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②國玄東華大學

教學計劃表 Syllabus

	教与	产計劃表	Sy.	118	abus			
課程名稱(中文) Course Name in Chinese	熱物理學AB				學年/學期 Academic Year/Semester		114/1	
課程名稱(英文) Course Name in English	Thermal Physics							
科目代碼 Course Code	PHYS3040AB	系級 Department 學三 & Year		開課單位 Course-Offering Department		物理學系		
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)			3.0/3.0			
授課教師 Instructor	/張俊明							
先修課程 Prerequisite								
課程描述 Course Description								
Introduction of classical thermodynamics								
Introduction of the laws of thermodynamics								

Introduction of the laws of thermodynamics

Introduction of the consequences and applications of the laws of thermodynamics

課程目標 Course Objectives

從溫度、熱量等基本物理觀念出發,由實驗事實及工程經驗建立起之熱力學諸定律和理論架構,介紹熱力學在物理、化學及工程上的應用。

	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
A	具備物理之基礎背景知識Possessing fundamental knowledge in physical sciences.	•
В	能運用基本物理知識與邏輯推理,分析解決物理問題Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.	•
С	對目前測量器材有基礎認識,且具有操作物理實驗儀器的能力Being acquainted with modern equipment and being able to operate them for performing physics experiments.	
D	能使用基礎電腦程式語言解決物理問題Being able to use basic computer programming for solving physics problems.	
Е	善用各種資訊平台進行論文資料蒐集的能力Being able to use various platforms for data collection benefiting a topical research.	
F	具備科技發展的國際視野以及外語溝通的能力Having an international view of the technology developments and being able to use a foreign language for communications	
G	能整合物理與其它領域知識Being able to integrate the knowledge of physics with that of other fields.	

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 & Preparation	
2	Introduction & Zeroth law of thermodynamics (Chapter 1)	
3	Equation of State (Chapter 2)	
4	First law of thermodynamics (Chapter 3)	

5	中秋節+國慶日 放假						
6	Application & Consequences of the First law (Chapter 4&5)						
7	Application & Consequences of the First law (Chapter 4&5)						
8	Second law of thermodynamics (Chapter 6)						
9	期中考試週 Midterm Exam TEST & REVIEW						
10	熱物理學期中考						
11	Applications of Second law (Chapter 7)						
12	Thermodynamic Potentials (Chapter 8)						
13	Thermodynamic Potentials (Chapter 8)						
14	4 Chemical potential and Open systems (Chapter 9)						
15	TEST & REVIEW						
16	FINAL EXAM of Thermodynamics 熱物理學期末考						
17	學校期末考試週						
18							
	教學策略 Teaching Strategies						
✓ 課堂講授 Lecture 分組討論Group Discussion 參觀實習 Field Trip							
其他Mis	其他Miscellaneous:						
	教 學 創 新 自 評 Teaching Self-Evaluation						
創新教學(創新教學(Innovative Teaching)						
問題導向學習(PBL) ■ 團體合作學習(TBL) ■ 解決導向學習(SBL)							
翻轉教室 Flipped Classroom							
社會責任(Social Responsibility)							
在地實踐Community Practice							
跨域合作(Transdisciplinary Projects)							
■ 跨界教學Transdisciplinary Teaching ■ 跨院系教學Inter-collegiate Teaching							
業師合授 Courses Co-taught with Industry Practitioners							
其它 other:							

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	配分項目 配分比例 多元評量方式 Assessments					nts			
Items	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
平時成績(含出缺席) General Performance (Attendance Record)									
期中考成績 Midterm Exam	35%	>							
期末考成績 Final Exam	35%	>							
作業成績 Homework and/or Assignments	30%	>							
其他 Miscellaneous									

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.)

Textbook: "Classical and Statistical Thermodynamics" (An Adapted Version), Ashley H. Carter (Prentice Hall).

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.)

東華e學苑

其他補充說明(Supplemental instructions)