# 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：楊成發

Instructor:Chang-Fa Yang

課程名稱：電磁學

Course Title：Electromagnetics

2026/11/3

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| 課程代號： EE3201301<br>Course Code<br>學分數： 3<br>Credits | 必選修：必修/半學年<br>Required/Electve:Required/Half Yr.<br>先修課程：<br>Prerequisites |
| 節次教室： F6(IB-305) F7(IB-305) R3(IB-305)<br>Time/Location | |
| 專業核心能力：<br>Core Professional Competencies | |
| 課程網址：<br>Course Website | |
| 課程宗旨：<br>Course Objectives | 電場理論，庫倫定律，高斯定律，電位能，電場能量與功，拉普勒斯方程式，邊界值問題，電容，靜磁場理論，直流電流，安培定律，磁場向量位能，磁場能量與功邊界值問題，電磁材料特性，電感，電磁感應，法拉第定律，電機原理，馬克思威爾方程式。<br>1. Understand the big ideas of electromagnetics, including:<br>Static and dynamic electromagnetic (EM) fields, energy, and power<br>EM fields and waves within and at the boundaries of media<br>EM radiation and propagation in space and within transmission lines<br>Circuit behavior of simple EM devices and transmission lines<br>EM forces on charges, currents, and materials; mechanically produced fields<br>Photon behavior<br>2.Exercise mathematical skills, including:<br>Vectors and phasors<br>Partial differential equations" |
| 課程大綱：<br>Outline of Lectures | 電場理論，庫倫定律，高斯定律，電位能，電場能量與功，拉普勒斯方程式，邊界值問題，電容，靜磁場理論，直流電流，安培定律，磁場向量位能，磁場能量與功邊界值問題，電磁材料特性，電感，電磁感應，法拉第定律，電機原理，馬克思威爾方程式。 |
| 授課方式：<br>Method of Instruction | 講授 Lecture：%<br>分組討論 Group discussion：%<br>案例研討 Case study：%<br>操做練習 Practical exercises：%<br>講授 Lecture：% |
| 教科書：<br>Textbooks | |
| 參考書目：<br>References | |
| 修課須知：<br>Notice | |
| 評量方式：<br>Grading | |

備註說明：
Notes