106/2 Courses taught in English(106 學年度第 2 學期全英文授課課程表)

No. 編號	Department 開課系所	Course Code 課號	Course Title 科目名稱	Required/Elective 必修/選修	Credit Points 學分數	Instructor 授課老師	Course Description 課程說明
1.	Institute of Mechanical and Electro-Mechanical Engineering(動力機械工程系機械與機電工程博士班)	2343	Theory of Gearing（齒輪原理）	Elective 選修	3	Shinn-Liang Chang 張信良	Course Outline
2.	Institute of Mechanical and Electro-Mechanical Engineering(動力機械工程系機械與機電工程博士班)	2346	Big Data Analysis（巨量資料分析）	Elective 選修	3	Kuang-Chyi, Lee 李廣齊	Course Outline
3.	Institute of Mechanical Design Engineering(機械設計工程系碩士班)	0247	Mechanical Vibrations（機械振動學）	Elective 選修	3	Yunn-Lin, Hwang 黃運琳	Course Outline
4.	Graduate Institute of Aeronautical and Electronic Engineering（飛機工程系航空與電子科技碩士班）	0305	Aircraft Stability and Control（飛機穩定性與控制）	Elective 選修	3	Wen-Chi, Lu 呂文祺	Course Outline
5.	Graduate Institute of Aeronautical and Electronic Engineering（飛機工程系航空與電子科技碩士班）	0307	Flight Safety（飛航安全）	Elective 選修	3	Arnold, Wang 王士嘉	Course Outline
6.	Institute of Automation Engineering(自動化工程系碩士班)	0049	Creation and Invention（創意與發明）	Elective 選修	3	Roug-Feng, Tsai 蔡榮鋒	Course Outline
7.	Institute of Automation Engineering(自動化工程系	0053	Engineering Analysis（工程分析）	Elective 選修	3	Meng-Tse, Lee	Course Outline

					碩士班)		李孟澤	
8.	Institute of Electrical Engineering (電機工程系碩士班)	0140	Low Power Methodology For System-on-Chip Design （低功率系統晶片設計）	Elective 選修	3	Chi-Chia, Sun 宋啟嘉	Course Outline
9.	Master of Electro-Optical and Materials Science(光電工程系光電與材料科技碩士班)	0295	Optical engineering in crystal (晶體光電工程)	Elective 選修	3	Wei-Qun, Chuang 莊為群	Course Outline
10.	Institute of Electronic Engineering （電子工程系碩士班）	0086	Advanced Object-Oriented Programming design and practice （進階物件導向程式實務）	Elective 選修	3	Yu-Sung, Liu 劉育松	Course Outline
11.	Institute of Computer Science and Information Engineering (資訊工程系碩士班)	0128	Intelligent Optimization Algorithm （智慧型最佳化演算法）	Elective 選修	3	Jin-Tsong, Jeng 鄭錦聰	Course Outline
12.	Institute of Information Management(資訊管理系碩士班)	0094	Database Management （資料庫管理）	Elective 選修	3	Yung-Tsung, Hou 侯雍聰	Course Outline
13.	Institute of Information Management(資訊管理系碩士班)	0097	Machine Learning and Big data （機器學習與大數據）	Elective 選修	3	Nian-Ze Hu 胡念祖	Course Outline
14.	Master program of Business Management of Department of Business administration (企業管理系經營管理碩士班)	0350	Technology Management （科技管理）	Elective 選修	3	Yu-Chun, Chen 陳鈺淳	Course Outline
15.	Master program of Business Management of Department	0348	Behavioral Finance （行為財務）	Elective 選修	3	Chi-Lin, Lu	Course Outline

	of Business administration (企業管理系經營管理碩士班)					呂麒麟	
16.	Master program of Business Management of Department of Business administration (企業管理系經營管理碩士班)	0349	Strategic Management （策略管理）	Elective 選修	3	Yi Hsu 徐怡	Course Outline
17.	Institute of Department of Finance(財務金融系碩士班)	0040	The Theory and Practice of Investment (投資學理論與實務)	Required 必修	3	Ya-Wen, Lai 賴雅雯	Course Outline
18.	Institute of Industrial Engineering and Management (工業管理系工業工程與管理碩士班)	0327	Technology Management （科技管理）	Elective 選修	3	Po-Chieng, Hu 胡伯潛	Course Outline
19.	Institute of Industrial Engineering and Management (工業管理系工業工程與管理碩士班)	0325	Networks and Logistics （網路與運籌）	Elective 選修	3	Hsieh , Yi-Chih 謝益智	Course Outline
20.	Institute of Industrial Engineering and Management (工業管理系工業工程與管理碩士班)	0326	Simulation （模擬學）	Elective 選修	3	Chih-Hsiung, Hu 胡智熊	Course Outline
21.	Graduate School of Digital Contents and Creative Industries （多媒體設計系數位內容創意產業碩士班）	0180	Social Interactive Medeia Research （社交媒體互動研究）	Elective 選修	3	Siu-Tsen, Shen 沈思岑	Course Outline
22.	Graduate School of Digital	0170	Project Discussions (II)	Required	2	Siu-Tsen,	Course Outline

	Contents and Creative Industries（多媒體設計系數位內容創意產業碩士班）		（專題討論(二)）	必修		Shen 沈思岑	
23.	Graduate School of Digital Contents and Creative Industries（多媒體設計系數位內容創意產業碩士班）	0171	Creative Industries in Cultural Research（文化創意產業研究）	Elective 選修	3	wu hawe , Jue 朱文浩	Course Outline
24.	Graduate School of Digital Contents and Creative Industries（多媒體設計系數位內容創意產業碩士班）	0173	Research of Interactive Technology and Applications（互動科技應用研究）	Elective 選修	3	Cheng, wen hwa 鄭文華	Course Outline
25.	Graduate School of Digital Contents and Creative Industries（多媒體設計系數位內容創意產業碩士班）	0174	Multimedia Creative Presentation（多媒體創作與表現專題研究）	Elective 選修	3	Siu-Tsen, Shen 沈思岑	Course Outline
26.	Graduate School of Digital Contents and Creative Industries（多媒體設計系數位內容創意產業碩士班）	2365	Wayfinding and Signage Design Study（尋路訊息與空間識別研究）	Elective 選修	3	Yunng-hsin, Jen 任永新	Course Outline

Course title 課程名稱	Theory of Gearing（齒輪原理）	
Course Description 課程概述	Gears are popularly applied in industry. Engineers need the knowledge how to generate the tooth profile according to the manufacturing machines. The tooth contact analysis between the meshing gears is also investigated in the class.	
Course objective 課程目標	The main target is to build up the mathematical model of the gears. Then, the students can investigate the meshing of gears with axes assembly errors.	
Competence 核心能力	1. Matrix Operation 2. Differential Geometry 3. Vector Operation 4. Programming	
Prerequisite Course(s) 先修課程或先備能力	Engineering Mathematics	
Teaching Strategies 教學方法	1. Class Teaching 2. Project Study	
Course Material 課程教材	Theory of Gearing, Litvin	
Grading 評量方式	1. Examination 2. Paper Reading 3. Project	
References 參考書目	Gear geometry and applied theory, Litvin Noncircular gears : design and generation, Litvin	
Contact with Teacher 老師聯絡資訊	05-6315440	
Course Outline 課程進度		
1. Coordinate Transformation 2. Transformation of Motion 3. Plane Curves 4. Conjugate Shapes	1. Plane Gearing Analysis 2. Basic Kinematic Relations of Plane Gearings and Their Application 3. Generation of Conjugate Shapes 4. Project Study	
Remarks 備註		

Course title 課程名稱	Big Data Analysis（巨量資料分析）
Course Description 課程概述	The course completely self-contained and heavily illustrated this introduction to basic concepts and methodologies for data mining and big data analytics truly is suitable for seniors and first-year graduate students in almost any technical discipline. The course explores the concepts and techniques of data mining, a promising and flourishing frontier in data and information systems and their applications. Data mining, also popularly referred to as knowledge discovery

	from data (KDD), is the automated or convenient extraction of patterns representing knowledge implicitly stored or captured in large databases, data warehouses, the Web, other massive information repositories, or data streams.
Course objective 課程目標	Introducing the concepts of data mining and big data analysis.
Competence 核心能力	Progamming about the data mining and big data analysis.
Prerequisite Course(s) 先修課程或先備能力	Computer Programming Languages (計算機程式)
Teaching Strategies 教學方法	Oral Teaching, Practice in computer and Testing
Course Material 課程教材	Jiawei Han, Micheline Kamber & Jian Pei, Data Mining: Concepts and Techniques, Morgan Kaufmann Publishers(Elsevier), 2012.
Grading 評量方式	◆attendance rate：10 %　◆The usual assessment：30 %　◆Midterm assessment：25 % ◆Final assessment：25 %　◆The others：10%
References 參考書目	Hand-Out and Web-site Materials
Contact with Teacher 老師聯絡資訊	Kuang-Chyi Lee, kclee@nfu.edu.tw, 05-6315379

Course Outline 課程進度	
Introduction to Data Mining and Knowledge Discovery from Data Data Preprocessing Binary image Data Warehouse and Technology Data Cube Computation and Data Generalization Mining Frequent Patterns, Associations and Correlations	Classification Prediction Accuracy and Error Measures Cluster Analysis Mining Stream Time-Series Sequence Data
Remarks 備註	

Courses taught in English

Course title 課程名稱	Mechanical Vibrations (機械振動學)
Course Description 課程概述	Mechanical Vibrations is the study of the vibration behavior of flexible bodies, each of which may undergo external exciting forces.
Course objective 課程目標	Let students understand "Mechanical Vibrations" in applications of industry.
Competence 核心能力	Mature, Stable and Computational abilities.
Prerequisite Course(s) 先修課程或先備能力	Statics, Dynamics and Mechanics of Materials.

Teaching Strategies 教學方法	Course Notes, Computer Simulation, and Report Writing.
Course Material 課程教材	Shabana A. A., 1991, *Theory of Vibration - Volume I: An Introduction*, Springer-Verlag, New York.
Grading 評量方式	Quiz, Mid-term Examination, Final Examination, and Final Project.
References 參考書目	1. Meirovitch L., 1987, Element of Vibration Analysis, 2nd edition, McGraw-Hill Book Company, New York. 2. Inman D. J., 1994, Engineering Vibration, Prentice-Hall International, New York.
Contact with Teacher 老師聯絡資訊	Yunn-Lin Hwang/黃運琳 hwang@nfu.edu.tw TEL: 05-6315339

Course Outline 課程進度	
Outline: 1. **Introduction** 2. **Solutions of the Vibration Equations** 3. **Free Vibration of Single Degree of Freedom Systems** 4. **Forced Vibration of Single Degree of Freedom Systems** 5. **Response to Nonharmonic Forces** 6. **Multi-Degree of Freedom Systems** 7. **Introduction of vibration measurements**	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Aircraft Stability and Control (飛機穩定性與控制)
Course Description 課程概述	This course gives a preliminary knowledge for further investigation in flight dynamic analysis and control law design of fixed-wing aircraft. The material covers the basic knowledge of aerodynamics, aircraft dynamics and generic flight control design issues. Flight mechanics is the major topics in this course.
Course objective 課程目標	1. Familiar with aircraft dynamics with configurations 2. Understanding flight dynamics in equations 3. Analyzing aircraft dynamics with software tools
Competence 核心能力	The abilities and skills should be learned in this course are to apply physics and mathematics to understand the dynamics of aircraft, and evaluate their stability with classical control theory.
Prerequisite Course(s) 先修課程或先備能力	1. Dynamics 2. Advanced mathematics 3. Classic control theory
Teaching Strategies 教學方法	Oral Lecture, Case Method and Panel Discussion
Course Material 課程教材	Flight Stability and Automatic Control, 2nd Ed., Robert C. Nelson, McGraw-Hill, ISBN 978-0070462731. 1992.

Grading 評量方式	Home assignments, mid-term report and final report and oral presentation.
References 參考書目	Lecturer's hand out.
Contact with Teacher 老師聯絡資訊	Wen-Chi Lu Phone (O)05-631-5545, E-mail: luwenchi@nfu.edu.tw
Course Outline 課程進度	

1. Introduction to aircraft dynamics and stability (1 week)
2. The Atmosphere and Aerodynamics (1 weeks)
3. Static Stability and Control (3 weeks)
4. Mid-term report (1 week)
5. Rigid Equations of Motion and Stability Derivatives (3 weeks)
6. Flying Qualities (1 week)
7. Stability Augmentation (1 week)
8. Autopilot Design (1 week)
9. Final Report (1 week)

Remarks 備註	

Courses taught in English

Course title 課程名稱	Introduction of Aviation Safety（飛航安全）
Course Description 課程概述	Air transport will continue to grow. It has a good relative safety record but public perception focuses on total accidents rather than relative safety. This has led to the setting of ambitious new safety targets for air transport, whose attainment will require improved knowledge of causes of accidents and better understanding of the effects of new technologies and procedures. Human factors and operational environments are key elements while aircraft design, construction and maintenance, together with operations and accident mitigation, also play important roles. During the lectures a variety of projects relating to these matters were presented.
Course objective 課程目標	Understand and implement the process of accident investigation and • This course covers all aspects of investigation from applicable rules and regulations through investigation technology, analysis and reports. • The participant develops an understanding of the entire investigation process and is well prepared to participate in future investigations.
Competence 核心能力	The abilities and skills a student should learn in accident investigation of all aspects of industries – but they are beneficial to apply, and sometimes originate, in the workplace.
Prerequisite Course(s) 先修課程或先備能力	This course is for individuals who may wish becoming involved in future accident investigations in any capacity and need to understand basic investigation technology.
Teaching Strategies 教學方法	Oral Lecture, Case Method and Panel Discussion
Course Material 課程教材	Aircraft Accident Investigation, April 24, 2006by Richard Wood (Author), Robert Sweginnis (Author)
Grading 評量方式	Case study presentation and group report writing

References 參考書目	Lecturer's hand out.
Contact with Teacher 老師聯絡資訊	Arnold Wang, Phone (O)05-631-5538, E-mail: arnold@nfu.edu.tw

Course Outline 課程進度	
1. Introduction of aircraft accident investigation 2. The Civil Investigation Process 3. International Investigation Procedures (ICAO) 4. Preparing for Investigation 5. Safety at the Crash Site 6. Priorities and Initial Actions 7. Investigation Techniques for: Engines, Structures, Fire, Aircraft Systems, Instruments, and Recording Devices 8. Wreckage Recovery and Reconstruction	9. Interviewing Witnesses 10. Behavior of Materials 11. Using the Global Positioning Satellite (GPS) System 12. Aircraft Performance Factors 13. Computers and Simulation 14. Human Factors and Accident Pathology 15. Analytical Techniques 16. Reporting Requirements 17. Construction of Reports 18. Investigation Management.

Remarks 備註	

Courses taught in English

Course title 課程名稱	Creation and Innovation（創意與發明）
Course Description 課程概述	The course allows flexible options in different aspects of innovation and recreation. Three ~ five student may organize a group and focuses a subject to present the history, development, future application on ECO, energy saving, 3D printing, and engineering, commercial & practical application in present and future life. The course starts from important existing inventions to discover the research background, theory, difficulty in marketing etc. The theories of TRIZ will be mentioned to summarize the invention principles.
Course objective 課程目標	To describe the properties of existing problems To discover the disadvantage of existing product or problems To summarize existing solutions To organize a group to discuss the problems in different aspects To think with TRIZ theoreyI To integrate the possible suggestions
Competence 核心能力	■Problem description ■Communication in and between the groups。 ■Group coordination 。 ■Innovation thinking of existing technique or products (TRIZ)
Prerequisite Course(s) 先修課程或先備能力	NONE
Teaching Strategies 教學方法	The course concentrates on the team project in observation, information collection, reports, and Q&A, especially on discussion and suggestions.

Course Material 課程教材	Purposely prepared
Grading 評量方式	Group project Presentation Discussion Feed Back
References 參考書目	NONE
Contact with Teacher 老師聯絡資訊	X5385 Room 1593

Course Outline 課程進度	
Chapter 1 : Introduction Chapter 2 : Case studies i: bicycle, instant noodle, Walkman, MP3 Chapter 3 : Case studies ii: airplane, submarine Chapter 4 : Case studies iii: Development of car and its accessories Chapter 5 : Case studies iv: Air conditioner and refrigerator Chapter 6 : Discussion I Chapter 7 : TRIZ I: daily living tool Chapter 8: TRIZ II: stationary Chapter 9 : Discussion II	Chapter 10 : Iot and its application I Chapter 11 : Iot and its application II Chapter 12 : Iot and its application III Chapter 13 Final report and discussion I Chapter 14 Final report and discussion II Chapter 15 Final report and discussion III Chapter 16Final report and discussion IV Chapter 17 Summary and Feedback I Chapter 18 Summary and Feedback II

Remarks 備註	

Courses taught in English

Course title 課程名稱	Engineering Analysis（工程分析）
Course Description 課程概述	If an engineer asked to solve an engineering problem (usually a physical nature), they first have to formulate the problem as a mathematical expression in terms of variable, functions, equations…and so on. Such an expression is known as a "mathematical model" to the given problem.
Course objective 課程目標	In this course, engineering analysis, it is a training to establish the connection between "real physic phenomenon" and its "mathematical model" in order to solve (and to analyze) engineering problems. It requires all four phases: 1.Obsvering- Observe the target's behavior and make assumptions 2. Modeling- The transition from physical situation to its mathematical formulations 3. Solving- The solution by a mathematical method (skill) 4. Examination- The physical interpretation of the result
Competence 核心能力	Transfer a engineering problem into mathematical model then solve it
Prerequisite Course(s) 先修課程或先備能力	Physics, Calculus, Engineering Mathematics
Teaching Strategies 教學方法	In-class notes and Case studies

Course Material 課程教材	Tailor-made teaching materials
Grading 評量方式	In-class Exams 15%*2, Mid-term Exam 30%, Final Exam 30%, Roll call 10%
References 參考書目	Advanced Engineering Mathematics, 10th edition, Erwin Kreyszig, Wiley
Contact with Teacher 老師聯絡資訊	mtlee@nfu.edu.tw, 05-6315388

Course Outline 課程進度	

Part-1: The Introduction to "Modeling"
 	
Part-2: 1st Order ODE Models
 	
Part-3: 2nd Order Homogeneous ODE
 	
Part-4: 2nd Order Homogeneous ODE Models –
 	
   Free Oscillations
	Part-5: Non-homogeneous ODE
	
	Part-6: Non-homogeneous ODE Models –
	
	   Forced Oscillations
	
	Part-7: Linear System of ODE
	
	Part-8: Linear System of ODE Models –
	
	   Multi-Systems Interaction

Remarks 備註	

Courses taught in English

Course title 課程名稱	Low Power System-on-a Chip Design(低功率系統晶片設計)
Course Description 課程概述	This course is designed for graduate students who are interested in Low Power system design techniques. The course begins by introducing the history of VLSI and the recent trend of VDSM technology and future 3D-IC design issues. The sources of power consumption, systematically covers methodologies from the lower circuit level to higher abstraction level. Topics will include challenges of VDSM technology, power estimation methodologies, and power reduction methods at various design levels. Moreover, several states-the-art researches for energy efficient computing and Low Power architecture will be assigned as a small colloquium for students. In the meantime, a Lab about how to use Synopsys Design Compiler with the Low Power profile UPF model will be demonstrated.
Course objective 課程目標	The objective of Low Power System-on-a Chip Design is a guidance how power measure mythology could be applied to recent VLSI designs, further leads to low power system design at circuit level.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	HDL Language VLSI Introduction
Teaching Strategies 教學方法	Lectures and Labs
Course Material 課程教材	● Power Point Slides ● Power measurement labs
Grading 評量方式	Mid-term Presentation 30% Implementation 30% Presentation 20%

	Term 20%
References 參考書目	● W. Wolf, "FPGA-based System Design", Prentice Hall, 2004 ● S. Palnitkar, "Verilog HDL: A Guide to Digital Design and Synthesis", Prentice Hall, 2003, Second Edition ● Keating M. "Low Pwoer Methodology Manual For System-on-Chip Design", Springer, 2008 ● Neil Weste, "CMOS VLSI Design: A Circuits and Systems Perspective (3th Edition)", Addison Wesley, 2005
Contact with Teacher 老師聯絡資訊	+886-5-6315631 ccsun@nfu.edu.tw Prof. Dr.-Ing. Chi-Chia Sun

Course Outline 課程進度	
1. Overview of VLSI 2. Challenges in VDSM and 3D-IC technology 3. Sources of power consumption 4. Power estimation and model 5. Power reduction 6. Energy recovering device 7. Low Power Design Labs 8. Final Presentation	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Optical engineering in crystal(晶體光電工程)
Course Description 課程概述	In this course, the characteristics of an optical device will be appreciated and its limitation can be understood through a study of the electromagnetic propagation. An effort is made to bridge the gap between theory and practical through numerical examples based on real situations. Classical electrodynamics is used in dealing with the coherent interaction of laser radiation with various optical media. The emphasis is on the fundamental principles.
Course objective 課程目標	1. To present a clear physical picture of propagation of laser radiation in various optical media. 2. To teach the students how to analyze and design electro-optical devices.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	1. Engineering mathematics 2. Electric circuits 3. Electromagnetics
Teaching Strategies 教學方法	Lecture present
Course Material 課程教材	Text book: Optical Waves in Crystals-propagation and control of laser radiation, A. Yativ and P. Yeh

Grading 評量方式	Midterm and final reports
References 參考書目	Wave Optics, N. Lindlein
Contact with Teacher 老師聯絡資訊	e-mail: eocwc@nfu.edu.tw

Course Outline 課程進度	
1. Electromagnetic fields 2. Propagation of laser beams 3. Polarization of light waves 4. Electromagnetic propagation in anisotropic media Midterm report	5. Electro-optics 6. Electro-optics devices 7. Acousto-optic 8. Acousto-optic devices 9. Non-linear optics Final report

Remarks 備註	

Courses taught in English

Course title 課程名稱	Advanced Object-Oriented Programming Design and Practice（進階物件導向程式實務）
Course Description 課程概述	This Course is about learning the advanced topics about the C++ language to get you started with making physical projects with multi-platform programming language Qt4 for graphical user interfaces. It introduces the student to user-interface programming through a study of the Qt4 concepts of widgets and layouts, main window, model-view framework, drawing and printing, file handling, internationalization, localization and networking. Throughout the semester, problem solving skills will be stressed and applied to solving the user-interface designing problems.
Course objective 課程目標	The main objective of this course is to provide the students with usable information on: • Understand the rapid application development using Qt • Manipulate various Qt widgets and layouts • Recognize the main window structures and the model-view framework • Apply the drawing and printing skills in your applications • Translate an application according to internationalization and localization concepts • Create an networking application with various protocols
Competence 核心能力	1. Ability to build a Qt development environment that is fully integrated with Qt library 2. Ability to design a Qt based UI application 3. Ability to troubleshoot, debug, and profile the Qt interface for an embedded device or computer 4. Ability to use widgets and layouts in practical use cases 5. Ability to create application windows with menus, toolbars, etc. 6. Ability to understand the presentation of data through a model/view framework 7. Ability to develop an application with networking abilities
Prerequisite Course(s) 先修課程或先備	Prerequisite material will be reviewed briefly at the beginning of each course. Basic understanding of using computer is necessary.

能力	
Teaching Strategies 教學方法	1. Lectures in class 2. Interactive discussion learning 3. Experiment and operation 4. Project study
Course Material 課程教材	Foundations of Qt Development, Johan Thelin/ Apress
Grading 評量方式	1. Quiz and Homework: 20%. 2. Midterm Exam. and/or report: 30%. 3. Final Exam. and/or report: 30%. 4. Class Attendance and Discussion: 20%.
References 參考書目	Qt5 Cadaques, J. Ryannel, J. Thelin
Contact with Teacher 老師聯絡資訊	E-mail: ysliu@nfu.edu.tw Tel: +886-966333666 Office: DEPARTMENT OF ELECTRONICS ENGINEERING / Room ATC401-1
Course Outline 課程進度	
W1 W2 W3~W4 W5~W6 W7~W8 W9 W10~W11 W12~W13 W14 W15~16 W17 W18	*Ch1 The Qt Way of C++* *Ch2 Rapid Application Development Using Qt* *Ch3 Widgets and Layouts* *Ch4 The Main Window* *Ch5 The Model-View Framework* *Midterm Examination* *Ch6 Creating Widgets* *Ch7 Drawing and Printing* *Ch8 File handling* *Ch10 Internationalization and Localization* *Ch14 Networking* *Final Examination*
Remarks 備註	

Courses taught in English

Course title 課程名稱	Intelligent Optimization Algorithm (智慧型最佳化演算法)
Course Description 課程概述	This course introduces the optimization theorems such as linear programming, quadratic programming, nonlinear programming, and intelligent algorithm such as GA, PSO, ACO, SA, neural networks, machine learning, deep learning for research application. Students must select a paper (must be a journal paper, IEEE is best) that belongs to optimization topic and implement the intelligent algorithm with Matlab. Students must present this paper thirty minutes in the finally examination with English and reserve 5 minutes for discussion. Besides, finally report needs use English to write the content.
Course objective 課程目標	This course introduces the optimization theorems and intelligent algorithm for research application. Besides, this course will implement the intelligent algorithm with Matlab.
Competence 核心能力	Possess information technology expertise in the field of computer science and information engineering. Possess the ability on plan and execute research project. Possess the ability to write and to present professional papers. Possess the ability to think creatively and solve problems independently. Possess the ability that has a good international outlook.
Prerequisite Course(s) 先修課程或先備能力	Computer Programming, Calculus, Linear Algebra, Probability and Statistics, Numerical Analysis
Teaching Strategies 教學方法	Class teaching, papers or technical reports studying, and project practicing
Course Material 課程教材	1.“Optimization Toolbox™ User’s Guide R2017b,” Mathworks, 2017 2. Handout from web and E-library.
Grading 評量方式	1. Mid-term exam 30% 2. Final exam 30% 3. Participation and Presentation 40% (class attendance, discussion, homework, and group work will be used)
References 參考書目	1. Paper from E-library. 2. Nello Cristianini and John Shawe-Taylor, “An Introduction to Support Vector Machines and Other Kernel-based Learning Methods,” Cambridge University Press, 2000.
Contact with Teacher 老師聯絡資訊	E-mail：tsong@nfu.edu.tw
Course Outline 課程進度	

單元主題	主題大綱
Unit 1	Introduction to Engineering Optimization
Unit 2	Introduction to Matlab Optimization Toolbox
Unit 3	Programming in Matlab
Unit 4	Quadratic Programming Optimization Problems
Unit 5	Unconstrained Optimization Problems
Unit 6	Constrained Optimization Problems
Unit 7	Lagrange Multiplier Method
Unit 8	Introduction to intelligent optimization algorithm such as GA, PSO, ACO, SA, SVM, LS-SVM, Neural Networks, Machine Learning
Unit 9	Implement Optimization Algorithm and Intelligent algorithm with Matlab
Unit 10	Intelligent Optimization Paper Study and Presentation

Remarks 備註	※Regular attendance is expected and necessary to understand the material. You are expected to be in class and on time each week, attendance will be taken each week. ※Roll will be taken each week and can be used to assess grade in borderline cases. ※Student who leaves class early will be counted absent for that class, unless prior approval has been given by me. ※If you miss a class with a valid excuse and wish to have the absence not counted, you should turn in an absence from with the appropriate documentation.　(In advance apply is best) ※I expect you to attend every class meeting except in the event of personal illness or family emergency or official school activities. ※You are responsible for all work whether you attend class or not. ※You must download handout from the E3 platform before class and print them in advance. At the same time, study these materials and take to class.

Courses taught in English

Course title 課程名稱	Database Management(資料庫管理)
Course Description 課程概述	This course aims at giving students an understanding of advanced database concepts, terminologies and technologies.
Course objective 課程目標	The student will learn the theoretical and practical knowledge about data processing from both the technical and organization perspectives.
Competence 核心能力	Database management, data processing, big data analysis.
Prerequisite Course(s) 先修課程或先備能力	NA
Teaching Strategies 教學方法	Lectures, discussions
Course Material 課程教材	Ref: Jeffrey D. Ullman, Jennifer Widom, A First Course in Database Systems.
Grading 評量方式	Exams, projects.
References 參考書目	NA
Contact with Teacher 老師聯絡資訊	ythou@nfu.edu.tw (侯雍聰)
Course Outline 課程進度	

Week 1 Database System Introduction Week 2 Overview of a Database Management System Week 3 Relational Model of Data Week 4 Algebraic Query Language Week 5 Design Theory of Relational Database Week 6 Database Schema Week 7 High-Level Database Model Week 8 E/R Model Week 9 Midterm Week 10 Advanced Data processing Week 11 Big Data I Week 12 Big Data II Week 13 Big Data III	
Week 14 Big Data analysis Week 15 Map and Reduce Week 16 RDD Week 17 Spark system Week 18 Final Exam	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Machine Learning and Big Data Analysis（機器學習與大數據）
Course Description 課程概述	This introductory course gives an overview of many concepts, techniques, and algorithms in machine learning, beginning with topics such as classification and linear regression and ending up with more recent topics such as boosting, support vector machines and Bayesian networks. The course will give the student the basic ideas and intuition behind modern machine learning methods as well as a bit more formal understanding of how, why, and when they work. The underlying theme in the course is statistical inference as it provides the foundation for most of the methods covered.
Course objective 課程目標	The goal of this course is to give an introduction to the field of machine learning. The course will teach you basic skills to decide which learning algorithm to use for what problem, code up your own learning algorithm and evaluate and debug it.
Competence 核心能力	Data Analyzing, Data Processing, Data Visualization
Prerequisite Course(s) 先修課程或先備能力	Basic Programming skills
Teaching Strategies 教學方法	Hands-on training

Course Material 課程教材	Data Science from Scratch, Joel Grus, O'Reilly
Grading 評量方式	Midterm 20%, Final 20%, Class Practice 30%, Project 30%
References 參考書目	Introduction to Database system
Contact with Teacher 老師聯絡資訊	Office Hours: Monday 11-12am. Contact by email.

Course Outline 課程進度	
Introduction to Python Data Visualization Database fundamental Data Modeling Getting & Working with Data k-Nearest Neighbors	Simple Linear Regression Multiple Regression Decision Trees Neural Networks Clustering Recommender Systems

Remarks 備註	

Courses taught in English

Course title 課程名稱	Technology Management（科技管理）
Course Description 課程概述	This course provides a series of strategic frameworks for managing high-technology businesses. The emphasis throughout the course is on managing technology-oriented established firms, or starting technology-driven startups. The class consists of lectures, case studies, and discussion among students. As result, students will be asked to analyze, discuss, and present the selected articles during the class.
Course objective 課程目標	After this class, students will be able to (1) select and apply disciplinary knowledge in discussing and creating innovative technological solutions; (2) research, analyze and propose solutions to technology business issues; (3) prepare written professional reports; and (4) deliver well-structured presentations.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	No
Teaching Strategies 教學方法	Lectures, presentations, and discussion
Course Material 課程教材	• Schilling, M. A. (2012). Strategic Management of Technological Innovation (4th ed), US: McGraw-Hill Education. • Assigned articles and cases
Grading 評量方式	Classroom participation...30% Mid-term exam ....20% Final Project ....30% Final Exam 20%

References 參考書目	Fortune; Harvard Business Review; Sloan Management Review; California Management Review; Bloomberg; Inc.; Fast Company
Contact with Teacher 老師聯絡資訊	
Course Outline 課程進度	
I. The nature of technological innovation II. The strategic impact of technological change III. Technology and competitive advantage IV. Innovation patterns V. Emerging vs. established technologies VI. Technological innovation and strategic management VII. Managing technology strategies and the innovation process VIII. Technological innovation and entrepreneurship IX. Lessons from technological firms	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Behavioral Finance（行為財務）
Course Description 課程概述	Behavioral finance plays a more and more important role in the development of financial management and investment. This course focused on the behavioral factors which influence financial markets and investors. People are all prone to having psychological preconceptions or biases that make us behave in certain ways. These biases influence how we assimilate the information we come in contact with on a daily basis.
Course objective 課程目標	This course targets the link between the peculiarities of human behavior and aspects of financial and investment management, as well as corporate and risk management. Students should understand and develop skills for taking into account behavioral factors in various aspects of financial markets and operation of corporations.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	No
Teaching Strategies 教學方法	Oral and discussion
Course Material 課程教材	Nofsinger, R. John, 2001,*Investment Madness*, Prentice Hall, 2001 Journal of behavioral finance
Grading 評量方式	mid-exam 30% final exam 40% presentation and participation 30%

References 參考書目	Montier, James, 2002, *Behavioral Finance: Insight into irrational Minds and Markets*, John Wiley & Sons, Ltd
Contact with Teacher 老師聯絡資訊	chilin@nfu.edu.tw

Course Outline 課程進度	
X.　　Your Behavior matter XI.　　Overconfidence XII.　　Overconfidence and investing XIII.　Status quo- or what I own is better XIV.　Seeking pride and avoiding regret XV.　　Double or nothing XVI.　Social aspects of investing XVII.　Mental accounting XVIII. Mental accounting and diversification XIX.　That's not the way I remember it XX.　　What I know is better XXI.　The internet investor XXII.　Exuberance on the net XXIII. Self-control or the lack of it XXIV. Battling your biases	

Remarks 備註	

Courses taught in English

Course title 課程名稱	Strategic Management（策略管理）
Course Description 課程概述	Lecture and case study will be used primarily. First of all, Professor will introduce overall content of each chapter by power point presentation. Then students will be assigned to do case study. Besides, paper work will be completed after class.
Course objective 課程目標	This course aims to introduce the topics of strategic management, including the introduction of strategic management, external environment analysis, international resources analysis, business-level strategy (strategic positioning and competitive advantages, etc.), corporate-level strategy (growth strategy and diversification, etc.), strategic alliance, merger and acquisition strategy, international strategic management, strategy innovation and entrepreneurship and strategy implementation. Students can comprehend the importance and impacts of strategic management on the operations of contemporary firms, and learn to formulate an appropriate strategy of a company. In addition, by discussing real cases, the students also can understand the practices of strategy of firms. By doing so, the students can apply the concepts of strategy in analyzing real cases.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	No
Teaching Strategies 教學方法	Lecturing, Case Analysis, Field trip, and Interview with entrepreneur

Course Material 課程教材	Hill, Schilling, and Jones (2017), Theory of Strategic Management with cases, 13 th edition, South-Western Cengage Harvard Business Review, Journal of Strategy Management
Grading 評量方式	Case analysis 30%、 Participation 30%、 Final Project 40%
References 參考書目	Hill, Schilling, and Jones (2017), Theory of Strategic Management with cases, 13 th edition, South-Western Cengage
Contact with Teacher 老師聯絡資訊	evehsu@ms22.hinet.net

Course Outline 課程進度	
Introduction to the cause Ch1　Strategic Leadership Case 1: GE's Ecomagination Strategy Ch2　External Analysis Case 2: The U.S. Airline Industry Ch3　Internal Analysis Case 3: Competitive Advantage at Starbucks Ch4　Building Competitive Advantage Through Functional-Level Strategy Case 4: Lean Production at Virginia Mason Ch5　Building Competitive Advantage Through Business-Level Strategy Case 5: Lululemon Ch6 Business- Level Strategy and the Industry Environment Case 6: Consolidating Dry Cleaning Ch7 Strategy and Technology Case 7: The Rise of Cloud Computing Ch8 Global Strrategy Case 8: Avon Products Ch9　Corporate-Level Strategy: Horizontal Integration, Vertical Integration, and Strategic Outsourcing Case 9: The Rapid Consolidation of the U.S. Airline Industry Ch10 Corporate-Level Strategy: Formulating and Implementing Related and Unrelated Diversification Case 10: VF Corp. Acquires Timberland to Realize the Benefits from Related Diversification	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Theory and Practice of Investment（投資學理論與實務）
Course Description 課程概述	This course is a graduate-level investment course that focuses on practical applications as well as analytical analyses of investment theories.　The major topics include portfolio theory, factor pricing models and investment evaluation.
Course objective 課程目標	Students will understand how to build a well-diversified investment portfolio, how to select securities among each asset classes, and how to evaluate the portfolio performance.
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	A basic understanding on statistics will be helpful but is not required
Teaching Strategies 教學方法	
Course Material 課程教材	Zvi Bodie, Alex Kane, and Alan J. Marcus (2013), Essentials of Investments, ninth Edition, McGraw-Hill.

Grading 評量方式	Mid-term Exam. 35% Final Exam. 35% Homework and Presentation 15% Regular attendance 15%
References 參考書目	
Contact with Teacher 老師聯絡資訊	Email: yawenlai@nfu.edu.tw

Course Outline 課程進度	
Course Introduction Portfolio Theory: Risk and Return Portfolio Theory: Diversification Portfolio Theory: CAPM and APT Portfolio Theory: EMH Portfolio Theory: Behavior Finance Equity Valuation Portfolio performance evaluation	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Technology Management（科技管理）
Course Description 課程概述	Technology management emphasizes the recognition, adoption, utilization of any technology which a company needs and the course focuses the basic concept and techniques related to these areas.
Course objective 課程目標	1. Understand the theoretic basis and basic concept of technology management. 2. Understand the theoretic basis and basic concept of innovation strategy and techniques.
Competence 核心能力	Knowledge of the product lifecycle management (PLM) concept and practices and how to manage technologies to make a company competitive and profitable.
Prerequisite Course(s) 先修課程或先備能力	No
Teaching Strategies 教學方法	By textbook contents lecturing, benchmarking, student presentation and discussion so the students can be familiar with the basic concept and the practices of technology management.
Course Material 課程教材	Strategic Management of Technological Innovation, Schilling, 2016, 5 ed, Mc-Graw Hill
Grading 評量方式	Attendance 15% Term project 1 40% Term project 2 45%
References 參考書目	The Management of Technology & Innovation, 2016, South-Western.
Contact with Teacher 老師聯絡資訊	pchu@nfu.edu.tw

Chap. 1 Introduction Chap. 2 Sources of Innovation Chap. 3 Types and Patterns of Innovation Chap. 4 Standards Battles and Design Dominance Chap. 5 Timing of Entry Term project 1 presentation	Chap. 6 Defining the Organization's Strategic Direction Chap. 7 Choosing Innovation Projects Chap. 8 Collaboration Strategies Chap. 9 Protecting Innovation Chap. 11 Managing the New Product Development Process Term project 2 presentation
Remarks 備註	

Courses taught in English

Course title 課程名稱	Networks and Logistics（網路與運籌）
Course Description 課程概述	Study mathematical programming models, methods and applications for networks and logistics
Course objective 課程目標	To apply mathematical programming models and methods for solving practical networks and logistics problems
Competence 核心能力	1. Mathematic methods and statistical techniques 2. Decision-making and planning techniques 3. Innovative thinking and the ability to solve problems independently 4. Applying industrial engineering and management knowledge to analyze and solve practical problems 5. International language communication skills
Prerequisite Course(s) 先修課程或先備能力	none
Teaching Strategies 教學方法	Lecture, computer practice, paper discussion
Course Material 課程教材	Class notes
Grading 評量方式	Midterm 30%, Homework and paper discussion 30%, Final 40%
References 參考書目	none
Contact with Teacher 老師聯絡資訊	yhsieh@nfu.edu.tw http://sparc.nfu.edu.tw/~yhsieh/3w.htm
Course Outline 課程進度	

（Part 1: week 1 to week 9）	（Part 2: week 10 to week 18）
1. Introduction of Graphs & Networks A preview of graph & network problems to be studied in this course **2. Network Models** Transportation problem Linear assignment problem Airline crew assignment	**4. Location Problems** Location without calculus Webers Problem (location in the plane) Location of multiple facilities in the plane Median problem in a network Center problem in a network Simple (uncapacitated) plant location **5. Assembly Line Balancing**

Generalized assignment problem Quadratic assignment problem **3. Set Covering Problem** Mathematical model Applications	Math programming model & methods: Kilbridge & Wester Ranked positional weight method Reversed ranked positional weight method COMSOAL Genetic algorithm

Remarks 備註	

Courses taught in English

Course title 課程名稱	Simulation（模擬學）
Course Description 課程概述	This course is intended to give an up-to-date treatment of all the important aspects of simulation modeling study and applications, including discrete event simulation methodology, introduction of simulation languages, and statistical aspects of simulation. About 40% of class time will be devoted to simulation software learning.
Course objective 課程目標	1. To be able to do simulation 2. To understand the development of simulation and simulation-related research.
Competence 核心能力	Simulation Programming Ability Problem Formulation Ability
Prerequisite Course(s) 先修課程或先備能力	Statistics Any programming Language
Teaching Strategies 教學方法	Lecture Software Practice Literature Review
Course Material 課程教材	Getting start with Automod Computer Simulation in Management Science
Grading 評量方式	Homework 60% Final Project 30% Participation 10%
References 參考書目	
Contact with Teacher 老師聯絡資訊	chh@nfu.edu.tw

Course Outline 課程進度	
Introduction Simulation Package-AutoMod	Computer Simulation in Management Science Simulation Literature Review

Remarks 備註	

Course title 課程名稱	Social Interactive Media Research（社交媒體互動研究）
Course Description 課程概述	Social media services such as Facebook and Twitter represent a new class of communication platforms that have become quickly interwoven into the everyday lives of millions of people around the world. In this course we will draw on competing communication perspectives to explore the reasons behind the widespread popularity of these platforms. In doing so we will consider the role of individual choice, social influence, technological influence, and how these three perspectives can be combined. We will further explore the implications of social media for personal relationships, youth culture, organizations, social research, and personal privacy.
Course objective 課程目標	Upon the successful completion of this course, students should be able to: • Apply multiple communication perspectives to make sense of social media adoption and use, through class discussion, the theory paper and the final projects. • Understand the various methodological approaches that can be used to study social media by applying class discussion to reading material. • Discuss social media intelligently using appropriate language and terminology derived from scholarly papers and class discussion. • Understand the implications of social media for a variety of social issues through the course readings and class discussion. • Think abstractly about the role of social media in personal and organizational contexts during class discussion and while writing the theory paper and final project.
Competence 核心能力	1. Demonstrate an understanding of the theory of social networks 2. Develop a command of the vocabulary and characterization of social networks 3. Demonstrate competence in social network research
Prerequisite Course(s) 先修課程或先備能力	N/A
Teaching Strategies 教學方法	Oral presentations and interactive discussions
Course Material 課程教材	All readings assignments are listed below, in the section of this syllabus titled "Schedule of Assignments & Readings." *You do not need to acquire any textbooks for this course.* Our readings will come from other sources. However, if you would like to obtain books to read on the subject, I recommend Social Network Analysis by Christina Prell as a good optional supplement. Our required readings will be accessible in this syllabus as hyperlinks to web pages and online academic journals. Unless the syllabus specifically notes otherwise, all reading assignments for this class are required, and should be completed by the week of the class under which they are listed. Lectures incorporate text, images and videos and discussion. They will be listed in this course syllabus and in the course's Blackboard page under the link "Weekly Lectures." You're responsible for reviewing and being familiar with all parts of these lectures, not just the main text. Lectures will be made available on the first day of the week under which they are listed.
Grading 評量方式	This social networks course is designed to build skill, and an essential part of that skill-building is practicing and questioning. Your participation during the class lectures, and your reading of other students' participatory questions and trials, is therefore an essential element of learning. In the weekly schedule for our class contained at the bottom of this syllabus, you'll notice that I ask you to participate by answering

	questions and posting information during each lecture. To gain credit for that participation, you should make your contributions *during the week that a lecture is introduced*: the specific due date for participation is listed in each week's schedule. Informed, prepared, thoughtful, active participation in class activities and discussion, in a manner that is respectful of and responsive to your peers, will result in a high class participation grade. Carelessness, lack of preparation, inactivity, unresponsiveness and disrespect toward peers will lead to a lower class participation grade. You must positively engage to earn a score. Scores will range from 100 (Outstanding) to 90 (Excellent) to 80 (Good) to 70 (Acceptable) to 60 (Unacceptable) to 0 (None).
References 參考書目	N/A
Contact with Teacher 老師聯絡資訊	My research office is located in A&H building 5TH Floor. Office telephone: 05-631-5871 Email: stshen@nfu.edu.tw
Course Outline 課程進度	

Lecture Week 1-2: Course Introduction Lecture Week 3: Fundamental Concepts and History Lecture Week 4: Studying Individuals, Studying Networks Lecture Week 5: Characterizing Network Structure Lecture Week 6-7: Installing and Working With the Research Program R Lecture Week 8: Measuring and Visualizing Social Networks in R and in R[eal life] Week 9 Mid Term Exam	Lecture 10-11: From 2-Mode to 1-Mode, from Affiliations to Relations Lecture 12: Similarities and Differences in Networks Lecture 13: Patterns in Social Networks Lecture 14: Political Networks Lecture 15: Social Networks Online Lecture 16-17: Social Network Surveillance Week 18 Final Term Exam

Remarks 備註	

Courses taught in English

Course title 課程名稱	Project Discussions (II)（專題討論二）
Course Description 課程概述	• *Course content:* What is the basic content of the course and what makes it important or interesting? How does the course fit into the context of the discipline? • *Learning objectives:* What should students be able to do by the end of the course? Objectives are most helpful when they are expressed in terms of knowledge and skills that can be readily identified and assessed. For example, the ability to recognize, differentiate, apply or produce is much more readily identifiable than the ability to appreciate or understand. • *Characteristics of class meetings:* What types of activities should students be prepared for? Discussion? Lecture? Small groups? Student presentations?

Course objective 課程目標	The course aims to prepare, develop, determine and initially exemplify a design programme. The course also aims to develop the ability to document and justify design work. Once the course has been passed, students should be able to: 1. Develop and initially determine and exemplify a design programme based on their own selected project brief (What). □ 2. Develop and initially reflect on methods and working processes with reference to the planning and determination of a design programme (How). □ 3. Present, justify and critically discuss students' own proposed design programme (Why).
Competence 核心能力	4. Planning and development of a design programme □ 5. Experimental work in studio, workshops and laboratories Read two articles from a professional journal and write a one page report in unbound format and other formats. □
Prerequisite Course(s) 先修課程或先備能力	1. Design Research Methods 2. Project Discussions (I)
Teaching Strategies 教學方法	Oral presentations and interactive discussions
Course Material 課程教材	Teacher's prepared materials
Grading 評量方式	1. Grades will be determined by a student's performance on a midterm (15%), a final (20%), individual written assignments (20%), and a group project and assignments (45%). The project grades will be as a result of 1) individual presentations, 2) demos, 3) project write-ups, and 4) ratings given by the other members of the project team. The class will *not* be graded on a curve. The final grades will be determined by the standard scale of 90% = A-, 80% = B-, etc. 2. Individual homework should be done independently. It is fine to discuss the general techniques and methods required, but you must do your own work in solving the problems and writing up the solutions. *Cheating will not be excused* and will lead to failure in the course. After you turn in your individual homework, you may use this information in the group, combined with others homework, to aid in the project redesigns.
References 參考書目	
Contact with Teacher 老師聯絡資訊	My research office is located in A&H building 5TH Floor. Office telephone: 05-631-5878 Email: stshen@nfu.edu.tw

Course Outline 課程進度	
Lecture Week 1-2: Course Introduction Lecture Week 3: Fundamental Concepts Lecture Week 4: Studying Individuals based on each pupil's chosen topic Lecture Week 5: Analysing the detailed contents and structures Lecture Week 6-7: Preparing and Working with the intended presentation Lecture Week 8: Visualizing and finalizing the	Lecture 10-11: Discussions and feedbacks Lecture 12: Studying the second chosen topic Lecture 13: Analysing detailed contents and structures Lecture 14-15: Preparing and Working with the intended presentation

work Week 9 Mid Term Exam	Lecture 16-17: Visualising and finalizing the work Week 18 Final Term Exam
Remarks 備註	

Courses taught in English

Course title 課程名稱	Creative Industries in Cultural Research（文化創意產業研究）
Course Description 課程概述	Cultivation of cultural and creative industries based design ability
Course objective 課程目標	Understand the meaning of design and methods
Competence 核心能力	Visual cultural and creative design
Prerequisite Course(s) 先修課程或先備能力	Photoshop and Illustrator
Teaching Strategies 教學方法	Project Work & class discussion
Course Material 課程教材	Visual Communications Design
Grading 評量方式	Project Work report
References 參考書目	Visual Communications Design Creative Industries in Cultural Research
Contact with Teacher 老師聯絡資訊	Tel:0988390795 Mail:juewuhaw@yahoo.com.tw

Course Outline 課程進度	
1. Set a theme of cultural and creative 2. Collection of cultural and creative information 3. Cultural and creative industries field visits 4. Midterm report 5. Creative design 6. analysis Creative Industries in Cultural Research 7. Creative design work 8.Final Report	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Research of Interactive Technology and Applications（互動科技應用研究）
Course Description 課程概述	
Course objective 課程目標	Preparing the capability of theory and practice for visual communication design, interaction design
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	Basic capabilities: Design authoring tool
Teaching Strategies 教學方法	Lecture, project practice
Course Material 課程教材	The Design of Everyday Things
Grading 評量方式	The course is examined through: 1.participation in class: 40% 2.midterm exam 30%: implementation of project work and through written examination 3.final exam 30%: implementation of project work and through written examination (or written report or presentation)
References 參考書目	
Contact with Teacher 老師聯絡資訊	Tel: 05-6315879

Course Outline 課程進度	
Week 1: Syllabus	
Week 2: Lecture/ Chapter discussion	
Week3: Lecture / Chapter discussion	
Week4: Guest speech / Case study - towel design	
Week5: Off-campus teaching	
Week6: Case study / Case study of practice design for Creative industry	
Week7: Lecture / Chapter discussion	
Week8: Presentation: Case study of practice design for Creative industry	
Week9: Midterm exam	
Week10: Lecture / Chapter discussion	

Week11: Lecture / Chapter discussion	
Week12: Lecture / Chapter discussion	
Week13: Lecture / Chapter discussion	
Week14: Guest speech / Interaction design	
Week15: Practice project: APP UI design	
Week16: Practice project: APP UI design	
Week17: Presentation: Practice project - APP UI design	
Week18: Final Exam	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Multimedia Creativity and Performance Research/Multimedia Creative Presentation Topic（多媒體創作與表現專題研究）
Course Description 課程概述	It is a one-credit course designed to provide students with skills involving presentations and digital graphics based on their chosen master thesis. Students use various hardware and software peripherals as well as the Internet for integrating skills to create a variety of publications. Upon successful completion of the course, students are able to pursue further study in the area of professional interactive multimedia design.
Course objective 課程目標	Upon the successful completion of this course, students should be able to: 1. Multimedia Components a. Compare aspects of multimedia-presentation, desktop publishing, graphic design, digital video production, and digital video production. b. Utilize a variety of input methods. Examples: digital camera, scanners, CDRW, Internet download 2. Enhanced Presentations Modify/enhance slides utilizing a variety of computer options: bullets, graphic art, text art, video clips, sound/music, font size, color, type, and background color a. Utilize slide show skills for preparing presentations: transitions, animations, and timing features b. Utilize various presentation formats. Examples: outline, speaker notes, sorter multimedia design.
Competence 核心能力	6. Read two articles from a professional journal and write a one page report in unbound format and other formats. ☐ 7. Research, create, and present assigned topics projects using Picasa, PowerPoint and other software. ☐ 8. Research and complete a magazine cover. ☐ 9. To help students plan future careers, students will research their chosen careers, write a report, and present to classmates. ☐ 10. Implement C/T Curriculum Core: Life Applications, Workplace Applications, and Project Development

Prerequisite Course(s) 先修課程或先備能力	Design Research Methods
Teaching Strategies 教學方法	Oral presentations and interactive discussions
Course Material 課程教材	1. Intelligent Multimedia. Managing Creative Works in a Digital World (2010); D. Casanovas P. Bourcier (Editor), & M. Maracke C. Dulong D Rosnay (Editors); ISBN-13: 978-8883980633; ISBN-10: 8883980638. 2. Indexing Multimedia and Creative Works: The Problems of Meaning and Interpretation (2005); Pauline Rafferty (Author) & Rob Hidderley (Author); ISBN-10: 0754632547; ISBN-13: 978-0754632542.
Grading 評量方式	3. Grades will be determined by a student's performance on a midterm (15%), a final (20%), individual written assignments (20%), and a group project and assignments (45%). The project grades will be as a result of 1) individual presentations, 2) demos, 3) project write-ups, and 4) ratings given by the other members of the project team. The class will *not* be graded on a curve. The final grades will be determined by the standard scale of 90% = A-, 80% = B-, etc. 4. Individual homework should be done independently. It is fine to discuss the general techniques and methods required, but you must do your own work in solving the problems and writing up the solutions. *Cheating will not be excused* and will lead to failure in the course. After you turn in your individual homework, you may use this information in the group, combined with others homework, to aid in the project redesigns.
References 參考書目	
Contact with Teacher 老師聯絡資訊	My research office is located in A&H building 5TH Floor. Office telephone: 05-631-5878 Email: stshen@nfu.edu.tw
Course Outline 課程進度	

Lecture Week 1-2: Course Introduction Lecture Week 3: Fundamental Concepts Lecture Week 4: Studying Individuals based on each pupil's chosen topic Lecture Week 5: Analysing the detailed contents and structures Lecture Week 6-7: Preparing and Working with the intended presentation Lecture Week 8: Visualizing and finalizing the work Week 9 Mid Term Exam	Lecture 10-11: Discussions and feedbacks Lecture 12: Studying the second chosen topic Lecture 13: Analysing detailed contents and structures Lecture 14-15: Preparing and Working with the intended presentation Lecture 16-17: Visualising and finalizing the work Week 18 Final Term Exam

Remarks 備註	

Course title 課程名稱	Wayfinding and Signage Design Study（尋路訊息與空間識別研究）
Course Description 課程概述	Environmental graphic design (EGD) being a relatively new hybrid of the design field, is relatively long on practice but short on theory and formalized methodology. The meticulous specification of all the elements going into the making of signage to meet the reality of each situation, to say in balance finding the best point between the most basic adequacy at one extreme and the performance of refined and sophisticated excellence in design terms at other end of the spectrum is what this course consistently delivers time and time again.
Course objective 課程目標	1, For students, to build design spectrum for spatial environmental attributes and orientation guidelines. 2, To understand the exists for signage to add considerably to the excellence of any built environment, adding, by careful attention to details colors compatible materials and typography. 3, To learn avoiding big, visually loud messages and overwhelms and negates of architectural materials using as the play of light reflections the texture of surface, transparency, distant views, and a myriad of other environmental elements. 4, all students need to complete mid-term and final project as a part of requiment.
Competence 核心能力	With space observation and user-centered design thinking as the core goal
Prerequisite Course(s) 先修課程或先備能力	Relative design courses had been taken
Teaching Strategies 教學方法	Oral presentations, reports and workshop
Course Material 課程教材	Signage and Wayfinding Design
Grading 評量方式	Oral 20%, mid-term 40% and final 40%
References 參考書目	Signage and Wayfinding Design Wayfinding and Signage design Handbook
Contact with Teacher 老師聯絡資訊	Office Hours

Course Outline 課程進度	
Week 1 the discipline of signage design	The class demystifies the process of providing the necessary clues and environmental on formation that help orient themselves and intuitively find their way.
Week 2 people and places	Over time, cities, spaces, complexes, and buildings, fill up with information, marks and symbols for people within the places.

Week 3 the wayfinding designer	The design discipline that evolved in response called architectural graphics, signage or sign-system design, environmental graphic design, and wayfinding.
Week 4 planning wayfinding system	Each design project is a unique assignment with designated team members, special logistical and technical requirements and distinct design goals.
Week 5 sign content and locations	Once analysis and strategy phases are complete the designer then determines how to fit signs into a total system. This process called sign programming.
Week 6 planning and strategy	Before starting the design process the wayfinding consultant must anticipate visitor patterns understand that logic and apply it the planning phase.
Week 7 mid-term working session I Week 8 mid-term working session II Week 9 mid-term	Branding fosters awareness enthusiasm loyalty and participation also embraced by cities, cultural organization and institutions.
Week 10 branding and place making	What makes the environmental graphics appealing? To learn the elements of good typography for wayfinding.
Week 11 typography and layout	To learn work effectively with forms materials and processes empowers the design to image more inventive concepts.
Week 12 forms materials and media	Symbols communicate visually rather than verbally and to people who may not speak the native language of a place. To learn graphics that supports the verbal messages on signs.
Week 13 symbols and maps	Successful wayfinding design is like dialogue, a form of conversation between client and designer. To learn how the client plans a project and selects a wayfinding designer.
Week 14 Initiating the project	The design must undertake to ensure that a wayfinding system meets necessary legal and current standards.
Week 15 Code requirements	
Week 16 final working session I Week 17 final working session II Week 18 final	

Remarks 備註	