②國玄東華大學

教學計劃表 Syllabus

The Syllabas							
課程名稱(中文) Course Name in Chinese					學年/學期 Academic Year/Se	mester	113/1
課程名稱(英文) Course Name in English	Metallic Materials					•	
科目代碼 Course Code	M\$30400	系級 Department & Year			開課單位 Course-Offering Department		
修別 Type	Program	學分數/時間 Credit(s)/Hour(s)		3.0/3.0			
授課教師 Instructor	/						
先修課程 Prerequisite							
課程描述 Course Description							

課程描述 Course Description

This course aims to offer students with knowledge of the metallurgy of steel alloys, stainless steels, aluminum, magnesium, titanium alloys and nickel supper alloys. The contents also include material heat treatment, fabrication and major applications to give a more comprehensive coverage of the subject. Microstructure/property relationships and the role of the individual alloying elements will also be introduced in this course.

Course Objectives 課程目標

Introduction to the types, processes and basic properties of metal materials.

	系專業能力 Basic Learning Outcomes	課程目標與系專業能 力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
А	Acquire required basic physical, chemical, and mathematic knowledge for materials science and engineering.	
В	Acquire required professional knowledge for materials science and engineering, applicable in solving engineering problems.	
С	Equipped with capabilities of logic thinking, execution of experiment, and data interpretation.	
D	Acquire professional morality and responsibility, and capability of quality communication and team cooperation	
E	Acquire English capability used for learning and interaction.	

圖示說明Illustration : ● 高度相關 Highly correlated ○中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	Introduction	
2	Carbon and alloy steels	
3	Stainless steels (I)	
4	Stainless steels (II)	

5	Aluminum alloys (I)	
6	Aluminum alloys (II)	
7	Magnesi um al I oys	
8	Ti tani um al I oy	
9	Ml dt er m Exam	
10	Nickel & Super Alloys (I)	
11	Nickel & Super Alloys (II)	
12	Mechanical metallurgy (I)	
13	Mechanical metallurgy (II)	
14	Metal joining (I)	
15	Metal joining (II)	
16	Metal forming	
17	Metal Extrusion	
18	Fi nal Exam	
	教 學 策 略 Teaching Strategies	
✓	Lecture Group Discussion	Field Trip
M1:	scel I aneous:	
	教學創新自評Teaching Self-Evaluation	
(nnovati ve Teachi ng)	
<u> </u>	(PBL) (TBL)	(SBL)
		(JDL)
	Flipped Classroom Mocs	(JUL)
	Flipped Classroom Moocs Social Responsibility)	(JDL)
(Flipped Classroom Moocs Social Responsibility) Community Practice Industy-Academia Cooperati	
	Social Responsibility)	
	Social Responsibility) Community Practice Industy-Academia Cooperati	on
	Social Responsibility) Community Practice Industy-Academia Cooperati Transdisciplinary Projects)	on
	Social Responsibility) Community Practice Industy-Academia Cooperati Transdisciplinary Projects) Transdisciplinary Teaching Inter-collegiate Teaching	on
	Community Practice Industy-Academia Cooperati Transdisciplinary Projects) Transdisciplinary Teaching Inter-collegiate Teaching Courses Co-taught with Industry Practitioners	on

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	多元評量方式 Assessments								
Items	配分比例 Percentage	測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
() General Performance (Attendance Record)	15%		~						
Midterm Exam	30%			~					
Fi nal Exam	30%	~							
Homework and/or Assignments	15%		~						
Miscel I aneous	10%		~						

評量方式補充說明

Grading & Assessments Supplemental instructions

教科書與參考書目(書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

- 1. W.F. Smith, Structure and Properties of Engineering Alloys, McGraw Hill, 1993.
- 2 Ian Polmear, Light Alloys: Metallurgy of the Light Metals, Butterworth-Heinemann; 3 edition, 1995.
- 3. Gary S. Was, Fundamentals of Radiation Materials Science: Metals and Alloys, Springer, 2007.

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.

Personal website can be listed here.)

https://meet.google.com/dej-kmfq-qcr

其他補充說明(Supplemental instructions)