國立台灣科技大學 114學年 第2學期　課程大綱

Spring 2026 NTUST Course Outline

授課教師：楊哲銘

Instructor:Che-Ming Yang

課程名稱：高等岩石力學

Course Title：Advanced Rock Mechanics

2026/11/3

課程代號：CT5610701 Course Code 學分數：3 Credits	必選修：選修/半學年 Required/Electve:Elective/Half Yr. 先修課程： Prerequisites
節次教室：F6(IB-602-1) F7(IB-602-1) F8(IB-602-1) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	大地工程遇到之地質材料不外土壤與岩石兩大類，本課程在幫助學生瞭解工程中遇到岩石時應瞭解之力學特性、重要之工程參數與測試、相關岩石工程之調查、分析與應用，另本課程為大地工程技師之考試科目。 The geological materials encountered in geotechnical engineering are mainly soil and rock. This course helps students understand the mechanical properties, important engineering parameters and tests, investigation, analysis and application of rock engineering when encountering rocks in engineering. In addition, this course is an examination subject for geotechnical engineers.
課程大綱： Outline of Lectures	概論、 岩體分類與岩石性質、 岩石強度與破壞準則、 岩體初始應力與量測、 岩體弱面(不連續面）、 立體投影之應用、 岩石力學在地下工程之應用、 岩石力學在岩坡工程之應用、 岩石力學在基礎工程之應用、 其他相關資料(數值分析)。 Introduction, Classification and Index Properties of Rocks, Rock Strength and Failure Criteria, Initial Stress in Rocks and Their Measurement, Planes of Weakness in Rocks, The Use of Stereographic Projection, Applications of Rock Mechanics in Engineering for Underground Openings, Applications of Rock Mechanics to Rock Slope Engineering, Applications of Rock Mechanics to rock Foundation, Other related materials (numerical analysis).
授課方式： Method of Instruction	講授 Lecture：40% 分組討論 Group discussion：20% 案例研討 Case study：20% 操做練習 Practical exercises：20% 講授 Lecture：%

教科書： Textbooks	Goodman, R. E. (1989) Introduction to rock mechanics (2nd Edition). New York: Wiley. 562p.
參考書目： References	Brady, B. H. G., and Brown, E.T. (2004) Rock mechanics for underground mining (3rd Edition). Chapman and Hall, London, 628p. Hoek and Bray, Rock Slope Engineering, 3 ed. Wyllie and Mah, Rock Slope Engineering, 4 ed. Hoek and Brown (1980), Underground Excavation in Rock. Hoek, Kaiser and Bawden (1995), Support of Underground Excavations in Hard Rock. Jaeger, Cook and Zimmerman (2007), Fundamentals of Rock Mechanics, 4 ed.
修課須知： Notice	
評量方式： Grading	期中考試 Midterm exam：30% 期末考試(書面或報告) Final exam or presentation：30% 小考、隨堂考 Quiz, QIC：20% 作業、學習態度、出席率 Homework, learning attitude, attendence：20% *作業自繳交期限為隔周上課前一天中午12:00前，僅接受遲交一周且分數x80%，遲交一周後不收 *Homework must be submitted by 12:00 noon the day (next Thursday) before the start of the following week. Late submissions of up to one week are only accepted and will receive a grade multiplied by 80%. Homework submitted more than one week late will not be accepted.
備註說明： Notes	