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：黃啟祐

Instructor:Chi-Yo Huang

課程名稱：研發與專案管理

Course Title：R&D and Project Management

2026/11/3

課程代號： MA5107701 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： Time/Location	M6(TR-812) M7(TR-812) M8(TR-812)
專業核心能力： Core Professional Competencies	□ 解決問題之能力(Problem Solving) □ 管理專業知識(Comprehensive management knowledge) □ 創新與創業能力(Innovation and Entrepreneurship)
課程網址： Course Website	
課程宗旨： Course Objectives	Research and development (R&D), the development and application of new scientific and engineering knowledge, has already become one of the most important corporate functions which accounted for a significant proportion of a firm's budget since new products and processes and enhance firms' competitive advantages. Modern R&D of products or processes usually involves huge resources so as to maximize performance with the minimum cost and time. To achieve the above-mentioned goals, R&D projects shall be managed appropriately. Therefore, what is R&D, how the new products should be designed and developed and how the R&D projects should be managed so as to achieve the best R&D and product/process performance with the lowest cost and time should be the essential skills for future managers of technology. Thus, the concepts of R&D, R&D management, new product design and development as well as project management and R&D project management will be introduced in the course for serving as a background for students' future R&D management related jobs in the high technology industry.
課程大綱： Outline of Lectures	1. Introduction 2. Product Development Process and Organization 3. Opportunity & Product Planning 4. Identifying Customer Needs 5. Product Specifications 6. Concept Generation, Selection, and Testing 7. Product Architecture 8. Industrial Design 9. DFM and Supply Chain 10. Prototyping 11. Patent and Intellectual Property 12. Product Development Economics 13. Project Management 14. Invited Talk (1) (*) 15. Invited Talk (2) (*) 16. Final Project Presentation Remark: (*) to be invited; the pace of the course may be adjusted according to students' comprehension.
	講授 Lecture：70%

授課方式： Method of Instruction	分組討論 Group discussion：0% 案例研討 Case study：30% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Text book: 1. Crawford, C. M., & Di Benedetto, C. A. (2021). New products management. McGraw-Hill/Irwin. 2. Ulrich, K. T., Eppinger, S. D., & Yang, M. C. (2026). Product design and development (8th ed.). McGraw-Hill Education.
參考書目： References	1. Betz, F. (2011). Managing technological innovation: Competitive advantage from change (3rd ed.). John Wiley & Sons. 2. Eversheim, W. (2008). Innovation management for technical products. Springer. 3. Jacobs, F. R., & Chase, R. B. (2023). Operations and supply chain management (16th ed.). McGraw-Hill. 4. Kerzner, H., & Kerzner, H. R. (2017). Project management: A systems approach to planning, scheduling, and controlling. John Wiley & Sons. (Please see remarks for rest references)
修課須知： Notice	5. Lewis, J. P. (2008). Mastering project management: Applying advanced concepts to systems thinking, control & evaluation, and resource allocation. McGraw-Hill. 6. Meredith, J. R., Mantel, S. J., Jr., & Shafer, S. M. (2016). Project management in practice (6th ed.). John Wiley & Sons. 7. Schilling, M. A. (2023). Strategic management of technological innovation (7th ed.). McGraw-Hill. 8. Trott, P. (2020). Innovation management and new product development (7th ed.). Pearson.
評量方式： Grading	Participation and class attendance: 20%. Case presentation and discussion: 30% Term Project: 50%. Unless it is impossible to ask for leave in advance due to force majeure, an absence will result in a 10-point deduction from the total score.
備註說明： Notes	N/A