流。再以流變學的觀點，探討土石流的特殊流動特性及其基本特質。隨後將探討土石流發生的機制，輔以摩爾庫倫破壞理論，探討土石流發生的臨界條件。最後簡單介紹目前台灣所採用的土石流預警系統及防治工法，讓學生瞭解土石流防治的基本理念與技術。

372060 Prevention of Debris Flow 2 S T.C. Chen

Disasters caused by massive movement have always been a threat to Taiwan. Therefore, the course will start with the introduction of debris disasters from the viewpoints of

geomorphology, geology, and soil science. In-depth discussion on the characteristics of debris flow as well as its flowing phenomena will be conducted during the middle third of the class period. Mohr-Column Failure theory will be used to identify the incipient motion of debris flow. At the end, the early warning system and control structures used in other countries as well as in Taiwan will conclude the entire class.

372061 水土保持工程設計 2 選 李明熹

本課程講解水土保持工程法規劃、設計與施工之原理與方法，主要內容包括：坡地排水、蝕溝控制、邊坡穩定等實用技術之應用。

372061 Design of Soil and Water Conservation Engineering 2 S M. H. Lee

The principle and methodology of planning, design, and construction of soil and water conservation structures are discussed in this course. The subjects include: slope land drainage, gully control, and slope stabilization.

372062 水土保持工程設計實習 1 選 李明熹

本實習課程著重於水土保持工程法規劃、設計、施工之實務練習。內容包括各單項工程之設計與施工管理（防砂壩、坡地排水溝、擋土牆等），及系統之規劃與分析。

372062 Design of Soil and Water Conservation Engineering Lab. 1 S M. H. Lee

The subject of this laboratory study is to practice of individual soil and water conservation structure design and construction management. The subjects of the practice include :Check dam, slope land drainage, and slope stabilization.

372063 防砂工程 2 選 李錦育

該課程為協助學生瞭解一些基本資料的分析（如氣象、水文、溪流及土壤力學），以便能成功地解決設計者的問題。以資料收集及分析為探討之重點，包括石礫及砂之水力及動態現象。學生必須須對壤力學、流體力學及粘土礦物之粘彈性有所瞭解，以充份確認其論點。

372063 Sabo Engineering 2 S C. Y. Lee

The objective of this course is to assist the students develop an elementary knowledge of some data analyses like meteorological, hydrologic, stream flow, and soil mechanics that have been successfully applied to designer's problems) This course lays special emphasis on basic data collection and analysis, in regards to its hydraulic and dynamic phenomena, including gravel and sand. Students are required to major in soil mechanics, fluid mechanics and theology of clay minerals to help them confirm their viewpoints.

372064 防風定砂 2 選 待聘

本課程之目的在提供學生對防風定砂之概念，認識風砂之災害與謀求防治之道。其內容包括：風之生成及其影響、風之因素、砂之成因及其特性、風蝕現象及砂之移動、農地風蝕力之估測、防風設備設計、防風林設計、防風林營造、定砂。

372064 Windbreak and Sand Stability 2 S TBA

The purpose of this course is to offer the fundamental concept of windbreak and Sand

stabilization to the students and to let the students understand the wind and sand erosion or damage, so that they can find out the best ways of controlling wind and sand damage in Taiwan. The contents are: formation and influence of wind, elements of wind, causes and quality of sands, phenomena of wind erosion and behavior of sand, estimations of wind erodibility in farm land, design of windbreaks structures, design of windbreaks forests, plantation of windbreak forests sand stabilization.

372065 水資源管理 2 選 李錦育

本課程之目的在於使學生了解水資源開發時所應具備的知識。課程內容包括：(1)水庫(2)壩(3)排洪道，閘門，出水工(4)明渠(5) 壓力管路(6)給水系統(7)污水及廢水處理(8) 洪災消減。學生選讀這門課前應有水文學及工程之基本知識。

376065 Water Resource Management 2 S C. Y. Lee

The objective of this course is to provide an opportunity for students to gain the required engineering knowledge on water resources development. The course contents include:(1)Reservoirs(2)Dams (3)Spillways, Gates, and Outlet works (4)Open Channels (5)Pressure (6)Water Supply Systems(7)Sewerage and Wastewater treatment (8)Flood damage Mitigation. The pre-required courses are Hydrology and Engineering.

372066 水資源工程與規劃 3 選 江介倫

本課程之目的在於使學生了解水資源工程開發規劃時所應具備的基本知識。學生選讀這門課前應具有水文學及工程之基本知識。課程內容包括：水庫、壩、排洪道、閘門與出水工、明渠、壓力管路、給水系統、污水及廢水處理、洪災消減、經濟分析、系統分析。

372066 Water Resources Engineering and Planning 3 S J. L. Chiang

The objective of this course is to provide an opportunity for students to gain the required engineering knowledge on water resources development and planning. The prerequired courses are Hydrology and Engineering. The course contents include: reservoirs, dams, spillways, gates and outlet works, open channels, pressure pipe flow, water supply systems, sewerage and wastewater treatment, flood damage Mitigation, optimization.

372067 坡地農村建設 2 選 待聘

本課程主要針對坡地農村規劃領域做概括性的介紹。內容包括：坡地農村規劃之意義與理論、坡地農村規劃的內與程序、國內外農村規劃概況，以及不同主題規劃如土地利用計劃、產業發展計劃、公共設施計劃、住宅計劃、社區建設計劃、觀光遊憩計劃、景觀維護計劃等。另外，對於農村計劃之體系與相關法令也有介紹。

372067 Slopeland Rural Construction 3 S TBA

This course mainly introduces slopeland rural planning in overall perspectives. It includes the meanings and theory of slopeland rural planning, implementations of rural planning and some different topic on rural planning, for example, land use planning, industry development planning, community planning, and acts of rural planning. This course hopefully could help students have overall understandings to slopeland rural

planning.

372068 水土保持技術規範 2 選 吳嘉俊

本課程為水土保持全程課程規劃的最終課程，其目的在讓學生重新回顧過去所學之專業課目，並透過水土保持技術規範條文的介紹，讓學生瞭解條文背後制訂的本意，以達融會貫通，學以致用的目的。本課程針對山坡地非農業使用之水土保持規劃進行規範內容與設計技巧之討論。

372068 Soil and Water Conservation Technical Guide 2 S C. C. Wu

This course is one of the senior courses which designed specifically for those interested in field implementation. Through in-depth discussion in " Soil & Water Conservation Regulations ", all the knowledge and techniques will be integrated throughout to strengthen students' concepts in conservation planning. This course deals with conservation planning for non-agricultural development on slopeland.

372069 水土保持技術規範實習 1 選 吳嘉俊

本課程為水土保持全程課程規劃的最終課程，其目的在讓學生重新回顧過去所學之專業課目，並透過水土保持技術規範正課的介紹，及分組實作的方式，讓學生從坡地非農業開發行為的規劃設計開始，到最終的水土保持處理與維護設施的設計為止，以期讓學生能學以致用。

372069 Soil and Water Conservation Technical Guide Lab. 1 S C. C. Wu

The objective of this course is to strengthen students' ability in soil & water conservation planning. Selected conservation planning projects will be used as examples so that students can practice what they have learned in the past both theoretically or practically through group discussion or hand-on planning.

372070 校外實習 2 選 許中立

本課程的主要目的，在使學生經由參與校外 380 小時的實作，瞭解目前業界的工作重點與職能需求，以利學生趁早規劃未來課程的選修與職涯路徑。

372070 Practical Training 2 S C.L.Hsu

The objective of this course is to help students understand the needs and key points of professional sectors through 380 hrs. practical training . The expected outcome of this course is to assist students in preparation of courses selection and professional career.