



教學計劃表 Syllabus

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| 課程名稱(中文) Course Name in Chinese | 計算材料科學 | | 學年/學期 Academic Year/Semester | 112/1 |
| 課程名稱(英文) Course Name in English | Calculation in material science | | | |
| 科目代碼 Course Code | MS_D0040 | 系級 Department & Year | 博士 | 開課單位 Course-Offering Department |
| 材料科學與工程學系 | | | | |
| 修別 Type | 選修 Elective | 學分數/時間 Credit(s)/Hour(s) | 3.0/3.0 | |
| 授課教師 Instructor | /紀渥德 | | | |
| 先修課程 Prerequisite | | | | |
| 課程描述 Course Description | | | | |
| The course will teach students how to use MatLab package in academic work. Students will learn the basic knowledge of numerical solutions of different kind of problems | | | | |
| 課程目標 Course Objectives | | | | |
| to help students understand connections between Gibbs energy and phase diagrams and to help them understand thermodynamics of 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 |
| A | 具備材料科學所需的進階物理、化學及數學的知識。Acquire required advanced physical, chemical, and mathematic knowledge for materials science and engineering. | | | ○ |
| B | 具備材料科學的進階專業知識，並能應用於解決工程上之問題。Acquire required advanced professional knowledge for materials science and engineering, applicable in solving engineering problems. | | | ● |
| C | 具備獨立研究之能力。Equipped with capabilities of independent research. | | | ● |
| D | 具備專業道德及責任感，與良好的溝通及團隊合作的能力。Acquire professional morality and responsibility, and capability of quality communication and team cooperation. | | | ○ |
| E | 具備適當的英文能力，應用於學習與交流。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 | MatLab - introduction | | | |
| 2 | Variables, equations, editing data | | | |
| 3 | Working with files in Matlab | | | |
| 4 | Matrix calculations part 1 | | | |
| 5 | Matrix calculation part 2 | | | |
| 6 | Matrix calculation part 3 | | | |

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|----|------------------------------|--|
| 7 | ODE in Matlab part 1 | |
| 8 | ODE in Matlab part 2 | |
| 9 | 期中考試週 Midterm Exam | |
| 10 | Programming in Matlab part 1 | |
| 11 | Programming in Matlab part | |
| 12 | Programming in Matlab part | |
| 13 | Programming in Matlab part 4 | |
| 14 | Simulations in Matlab part 1 | |
| 15 | Simulations in Matlab part 1 | |
| 16 | Simulations in Matlab part 1 | |
| 17 | Simulations in Matlab part 1 | |
| 18 | 期末考試週 Final Exam | |

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 Miscellaneous: Compyrer laboratory

教學創新自評 Teaching Self-Evaluation

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
 磨課師 Moocs

社會責任 (Social Responsibility)

- 在地實踐 Community Practice
 產學合作 Industry-Academia Cooperation

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 Items | 配分比例 Percentage | 多元評量方式 Assessments | | | | | | | |
|-------------------------------------|--------------------|--------------------|----------|----------|----------|----------|----------|----------|----|
| | | 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 General Performance | 30% | | ✓ | | | | | | |
| 期中考成績 Midterm Exam | 10% | ✓ | | | | | | | |
| 期末考成績 Final Exam | 30% | ✓ | | | | | | | |
| 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.)

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.)

Teaching materials available on a school's website

其他補充說明 (Supplemental instructions)