

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：洪政煌

Instructor:Cheng-Huang Hun

課程名稱：網路流量模式與應用

Course Title : Network Flow Models and Applications

2026/6/22

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| 課程代號： MI5413701<br>Course Code   | 必選修：選修/半學年<br>Required/Electve:Elective/Half Yr.  |
| 學分數： 3<br>Credits  | 先修課程：<br>Prerequisites  |
| 節次教室： T6(TR-412-2) T7(TR-412-2) T8(TR-412-2)<br>Time/Location                                    |   |
| 專業核心能力：<br>Core Professional Competencies  |   |
| 課程網址：<br>Course Website  |   |
| 課程宗旨： Help students understand network flows models and their applications.<br>Course Objectives |   |
| 課程大綱：<br>Outline of Lectures   | This course will try to cover the following topics as many as possible. We will introduce the problems, solving algorithms, complexity analysis, and the corresponding applications.<br>1. The introductions and basic definitions of Network Flow Models<br>2. The shortest path problem<br>3. The maximum flow problem<br>4. The minimum cost flow problem<br>5. The assignment problem<br>6. Matching problem<br>7. The minimum spanning trees problem<br>8. Multi-commodity flows problem<br>9. The traveling salesman problems<br>10. Network design problem |
| 授課方式：<br>Method of Instruction   | 講授 Lecture：85%<br>分組討論 Group discussion：15%<br>案例研討 Case study：0%<br>操做練習 Practical exercises：0%<br>講授 Lecture：%  |
| 教科書：<br>Textbooks  | Network Folws–Theory, Algorithms, and Applications, R. K. Ahuja, T. L. Magnanti, J. B. Orlin, Prentice Hall, 1993.  |
| 參考書目：<br>References  | Network Folws–Theory, Algorithms, and Applications, R. K. Ahuja, T. L. Magnanti, J. B. Orlin, Prentice Hall, 1993.  |
| 修課須知：<br>Notice  |   |
| 評量方式：<br>Grading   |   |

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|---------------------------------------|-----|-----|
| 1. Class participation                |     | 10% |
| 2. Homework                           |     | 20% |
| 3. Midterm exam or presentation       | 35% |     |
| 4. Final exam (or Final paper report) | 35% |     |

備註說明： 具備基本作業研究及演算法及程式設計基礎為佳  
Notes Understanding the basic operations research, algorithms, and programming skill will be helpful.