國立東華大學

課　綱　Course Outline
材料科學與工程學系國際組

中文課程名稱 Course Name in Chinese	陶瓷材料				
英文課程名稱 Course Name in English	Ceramics				
科目代碼 Course Code	MS__D1130	班 別 Degree		博士班 Ph.D.	
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					

課程目標 Course Objectives
本課程主要是把陶瓷材料介紹給初學的學生，使初學者能夠了解陶瓷的性質及未來發展的重要性。 This course is designed to introduce ceramic materials to beginner students so that they can understand the nature of ceramics and the importance of their future development.

系教育目標 Dept.'s Education Objectives	
1	建立專業知識基礎 Set the professional knowledge foundation
2	培養專業實驗技能 Train the professional experimental skill
3	養成獨立研究能力 Insure capability of independent research
4	養成優質社會人格 Form the positive social character
5	開展國際視野 Develop global vision

	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	具備進階的英文能力，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

課程大綱
Course Outline

內容主要有陶瓷結構、陶瓷缺陷反應、反應動力學（如氧化反應）、陶瓷燒結反應、相變化、微結構、電磁與光性質等。The main topics are ceramic structures, ceramic defect reactions, reaction kinetics (e.g. oxidation reactions), ceramic sintering reactions, phase changes, microstructures, electromagnetic and optical properties, etc.

資源需求評估（師資專長之聘任、儀器設備的配合・・・等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

以具有所開課程專長之教師擔任授課；資料整理所需之電腦、影印機；討論所需之投影機、幻燈機等教學設備。Teachers with expertise in the courses offered; computers for data organization, copy machines, projectors.

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

以指定教材按預訂進度進行教學。教學以講授及討論為主，必要時以相關文獻資料加以補充。The course will be taught according to the scheduled of the assigned materials. Teaching is based on lectures and discussions, supplemented by relevant literature when necessary.

其他
Miscellaneous