

109/2 Courses taught in English(109 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	Weekly 每週上課節次					Classroom 上課教室	Course Description 課程說明
							Mon	Tue	Wed	Thu	Fri		
1	Department of power mechanical engineering 動力機械工程 系	2430	Theory of gearing 齒輪原理	Elective 選修	3	Shinn-Liang Chang 張信良					5-7	(BGB0709) Second Assembly Building 7th floor classroom 綜合工程二館 7F BGB0709 小型教 室	<u>Course Outline</u>
2	Department of power mechanical engineering 動力機械工程 系	2428	Practical mechanism innovation Design 機構創新設 計實務	lective 選修	3	Long-Chang Hsieh 謝龍昌		5-7				(BGB0514)Second Assembly Building 5th floor creation Classroom. 綜合工程二館 5F BGB0514 創意教 室	<u>Course Outline</u>
3	Department of power mechanical engineering 動力機械工程 系	2427	Advanced enginring Analysis 高等工程分 析	Elective 選修	3	Shou-Yin Yang 楊授印	2-4					(BGB0709) Second Assembly Building 7th floor classroom 綜合工程二館 7F BGB0709 小型教 室	<u>Course Outline</u>

4	Department of power mechanical engineering 動力機械工程系	2432	Dynamics of machine System 機器系統動力學	Elective 選修	3	Hwang, Yunn-Lin 黃運琳					2-4	(BGA0760)rst Assembly Building 7th floor Reverse rapid prototyping laboratory 綜合工程一館 7F BGA0760 逆向快速成型實驗室	Course Outline
5	Department of power mechanical engineering 動力機械工程系	2433	Advanced in nano/micro tribology 高等微奈米磨潤	Elective 選修	3	Jeng-Haur Horng 洪政豪	7-9					(BGB0709) Second Assembly Building 7th floor classroom 綜合工程二館 7F BGB0709 小型教室	Course Outline
6	Department of Automation Engineering 自動化工程系	0056	Big Data Analysis 巨量資料分析	Elective 選修	3	Kuang-Chyi Lee 李廣齊		8-10				資訊大樓 2F AI A0201 普通教室	Course Outline
7	Department of Automation Engineering 自動化工程系	0054	Engineering Analysis 工程分析	Elective 選修	3	Meng-Tse Lee 李孟澤				2-4		綜合工程一館 3F BGA0340 研討室	Course Outline
8	Department of Automation Engineering 自動化工程系	0051	Creation and Innovation 創意與發明	Elective 選修	3	Roug-Feng Tsai 蔡榮鋒	5-7					綜合工程一館 4F 專業講堂	Course Outline

9	Graduate Institute of Aeronautical and Electronic Technology(飛機工程系航空與電子科技碩士班)	0302	Flight Safety 飛航安全	Elective 選修	3	Wang, Shih-Chia 王士嘉				10-12	Aircraft Hydraulic System Lab. The 3rd Complex Building 7F (BGC0704) 綜合工程三館 7F BGC0704 飛機液氣壓實習工場	Course Outline
10	Graduate Institute of Aeronautical and Electronic Technology(飛機工程系航空與電子科技碩士班)	0301	Aircraft Stability and Control 飛機穩定性與控制	Elective 選修	3	Lu, Wen-Chi 呂文祺			2-4		(ATB0504) 第二期教學大樓 5F ATB0504 普通教室	Course Outline
11	Graduate Institute of Aeronautical and Electronic Technology(飛機工程系航空與電子科技碩士班)	0310	International Aviation Regulation 國際民航法規	Elective 選修	3	Lin, Chung-Yan 林中彥				2-4	The 3rd Complex Building 2F (BGC0205) 綜合工程三館 2F BGC0205 專業教室	Course Outline
12	Graduate Institute of Aeronautical and Electronic Technology(飛	0312	Deep Learning 深度學習	Elective 選修	3	Chao-Yang Lee 李朝陽	5-7				Aircraft Hydraulic System Lab. The 3rd Complex Building 7F (BGC0704) 綜合工程三館 7F	Course Outline

	機工程系航空與電子科技碩士班)											BGC0704 飛機液氣壓實習工場	
13	Department of Mechanical Design Engineering(機械設計工程系碩士班)	0242	Mechanical Vibrations 機械振動學	Elective 選修	3	Hwang, Yunn-Lin 黃運琳					2-4	(BGA0760) Multi-Purpose Engineering Bldg., Reverse and Rapid Prototyping Lab.7F 綜合工程一館 7F BGA0760 逆向快速成型實驗室	Course Outline
14	Department of Electrical Engineering (電機工程系)	0142	Advance SOC FPGA System Integration with Machine Learning 高等 FPGA 系統設計與實務	Elective 選修	3	SUN, CHI-CHIA 宋啟嘉	5-7					BEE0502; Network Application and Chip Design Lab. 5F, Electrical Engineering Building 電機館 5F BEE0502 網路應用與晶片設計實驗室	Course Outline
15	Department of Electrical Engineering (電機工程系)	0145	4G/5G Mobile Broadband Collaborative Network 4G/5G 行動寬頻協同網路	Elective 選修	3	SU, HUI-KAI 蘇暉凱					2-4	BEE0402; Intelligent Electronic and Application Lab. 4F, Electrical Engineering Building 電機館 4F BEE0402 智慧電子應用實驗室	Course Outline

16	Department of Electrical Engineering (電機工程系) (大學部)	1013	Science and Technology English 科技英文	Elective 選修	3	Wu, Sen-Tung 吳森統	7	6,7			BEE0104; Electric Machinery Lab. 1F, Engineering Building 電機館 1F BEE0104 電機機械實驗室	<u>Course Outline</u>
17	Institute of Department of Finance(財務金融系碩士班)	0305	The Theory and Practice of Investment 投資學理論與實務	Required 必修	3	Lai, Ya-Wen 賴雅雯		2-4			(CMA0201) Seminar Room II, Applied Arts, Sciences and Management Building 2F 文理暨管理大樓 2F CMA0201 財金研討室 II	<u>Course Outline</u>
18	Institute of Department of Finance(財務金融系碩士班)	0037	Financial Program Trading 財金程式交易	Elective 選修	3	Tsai, Feng-Tse 蔡豐澤				5-7	(CHB0207) Certificate Center, Art and Humanity Building 2F 人文大樓 2F CHB0207 證照中心	<u>Course Outline</u>
19	Institute of Department of Finance(財務金融系碩士班)	0038	Financial Econometrics Softwares 財金計量	Elective 選修	3	Wang, Jo-Yu 王若愚		5-7			(CMA0201) Seminar Room II, Applied Arts, Sciences and Management Building 2F 文理暨管理大樓 2F CMA0201 財	<u>Course Outline</u>

												金研討室 II	
20	Institute of Industrial Engineering and Management (工業管理系 工業工程與管理碩士班)	0323	Networks and Logistics 網路與運籌	Elective 選修	3	Hsieh , Yi-Chih 謝益智					6-8	Seminar Room III (CMA0806) Applied Arts, Sciences and Management Building 8F 文理暨管理大樓 8F CMA0806 專業教室(三)	<u>Course Outline</u>
21	Institute of Industrial Engineering and Management (工業管理系 工業工程與管理碩士班)	0324	Simulation 模擬學	Elective 選修	3	Chih-Hsiung 胡智熊					5-7	Business Intelligence Room (CMA0305) Applied Arts, Sciences and Management Building 3F 文理暨管理大樓 3F CMA0305 企業智慧教室	<u>Course Outline</u>
22	Institute of Industrial Engineering and Management (工業管理系 工業工程與管理碩士班)	0326	Production Management and Practice 生產管理與實務	Elective 選修	3	Lee, Ying-Lien 李英聯					2-4	Business Intelligence Room (CMA0305) Applied Arts, Sciences and Management Building 3F 文理暨管理大樓 3F CMA0305	<u>Course Outline</u>

												企業智慧教室	
23	Institute of Industrial Engineering and Management (工業管理系 工業工程與管理碩士班)	0327	Applied Statistics 應用統計學	Elective 選修	3	Huang, Jyun-Ping 黃俊平	2-4					Business Intelligence Room (CMA0305) Applied Arts, Sciences and Management Building 3F 文理暨管理大樓 3F CMA0305 企業智慧教室	Course Outline
24	Institute of Business and management (經營管理碩士班)	0351	Technology Management 科技管理	Elective 選修	3	Yu-Chun Chen 陳鈺淳	5-7					(CMA0209) Management of Entrepreneurial & Technology Lab., Applied Arts, Sciences and Management Building 2F 文理暨管理大樓 2F CMA0209 創業管理實驗室	Course Outline
25	Institute of Business and management (經營管理碩士班)	0349	Behavioral Finance 行為財務	Elective 選修	3	Chi-Lin Lu 呂麒麟					2-4	(CMA0209) Management of Entrepreneurial & Technology Lab., Applied Arts, Sciences and Management Building 2F 文理暨管理大樓 2F	Course Outline

												CMA0209 創業 管理實驗室	
26	Institute of Business and management (經營管理碩 士班)	0350	Strategic Management 策略管理	Elective 選修	3	Yi Hsu 徐怡						(CMA0206) Market Survey Lab, Applied Arts, Sciences and Management Building 2F 文理 暨管理大樓 2F CMA0206 市場 調查實驗室	<u>Course Outline</u>
27	Institute of Business and management (經營管理碩 士班)	0348	Information Management 資訊管理	Elective 選修	3	Liang, Chih-Chin 梁直青				2-4		(CMA0208) Applied Arts, Sciences and Management Building 2F 文理 暨管理大樓 2F CMA0208 教室	<u>Course Outline</u>
28	Graduate Institute of Digital Contents and Creative Industries(多媒 體設計系數位 內容創意產業 研究所碩士班)	0178	Project Discussions (II) 專題討論(二)	Required 必修	0	Siu-Tsen, Shen 沈思岑					3-4	(CHB0305) Multimedia Design Studio, Art and Humanity Building 3F 人文 大樓三樓 多媒體設計實驗 室 CHB0305	<u>Course Outline</u>
29	Graduate Institute of Digital Contents and Creative Industries(多媒	0182	Multimedia Creativity and Performance Research 多媒體創作	Elective 選修	3	Siu-Tsen, Shen 沈思岑					5-7	(CHB0305) Multimedia Design Studio, Art and Humanity Building 3F 人文大樓三樓	<u>Course Outline</u>

	體設計系數位 內容創意產業 研究所碩士班)		與表現專題 研究									多媒體設計實驗 室 CHB0305	
30	Graduate Institute of Digital Contents and Creative Industries(多媒 體設計系數位 內容創意產業 研究所碩士班)	0188	Research on social media interaction Integrated 社交媒體互 動研究	Elective 選修	3	Siu-Tsen, Shen 沈思岑		5-7				(CHB0305) Multimedia Design Studio, Art and Humanity Building 3F 人文 大樓三樓 多媒體設計實驗 室 CHB0305	<u>Course Outline</u>
31	Graduate Institute of Digital Contents and Creative Industries(多媒 體設計系數位 內容創意產業 研究所碩士班)	0181	Research of Interactive Technology and Applications 互動科技應 用研究	Elective 選修	3	Wen-Hwa , Cheng 鄭文華		2-4				(CHB0305) Multimedia Design Studio, Art and Humanity Building 3F 人文 大樓三樓 多媒體設計實驗 室 CHB0305	<u>Course Outline</u>
32	Graduate Institute of Digital Contents and Creative Industries(多媒 體設計系數位 內容創意產業 研究所碩士班)	0179	Creative Industries in Cultural Research 文化創意產 業研究	Elective 選修	3	Wu-Haw Jue 朱文浩				5-7		(CHB0305) Multimedia Design Studio, Art and Humanity Building 3F 人文 大樓三樓 多媒體設計實驗 室 CHB0305	<u>Course Outline</u>

33	Institute of Information Management(資訊管理系碩士班)	0095	Database Management 資料庫管理	Elective 選修	3	Yung-Tsung Hou 侯雍聰			7-9		(CMA0614) ., Applied Arts, Sciences and Management Building 6F 文理暨管理大樓 6F CMA0614 企業電子化實驗室	<u>Course Outline</u>
34	Institute of Information Management(資訊管理系碩士班)	0099	Machine Learning and Big data 機器學習與大數據	Elective 選修	3	Nian-Ze Hu 胡念祖			5-7		(CMA0405) ., Applied Arts, Sciences and Management Building 4F 文理暨管理大樓 4F CMA0405 多媒體電腦教室	<u>Course Outline</u>
35	Institute of Information Management(資訊管理系碩士班)	0111	Production and Operations Management 生產作業與管理	Elective 選修	3	Wen-Hung Kuo 郭文宏			2-4		(CMA0614) ., Applied Arts, Sciences and Management Building 6F 文理暨管理大樓 6F CMA0614 企業電子化實驗室	<u>Course Outline</u>
36	Institute of Information Management(資訊管理系碩士班)	0097	Web Technology Application and Integration Web 技術應用與整合	Elective 選修	3	Y-F Lan 藍友烽				2-4	(CMA0405) ., Applied Arts, Sciences and Management Building 4F 文理暨管理大樓 4F CMA0406 企業電子化電腦教室	<u>Course Outline</u>

Courses taught in English

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 studied in the class.	
Course objective 課程目標	<ol style="list-style-type: none"> 1. Coordinate Transformation 2. Tooth Profile Generation 3. Tooth Contact Analysis 	
Competence 核心能力	Learn to derive the tooth profile of gears based on the machine and cutter geometry.	
Prerequisite Course(s) 先修課程或先備能力	Mechanisms	
Teaching Strategies 教學方法	Class Learning and Project Based Learning	
Course Material 課程教材	Theory of Gearing, F. L. Litvin	
Grading 評量方式	<ol style="list-style-type: none"> 1. Mid-examination 2. Paper Reading and Presentation 3. Project 	
References 參考書目	Gear Geometry and Applied Theory, F. L. Litvin and Alfonso Fuentes	
Contact with Teacher 老師聯絡資訊	05-6315440	
Course Outline 課程進度		
<ol style="list-style-type: none"> 1. Coordinate Transformation 2. Transformation of Motion 3. Plane Curves 4. Conjugate Shapes 		<ol style="list-style-type: none"> 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		

Courses taught in English

Course title 課程名稱	Practical Mechanism Innovative Design (機構創新設計實務)	
Course Description 課程概述	<ol style="list-style-type: none"> 1. Introduction of mechanisms 2. Basic principles of mechanisms 3. Mobility of mechanisms 4. Creative design methodology 5. Learn how to innovate new mechanisms to avoid the relevant patent. 	
Course objective 課程目標	Teaching students to understand the basic principles of mechanisms, and further to learn how to innovate new mechanisms to avoid the relevant patent.	
Competence 核心能力	<ol style="list-style-type: none"> 1. Understand the basic principles of mechanisms. 2. Have the ability of innovate new mechanisms to avoid the relevant patent. 	
Prerequisite Course(s) 先修課程或先備能力	Mechanisms 機構學	
Teaching Strategies 教學方法	<ol style="list-style-type: none"> 1. Classroom teaching 2. Case study 3. Problem-guided learning 4. Project-guided learning 	
Course Material 課程教材	Creative design of mechanical devices (Hong-Sen Yan, Springer, Singapore.)	
Grading 評量方式	<ol style="list-style-type: none"> 1. Test (50%) 2. Paper reading and presentation (20%) 3. Project presentation (30%) 	
References 參考書目	Mechanisms-Theory and applications (Hong-Sen Yan, McGraw Hill, Singapore.)	
Contact with Teacher 老師聯絡資訊	Long-Chang Hsieh (謝龍昌) Professor 0910-764467	
Course Outline 課程進度		
Chapter 1 Introduction <ol style="list-style-type: none"> 1.1 Design 1.2 Design Peocess 1.3 Creative Design Chapter 2 Mechanical devices		

- 2.1 Mechanical Members
- 2.2 Joints
- 2.3 Chains, Mechanisms, and Structures
- 2.4 Topological Structures

Chapter 3 Mobility

- 3.1 Degrees of Freedoms
- 3.2 Mobility Synthesis
- 3.3 Constrain Motiom
- 3.4 Redundant Degrees of Freedom
- 3.5 Paradoxical mechanism

Chapter 4 Creative design methodology

- 4.1 Introduction
- 4.2 Procedure
- 4.3 Existing Designs
- 4.4 Generalization
- 4.5 Number Synthesis
- 4.6 Specialization
- 4.7 Particularization
- 4.8 Atlas of New Designs

Chapter 5 The Conceptual Design of Infinitely Variable Transmission

- Introduction
- 5.1 Existing Design
- 5.2 Generalization
- 5.3 Number Synthesis (Generalized Chains)
- 5.4 Design Requirements and Constraints
- 5.5 Specialization
- 5.6 Particularization
- 5.7 Conclusion

Chapter 6 Design of Lnk-Type Optical Fiber Polisher

- 6.1 Introduction
- 6.2 Conceptual Design
- 6.3 Kinematics
- 6.4 Optimized Design \
- 6.5 Conclusion

Chapter 7 Systematic Designs of Planetary Grinding Devices

- 7.1 Introduction
- 7.2 Grinding Devices
- 7.3 New Design Concept
- 7.4 Kinematic Equations
- 7.5 Area Ratio
- 7.6 Design Examples
- 7.7 Conclusion

Chapter 8 The Innovative Design of Quick Folding Bicycle With High Rigidity

- 8.1 Introduction
- 8.2 Folding bicycle
- 8.3 Osborn's Check-List Method
- 8.4 Innovative Design Concept
- 8.5 Innovative Design of Folding Bicycle
- 8.6 Prototype Design and Manufacture
- 8.7 Conclusion

Chapter 9 The Innovative Design of Wheelchair with One Degrees of Freedom to Perform Lifting and Standing Functions

- 9.1 Introduction
- 9.2 Multifunctional wheelchair
- 9.3 Osborn's Check-List Method
- 9.4 Innovative Design
- 9.5 Innovative Design of Folding Bicycle
- 9.6 Prototype Design and Manufacture
- 9.7 Conclusion

Chapter 10 The Innovative Design of Gull-wing Frame System

- 10.1 Introduction
- 10.2 *Vehicle Frames*
- 10.3 Morphological Chart Analysis
- 10.4 Innovative Design
- 10.5 Innovative Design
- 10.6 Prototype Design and Manufacture
- 10.7 Conclusion

Remarks 備註	
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Courses taught in English

Course title 課程名稱	Advanced Engineering Analysis (高等工程分析)	
Course Description 課程概述	The teaching objectives of this course can be summarized into two: the first goal is to learn how to model an engineering system, that is, how to build an analytical model; the second goal is to understand the numerical solution obtained after Fluent/Comsol analysis.	
Course objective 課程目標	Train graduate students to evaluate engineering problems encountered in numerical analysis and solve engineering problems numerically	
Competence 核心能力	Train students to quickly and accurately solve engineering problems encountered in the future workplace	
Prerequisite Course(s) 先修課程或先備能力	Mathmatics	
Teaching Strategies 教學方法	Oral and group project	
Course Material 課程教材	Oral and power point	
Grading 評量方式	Mid-exam, final exam and homework	
References 參考書目	Fleunt and Comsol Text Book	
Contact with Teacher 老師聯絡資訊	PME, 5F. Engineering Building 2,	
Course Outline 課程進度		
Introduction	1 week	
Matrix Algebra	1 week	
Trusses	1 week	
Axial Members, Beams and Frames	1 week	
One-dimensional Elements	1 week	
Analysis of One-dimensional Problems	1 week	
Two-dimensional Elements	1 week	
More Fluent	1 week	
Analysis of Two-dimensional solid	1 week	
Mechanics Problems	1 week	
Dynamic Problems	1 week	

Analysis of Fluid Mechanics Problems	1 week
Three-Dimensional Elements	1 week
Design and Material Selection	1 week
Design Optimization	2 week
	2 week
Remarks 備註	

Courses taught in English

Course title 課程名稱	Dynamics of Machine System (機器系統動力學)
Course Description 課程概述	Dynamics of Machine System (Cr./ Hrs.: 3/3) “Dynamics of Machine System” is the study of dynamic behavior of Machine System may undergo large translational and rotational displacements, velocities, accelerations and forces/torques.
Course objective 課程目標	Let students understand “Dynamics of Machine System” in the 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	Hamilton H. Mabie, Charles F. Reinholtz, 1987, Mechanisms and Dynamics of Machinery, 4th Edition, ISBN: 978-0-471-80237-2, 656 Pages.
Grading 評量方式	Homeworks, Mid-term Examination, Final Examination and Final Project.
References 參考書目	1. Shabana, Ahmed A., 2005, Dynamics of Multibody Systems, Cambridge University Press. 2. Oleg Vinogradov, 2000, Fundamentals of Kinematics and Dynamics of Machines and Mechanisms, CRC Press.
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	

1. Introduction	6. Constrained dynamics
2. Linkage and Mechanism	7. Force Analysis
3. Kinematics of Machine System	8. Other topics in spatial dynamics
4. Dynamic of Machine System	
5. Velocity and Acceleration Analysis	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Advanced in Nano/Micro Tribology (高等微奈米磨潤)
Course Description 課程概述	This course focuses on learning the expertise of adhesion; microfriction and microwear for understanding the phenomena of macro components in friction and wear so that as the goal of improving component performance.
Course objective 課程目標	Objective for educating students to know the application of microscopic friction, wear, lubrication and with learning the correlation between Macro-Tribology and Micro/Nano-Tribology.
Competence 核心能力	<ol style="list-style-type: none"> 1. Develop students' inter-disciplinary knowledge in Mechanical and Electro- Mechanical (Microtribology Engineering). 2. Develop students' capabilities in writing academic articles. 3. Develop students' capabilities in innovative thinking and problem-analysis with structural and systematic. 4. Develop students' capabilities in data application, international trend of mechanical technology comprehension, research and innovation.
Prerequisite Course(s) 先修課程或先備能力	No
Teaching Strategies 教學方法	<p>Teaching materials: Self-made</p> <p>Teaching methods: Teaching in the classroom and laboratory</p> <p>Teaching resources: Laboratory equipment in teaching and learning</p>
Course Material 課程教材	Self-made teaching materials
Grading 評量方式	Quiz, Mid-term exam, Final exam
References 參考書目	Introduction to Tribology (Writer: Bharat Bhushan ; ISBN: 0471158933)
Contact with Teacher 老師聯絡資訊	05-6315428 jhorng@gmail.com

Course Outline 課程進度	
<p>CHAPTER 1 ADHESION</p> <p>1.1 Introduction</p> <p>1.1.1 What is adhesive force?</p> <p>1.1.2 What is the adhesive?</p> <p>1.2 Solid-solid contact</p> <p>1.3 Liquid-mediated contact</p> <p>CHAPTER 2 SURFACE FILM</p> <p>2.1 Soft film</p> <p>2.2 Hard film</p> <p>CHAPTER 3 CONTACT ANALYSIS</p> <p>3.1 Surface roughness</p> <p>3.2 Microcontact model</p> <p>3.3 Adhesion model</p> <p>3.4 Application of microcontact</p> <p>CHAPTER 4 MICRO/NANOTRIBOLOGY</p> <p>4.1 Micro-friction</p> <p>4.2 Micro-wear</p> <p>4.3 Static dynamic, and shear properties of molecularly thin liquid film</p> <p>4.4 Smooth sliding and stick-slip</p>	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Big Data Analysis (巨量資料分析)
Course Description 課程概述	<p>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.</p> <p>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.</p>

Course objective 課程目標	Introducing the concepts of data mining and big data analysis.	
Competence 核心能力	Programming 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, Data Mining: Concepts and Techniques, 2 nd edition, Elsevier: Morgan Kaufmann Publishers.	
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, kcllee@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	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

	<p>2. Modeling- The transition from physical situation to its mathematical formulations</p> <p>3. Solving- The solution by a mathematical method (skill)</p> <p>4. Examination- The physical interpretation of the result</p>
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, 10 th 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	
<p>Part-1: The Introduction to “Modeling”</p> <p>Part-2: 1st Order ODE Models</p> <p>Part-3: 2nd Order Homogeneous ODE</p> <p>Part-4: 2nd Order Homogeneous ODE Models – Free Oscillations</p>	<p>Part-5: Non-homogeneous ODE</p> <p>Part-6: Non-homogeneous ODE Models – Forced Oscillations</p> <p>Part-7: Linear System of ODE</p> <p>Part-8: Linear System of ODE Models – Multi-Systems Interaction</p>
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	<p>to describe the properties of existing problems</p> <p>to discover the disadvantage of existing product or problems</p> <p>to summarize existing solutions</p> <p>to organize a group to discuss the problems in different aspects</p> <p>to think with TRIZ theory I</p> <p>to integrate the possible suggestions</p>	
Competence 核心能力	<ul style="list-style-type: none"> ■ 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	1. Group project 2. Presentation 3. Discussion 4. 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 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 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 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	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 <ul style="list-style-type: none"> • 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, 2006 by 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	9. Interviewing Witnesses	
2. The Civil Investigation Process	10. Behavior of Materials	
3. International Investigation Procedures (ICAO)	11. Using the Global Positioning Satellite (GPS) System	
4. Preparing for Investigation	12. Aircraft Performance Factors	
5. Safety at the Crash Site	13. Computers and Simulation	
6. Priorities and Initial Actions	14. Human Factors and Accident Pathology	
7. Investigation Techniques for: Engines, Structures, Fire, Aircraft Systems, Instruments, and Recording Devices	15. Analytical Techniques	
8. Wreckage Recovery and Reconstruction	16. Reporting Requirements	
	17. Construction of Reports	
	18. Investigation Management.	
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, 2 nd 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	
<ol style="list-style-type: none"> 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	International Aviation Regulation (國際民航法規)	
Course Description 課程概述	<p>In the class, we will focus on aviation regulations;</p> <ol style="list-style-type: none"> 1. Basic concepts of regulation 2. Civil Aviation Regulation System 3. Air rights and air traffic 4. FAR/EASA/International Civil Aviation Organization's historical origins and evolution 5. Evolution and current status of unmanned aircraft related regulations 6. Airport development and related regulations 	
Course objective 課程目標	Understand the regulation system and their development history in EASA/FAA and Taiwan	
Competence 核心能力	Understand the regulation system and their development history in EASA/FAA and Taiwan	
Prerequisite Course(s) 先修課程或先備能力	none	
Teaching Strategies 教學方法	Class Lecture and Student Project Presentation	
Course Material 課程教材	Provided by Instructor	
Grading 評量方式	Mid-Term Exam and Student Project Presentation	
References 參考書目	民航法規 楊政樺 著 揚智出版社	
Contact with Teacher 老師聯絡資訊	<p>Instructor: C Y Lin</p> <p>Office Hours: by appointment or any time I'm in the office & available</p> <p>Contact me @ Frank.Lin@nfu.edu.tw</p>	
Course Outline 課程進度		
Basic Concepts of Regulation Civil Aviation Regulation System Air Navigation and Airline The origin and historical evolution of FAR/EASA		<p>Evolution and current status of unmanned aerial vehicle regulations</p> <p>Airport Development and Related Regulations</p> <p>FAR91/135 regulations</p>
Remarks 備註		

Courses taught in English

Course title 課程名稱	Deep Learning (深度學習)	
Course Description 課程概述	<p>This course will establish students' basic concepts of deep learning. In addition, this course will introduce the applications of deep learning, through which students can understand deep learning more easily. Through the implementation of the project, students learn how to apply deep learning to solve problems.</p> <p>This course introduces the concepts of deep learning and the applications of deep learning. Moreover, the project implementation allows students to learn how to apply deep learning to solve problems.</p>	
Course objective 課程目標	<p>Enable students to understand the theories and methods of deep learning</p> <p>Provide students with the ability to design deep learning</p> <p>Enable students to apply deep learning to solve problems</p>	
Competence 核心能力	AI	
Prerequisite Course(s) 先修課程或先備能力	Programing	
Teaching Strategies 教學方法	Learn by doing	
Course Material 課程教材		
Grading 評量方式	<p>Paper Presentation 20%</p> <p>Project Plan 20%</p> <p>Report Presentation 60%</p>	
References 參考書目		
Contact with Teacher 老師聯絡資訊	chaoyang@nfu.edu.tw	
Course Outline 課程進度		
	<ol style="list-style-type: none"> 1. Course Introduction 2. Introduction to Deep learning 3. Deep feedforward network, convolutional network 4. Convolutional Neural Network 5. Recurrent neural network, combining CNN and LSTM 6. Self-Driving Drones, Deep learning for autonomous Driving Drones 	

<ul style="list-style-type: none"> 7. Analytics for autonomous driving with ROS 8. Challenges of Deep learning in the automotive Industry and Autonomous Driving 9. Deep learning basics Introduction and overviews with Tensorflow 10. End-to-End Machine learning stacks 11. Generalizable Autonomy in Robotics 12. Deep Reinforcements learning 13. Paper Presentation 14. Paper Presentation 15. Student project plan 16. Student project plan 17. Student report demo 18. Student report demo 	
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, <i>Theory of Vibration - Volume I: An Introduction</i> , Springer-Verlag, New York.
Grading 評量方式	Quiz, Mid-term Examination, Final Examination, and Final Project.
References 參考書目	<ul style="list-style-type: none"> 1. Meirovitch L., 1987, <i>Element of Vibration Analysis</i>, 2nd edition, McGraw-Hill Book Company, New York. 2. Inman D. J., 1994, <i>Engineering Vibration</i>, 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	Advance SOC FPGA System Integration with Machine Learning (高等 FPGA 系統設計與實務)
Course Description 課程概述	This course is designed for graduate students who are interested in advanced SoC FPGA design concepts, design methodology, and basic concept of Machine Learning. In the meantime, several Labs about the Xilinx PYNQ tutorials related to AI and Machine Learning will be demonstrated. After that, several lectures with the related topics to OpenCL FPGA tutorials will be given. Of course, we will select some state-the-art researches for computational efficient algorithm in FPGA/ARM implementation and these topics will be assigned as a small colloquium for students. At the end, graduate students shall present their final projects and its implementation on ZYNQ or PYNQ FPGA.
Course objective 課程目標	The objective of Advance SOC FPGA System Integration with Machine Learning is a guidance how 21's century SOC FPGA mythology could be applied to recent SoC FPGA platform, further leads to embedded system design at system level.
Competence 核心能力	
Prerequisite Course(s)	HDL Language (VHDL or Verilog) CPLD/FPGA Implantation

先修課程或先備能力	
Teaching Strategies 教學方法	Lectures and Labs
Course Material 課程教材	<ul style="list-style-type: none"> ● Power Point Slides ● FPGA labs ● PYNQ Labs ● Machine Learning Labs
Grading 評量方式	Home work assignments 20% Mid-term Presentation 20% Implementation 30% Presentation 10% Term 20%
References 參考書目	<ul style="list-style-type: none"> ● Kastner R., Matai J. and Neuendorffer S. “Parallel Programming for FPGAs”, Kastner Research Group 2018 ● The Zynq Book, http://www.zynqbook.com/ 2018. ● S. Palnitkar, “Verilog HDL: A Guide to Digital Design and Synthesis”, Prentice Hall, 2003, Second Edition
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. Introduction of SoC FPGA 2. Introduction of Machine Learning 3. Xilinx PYNQ Labs 4. Colloquium and Mid-Report 5. OpenCL@SDSOC 6. Colloquium 7. Final-Project and Presentation	
Remarks 備註	

Courses taught in English

Course title 課程名稱	4G/5G Mobile Broadband Collaborative Network
Course Description 課程概述	This course is designed for graduate students who are interested in 4G and 5G mobile broadband networks. The students will know the fundamental of 4G/5G mobile network and network collaborative access technology. Moreover, several labs about 5G-like technologies by using SDR (Software Defined Radio) are included in this course, such as small base station establishment, mobile collaborative network, etc. The students will obtain the skills of 4G/5G mobile network implementation and measurement analysis. Finally, the students will discuss and present their final projects.

Course objective 課程目標	<ol style="list-style-type: none"> Let students to have the fundamental of 4G/5G mobile network and network collaborative access technology. Train students to have the skills of 4G/5G mobile network implementation and measurement analysis. 	
Competence 核心能力		
Prerequisite Course(s) 先修課程或先備能力		
Teaching Strategies 教學方法	Lectures and Labs	
Course Material 課程教材	The course materials of the Ministry of Education - 4G/5G mobile broadband collaborative network.	
Grading 評量方式	<ol style="list-style-type: none"> Attendance: 10% Lab reports: 40% Mid-term exam: 20% Final project: 30% 	
References 參考書目		
Contact with Teacher 老師聯絡資訊	+886-5-6315619 hksu@nfu.edu.tw Prof. Hui-Kai Su	
Course Outline 課程進度		
<ol style="list-style-type: none"> Introduction to 5G Mobile Network LTE-A System Architecture 5G System Architecture: NSA and SA Dual Connectivity (DC) Technology Service-Based Architecture (SBA) Technology Network Cooperative Access Technology Open-Source Mobile Communication and 5G Simulation Platform Final Project and Report 		
Remarks 備註		

Courses taught in English

Course title 課程名稱	Science and Technology English (科技英文)
Course Description 課程概述	The main idea of this course is to help students for oral presentation about engineering topics, especially for EE background. Besides, the practices of interview with foreign companies, conference call meetings, self-introduction, and skills of cooperate with foreigners are covered.
Course objective 課程目標	<ol style="list-style-type: none"> Students can have a short talk for engineering topics in English freely. Students can communicate with exchanged students in English easily. Student can hold and join a group meeting in English.

Competence 核心能力	Speaking and listening abilities are expected
Prerequisite Course(s) 先修課程或先備能力	1. Basic English grammar and vocabulary are required. 2. "Speaking without fear" is the key factor and basic criterion for the lesson.
Teaching Strategies 教學方法	1. Group discussion(小組討論) 2. Learn by practices(實作練習) 3. Didactic Teaching(講述式教學) 4. Team Teaching(協同教學)
Course Material 課程教材	1. Journal papers from website 2. ICRT radio station 3. Textbook
Grading 評量方式	1. 60% Participation, personal speaking practice, and group involving level 2. 20% Assignments 3. 20% Final Projects
References 參考書目	英語簡報演說技巧 English Public Speaking and Presentation ISBN : 9789575324834
Contact with Teacher 老師聯絡資訊	e-mail:stwu@nfu.edu.tw Phone:05-631-5613
Course Outline 課程進度	
1. Reading skills for international science journals 2. Browsing skills for international science websites 3. Simulations of poster for international conferences 4. Freestyle oral speaking practice 5. Native/Non-native speakers' listening practices 6. Simulation of industrial group meeting with speaking and listening skills 7. Simulation of industrial conference calls with speaking and listening skills 8. Self introduction 9. Interview skills for applying jobs in foreign industries 10. Connection with foreign exchanged students. Information delivering with speaking and drawing. 11. Final project <u>The schedule above is adjustable with the studying progress.</u> <u>Course Rules need to obey</u> 1. Smart phones and laptops are available for vocabularies searching in class. Gaming is NOT ALLOWED in class. 2. Students need to be humble for other's corrections in class. Also, they have to speak without any fears. The course is suitable for students with engineering back ground only (this course is also suitable for graduated students).	
Remarks 備註	

Courses taught in English

Course title 課程名稱	The 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	Financial Program Trading (財金程式交易)	
Course Description 課程概述	This course introduces accessing financial data, machine learning techniques and algorithms that can be used to build and train algorithmic models. Students will be able to adopt algorithmic trading to implement smart investing strategies.	
Course objective 課程目標	The objective of this course is to apply available and diverse data in algorithmic trading strategies. Through backtesting these developed strategies, students will apply them to virtual trading.	
Competence 核心能力	Programming	
Prerequisite Course(s) 先修課程或先備能力	None	
Teaching Strategies 教學方法	Lecture, practice, quiz, assignments, homework, projects, exams	
Course Material 課程教材	Handouts, some online material	
Grading 評量方式	Mid-term exam 30%, Final exam & projects 40%, participation, quiz, assignments 30%	
References 參考書目	Python for Algorithmic Trading	
Contact with Teacher 老師聯絡資訊	ftsai@nfu.edu.tw	
Course Outline 課程進度		
	<ul style="list-style-type: none"> ● Set up a proper Python environment for algorithmic trading ● Learn how to retrieve financial data from public and proprietary data sources ● Explore vectorization for financial analytics with NumPy and pandas ● Master vectorized backtesting of different algorithmic trading strategies ● Generate market predictions by using machine learning and deep learning ● Tackle real-time processing of streaming data with socket programming tools ● Implement automated algorithmic trading strategies 	
Remarks 備註		

Courses taught in English

Course title 課程名稱	Financial econometrics (財金計量)	
Course Description 課程概述	<p>Financial Econometrics is a one-semester course taught to the first year students of the NFU Master programme in financial management. Particularly, this course is designed to international students who'd like to study the essential knowledge and tools for working with financial data, including the return forecasting, volatility and econometrics of asset pricing,</p> <p>such as testing the market models. This course focuses on the empirical techniques which are mostly used in the analysis of financial markets and how they are applied to actual data.</p> <p>The course starts with the overview of financial data. It covers the event-study methodology, and continues with testing market models and factor models. We then proceed to analyze return predictability, volatility effects of the market data (asymmetric GARCH), and market interdependence. A special attention is paid to nonlinear models, from basic threshold formulations to more advanced techniques like Markov switching model and Kalman filter. All the models are accompanied with real-data examples in standard computer packages.</p>	
Course objective 課程目標	<ol style="list-style-type: none"> 1. Understand how to analyze financial data properly. 2. Understand how to apply software to perform a analysis 	
Competence 核心能力	Data analysis and explanation	
Prerequisite Course(s) 先修課程或先備能力	Statistics	
Teaching Strategies 教學方法	Taught-based course with a term project by using real financial data from TEJ	
Course Material 課程教材	Tsay, R. (2010) Analysis of financial time series, Cambridge, Mass. Wiley.	
Grading 評量方式	Assignmnet, Course attendance and participation 30% Midterm report: 30% Term project and presentation: 40%	
References 參考書目	Enders, W. (2010) Applied econometric time series, Hoboken, NJ :Wiley.	
Contact with Teacher 老師聯絡資訊	jywang@nfu.edu.tw	
Course Outline 課程進度		
1. Financial Time Series and Their Characteristics (2 weeks) How to obtain the data from database, and how		

<p>to identify the goodness of the data.</p> <p>2. Linear Time Series Analysis and Its Applications (2 weeks) To understand how to examine the features of time series data, and identify the stationarity of the financial data.</p> <p>3. How to use Eviews in basic analysis (2 weeks) Application of empirical data by using Eviews.</p> <p>4. Conditional Heteroscedastic Models (3-4 weeks) Introduction of ARCH and GARCH-related models is presented in the weeks, and software application of the models are shown.</p> <p>5. Assignment and test (1 week)</p> <p>6. High-frequency data analysis and market microstructure (2 weeks) Introduction of high-frequency data and how to wash the data are exhibited.</p> <p>7. Multivariate Time Series Analysis and Its Applications (2 weeks)</p> <p>8. Markov Chain Monte Carlo Methods with Applications (2 weeks) Why do we need to apply markov switching model in the empirical data? How do we use it to explain the real financial data?</p> <p>9. Extreme value theory and risk management (2 weeks) The insight of extreme value theory. The application of extreme value to risk management.</p> <p>10. Final project and presentation</p>	
<p>Remarks 備註</p>	

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	<ol style="list-style-type: none"> 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		
<p>(Part 1: week 1 to week 9)</p> <ol style="list-style-type: none"> 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 Generalized assignment problem Quadratic assignment problem 3. Set Covering Problem Mathematical model Applications <p>(Part 2: week 10 to week 18)</p>	<ol style="list-style-type: none"> 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 Math programming model & methods: Kilbridge & Wester Ranked positional weight method Reversed ranked positional weight method COMSOAL Genetic algorithm 	

Remarks 備註	
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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	

Courses taught in English

Course title 課程名稱	Production Management and Practice (生產管理與實務)
Course Description 課程概述	This course introduces students to Production Management with the emphasis on analytical methods and the use of computerized tools.
Course objective 課程目標	<ol style="list-style-type: none"> 1. To understand the theoretical basis and basic concepts of Production Management 2. To be familiar with the analytical methods and their applications in the realm of products and services
Competence 核心能力	<ul style="list-style-type: none"> ● Practical skill set for the job of Production Management ● Good command of computerized tools
Prerequisite Course(s) 先修課程或先備能力	None
Teaching Strategies 教學方法	<ol style="list-style-type: none"> 1. Lecturing and discussion 2. Utilization of computerized tools 3. Student presentation and discussion of assigned cases, readings and problems
Course Material 課程教材	Operations Management, 13 rd ed., William J. Stevenson, McGraw Hill
Grading 評量方式	<ul style="list-style-type: none"> ● Midterm exam: 40% ● Presentation: 45% ● Participation: 15%
References 參考書目	None
Contact with Teacher 老師聯絡資訊	yinglienlee@gmail.com
Course Outline 課程進度	

<ul style="list-style-type: none"> ● Chapter 1 Introduction to Operations Management ● Chapter 2 Competitiveness, Strategy, and Productivity ● Chapter 3 Forecasting ● Chapter 5 Strategic Capacity Planning for Products and Services ● Chapter 6 Process Selection and Facility Layout 	<ul style="list-style-type: none"> ● Chapter 8 Location Planning and Analysis ● Chapter 11 Aggregate Planning and Master Scheduling ● Chapter 12 MRP and ERP ● Chapter 13 Inventory Management ● Chapter 16 Scheduling
Remarks 備註	

Courses taught in English

Course title 課程名稱	Applied Statistics (應用統計學)
Course Description 課程概述	1. Introduction of statistical theory. 2. Computer software coding.
Course objective 課程目標	Application of statistical models for solving management problems.
Competence 核心能力	Statistical models and computer coding.
Prerequisite Course(s) 先修課程或先備能力	None.
Teaching Strategies 教學方法	Lecture and computer software application.
Course Material 課程教材	Probability and Statistics with Integrated Software Routines by Deep, Ronald. ISBN: 9780080480381
Grading 評量方式	Homework assignment 30%, Mid-term exam. 30%, Final exam. 40%
References 參考書目	Mathematical statistics with applications by Wackerly, Mendenall and Scheaffer.
Contact with Teacher 老師聯絡資訊	Email:jphuagn@nfu.edu.tw Tel:05-6315714

Course Outline 課程進度	
1. Coding on Excel. 2. Statistical estimation. 3. Statistical tests. Mid-term exam. 4. Analysis of Variance. 5. Chi-squares tests. 6. Regression models. 7. Data clustering. Final exam.	
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	<p>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.</p> <p>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.</p>
Course objective 課程目標	<p>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.</p>
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	<ul style="list-style-type: none"> • 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 exam20% Final Project30% Final Exam20%
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, <i>Investment Madness</i> , 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, <i>Behavioral Finance: Insight into irrational Minds and Markets</i> , 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	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	

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

Courses taught in English

Course title 課程名稱	Information Management (資訊管理)
Course Description 課程概述	<p>a. IT/IS and strategic advantage- strategy formulation for IT/IS; conceptual models for identifying strategic IT/IS opportunities and applications, e.g. stage hypotheses, applications portfolio, strategic grid, critical success factors.</p> <p>b. Analysis and review of some major decisions to be taken with regard to deployment of IS/IT resources- e.g. rightsizing, end-user computing, outsourcing, business process re-engineering.</p> <p>c. Management of IT/IS investment- issues related to information value and IT/IS value; management if IT/IS costs and benefits; review of traditional and recent investment appraisal techniques; risk in IT/IS projects.</p> <p>d. Structure and control of IT/IS activities- location in the organization; organization of the IS/IT department; steering committees; IT/IS director; spending patterns; appraisal of IS/IT projects; responsibility accounting for IT/IS projects.</p>
Course objective 課程目標	<p>a. To enable perception of why, where and how information technology/systems should be linked with formulation of business strategy.</p> <p>b. To examine from the strategic perspective the organization, control, monitoring and evaluation of information technology/systems activities.</p> <p>c. To understand the main issues concerned with the economics aspects of information technology/systems.</p>
Competence 核心能力	
Prerequisite Course(s) 先修課程或先備能力	
Teaching Strategies 教學方法	Oral presentation, case discussion
Course Material 課程教材	Business Driven Information Systems, the fifth edition
Grading 評量方式	<p>Presentation 40%</p> <p>Participation and Discussion 20%</p> <p>mid-exam/report 20%</p>

	final-exam/report 20%
References 參考書目	
Contact with Teacher 老師聯絡資訊	lgcwow@gmail.com
Course Outline 課程進度	
Foundation Concepts	Foundations of Information systems in business competing with information technology information technology
information technology	computer hardware computer software data resource management telecommunications and networks
business applications	e-business system enterprise business system electronic commerce systems decision support systems
development process	developing business/IT strategies developing business/IT solutions
Management Challenges	security and ethical challenges enterprise and global management of information technology
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	<ul style="list-style-type: none"> • 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	<p>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:</p> <ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Planning and development of a design programme 2. 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	<ol style="list-style-type: none"> 1. Design Research Methods 2. Project Discussions (I)
Teaching Strategies 教學方法	Oral presentations and interactive discussions

<p>Course Material 課程教材</p>	<p>Teacher's prepared materials</p>
<p>Grading 評量方式</p>	<ol style="list-style-type: none"> 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 <i>not</i> 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. <i>Cheating will not be excused</i> 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.
<p>References 參考書目</p>	
<p>Contact with Teacher 老師聯絡資訊</p>	<p>My research office is located in A&H building 5TH Floor. Office telephone: 05-631-5878 Email: stshen@nfu.edu.tw</p>
<p>Course Outline 課程進度</p>	
<p>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</p>	<p>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</p>

Week 9 Mid Term Exam	
Remarks 備註	

Courses taught in English

Course title 課程名稱	Research in Interactive Media and Innovation (互動媒體與創新設計研究)
Course Description 課程概述	1.Doing research and discussion on the new media application. 2.Learning design thinking approach 3.To explore and find out the possibilities of new media application for innovation
Course objective 課程目標	On completion of this course according to course goals, the student should be able to: 1.Doing research and discussion on new media application. 2.Learning design thinking approach 3.To explore and find out the possibilities of new media application for innovation
Competence 核心能力	Digital Technology 數位技術 Communication and Integration 溝通整合
Prerequisite Course(s) 先修課程或先備能力	Basic capabilities: Design authoring tool
Teaching Strategies 教學方法	Lecture, paper discussion and project practice
Course Material 課程教材	Design & Thinking 設計與思考 2018-5 Publisher: Basic Books
Grading 評量方式	Assessments:: 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)

	平時：40% 期中報告：30% 期末報告：30%
References 參考書目	
Contact with Teacher 老師聯絡資訊	whcheng@nfu.edu.tw
Course Outline 課程進度	
Week 1: Syllabus and brief introduction to new media Week 2: Discussion for new media and related technology terminology Week 3: Doing research and discussion on the new media application. Week 4: Paper reading: visual communication Week 5: Paper reading: interaction design and psychology Week 6: Discussion theory of design thinking approach Week 7: Mid-term: Presentation for Case study Week 8: Mid-term: Presentation for Case study Week 9: Mid-term: Presentation for Case study Week 10: Discussion theory of design thinking approach Week 11: To explore and find out the possibilities of new media application for innovation Week 12: Donald Norman theory: good design Week 13: Donald Norman theory: bad design Week 14: To do research on the new media application for arts, products or any possibility application Week 15: To do research on the new media application for arts, products or any possibility application Week 16: Final exam: Case study practice Week 17: Final exam: Case study practice Week 18: Final exam: Case study practice	
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		
	<ol style="list-style-type: none"> 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	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 (機器學習與大數據)	
Course Description 課程概述	The course will discuss recent applications of machine learning, such as to robotic control, data mining, autonomous navigation, speech recognition, and text and web data processing.	
Course objective 課程目標	Help students obtain the skills of: 1. Processing of Big Data 2. Ability to adopt algorithms, such as linear regression, decision trees, neural network, etc.	
Competence 核心能力	Data processing, Algorithms	
Prerequisite Course(s) 先修課程或先備能力	Knowledge of basic computer science principles and skills, at a level sufficient to write a reasonably non-trivial computer program.	
Teaching Strategies 教學方法	Instructor introduces the concepts and provides some workshop for students.	
Course Material 課程教材	Data Science from Scratch, Joel Grus, O'Reilly	
Grading 評量方式	Attendance 20%, Workshop 20%, Midterm exam 30%, Final-term project 30%	
References 參考書目		
Contact with Teacher 老師聯絡資訊	05-6315742 drhu@nfu.edu.tw	
Course Outline 課程進度		
Big Data • Data Source • Data Quality • Data Integration • Open Data • Data Modeling Machine Learning	<ul style="list-style-type: none"> • Python fundamental • Visualizing Data • k_-Nearest Neighbors • Linear Regression • Decision Trees • Neural Networks • Clustering 	
Remarks 備註		

Courses taught in English

<p>Course title 課程名稱</p>	<p>Web Technology Application and Integration (Web 技術應用與整合)</p>
<p>Course Description 課程概述</p>	<p>The Application and Integration of Web Technology course is designed to prepare students for professional web design work. The class will be a mix of not only theoretical and soft skills, but also practical back-end techniques in web design. Upon completion of this course, students should have a thorough knowledge of all areas of web page design. Topic of back-end techniques includes building IIS web servers, ASP.NET scripting language, and MSSQL database. By the end of this course, students should have a solid understanding of the web design industry and modern web design techniques.</p>
<p>Course objective 課程目標</p>	<p>This course presents the process of designing and developing web sites from conception through the publication. Students gain valuable hands-on lab experience using web authoring software. The objectives of course are as follows:</p> <ol style="list-style-type: none"> 1. Integrating HTML5 and CSS3 with ASP.NET MVC into web page design 2. Understanding computer programming languages using C# 3. Advanced use of jQuery, HTML5, and CSS3 effectively to create interactive and dynamic websites 4. Building responsive web pages with Bootstrap 4 5. Integrating client-side and server-side scripting into a website 6. Understanding of the framework of ASP.NET MVC in site development
<p>Competence 核心能力</p>	<ol style="list-style-type: none"> 1. Logical Thinking and Analysis Competency : 8 point 2. Problem Solving Competency : 8 point 3. Information System Application and Integration Competency : 9 point 4. Internationalization and Foreign Language Competency : 9 point
<p>Prerequisite Course(s) 先修課程或先備能力</p>	<p>We strongly suggest that students should have a basic working knowledge of HTML5 and CSS3 coding as well as RWD web design.</p>
<p>Teaching Strategies</p>	<p>Material for this course will be presented using multiple teaching</p>

教學方法	approaches, including lecture and discussion, exploration and inquiry, field experiences, cooperative group work, and demonstrations.
Course Material 課程教材	<p>Title: ASP.NET MVC 5 with Bootstrap and Knockout.js</p> <p>Publisher: O'Reilly Media, Inc.</p> <p>ISBN: 978-1-78839 -731-</p> <p>Author: Jamie Munro</p>
Grading 評量方式	<p>Students are evaluated on the basis of their timely and effective completion of homework assignments and projects. The detailed items are summarized as follows:</p> <ol style="list-style-type: none"> 1. Class Participation* 30% 2. Project 30% 3. Homework 40% <p>*Participation includes: presence in class (chat, responses to questions, actively engaged, etc.), attendance, and Discussion Board activity (postings and comments).</p>
References 參考書目	<ul style="list-style-type: none"> ● HTML5 & CSS3 Visual QuickStart Guide (7th Edition) by Elizabeth Castro, Bruce Hyslop ONLINE VERSION ● Bootstrap By Example by Silvio Moreto ● Learning Bootstrap 4 by Matt Lambert
Contact with Teacher 老師聯絡資訊	<p>Yu-Feng Lan</p> <p>Email: yflan@nfu.edu.tw</p> <p>Office: C-MA-0912</p> <p>Office Phone: 05-6315745</p>
Course Outline 課程進度	
<ol style="list-style-type: none"> 1. Introduction to MVC 2. Introduction to Bootstrap 3. Introduction to Knockout.js 4. Working with a Database 	<ol style="list-style-type: none"> 9. URL Routing Using Attributes 10. Fat Model, Skinny Controller 11. Building a Shopping Cart 12. Building the Data Model

5. Listing, Sorting and Paging Through Tables 6. Working with Forms 7. Server-Side ViewModels 8. Introduction to Web API	13. Implementing the Layout 14. Lists of Books 15. Adding Items to the Cart 16. Project and team group discussion
Remarks 備註	